

Mode of Admission and Undergraduate Academic Performance: A Comparative Study in Delta State University

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Abstract This research investigated two modes of selection into the University. The intention was to find out which of them is more effective in ensuring that the best students are admitted. The two modes studied were the Joint admissions and Matriculation Board mode (JAMB) and the entrance examination by individual university mode, generally regarded as Continuing Education (C.E). The purpose was to predict the effects of the modes in terms of selection of the best students according to intellectual ability. It was an inferential study which adopted the two group comparison design; and was guided by six research hypotheses. Data was collected using first year first semester examination in five subject areas English Language, Modern Mathematics, Additional Mathematics, Physics and Accounts. The data collected was analysed using the t-test statistic. The results showed that the JAMB mode of selection was more effective compared to the C.E. mode. This result agrees with previous findings. The researcher recommended that the JAMB mode of admission be used exclusively for future admission exercise into Nigerian universities.

Keywords: selection, effectiveness, university, students, performance, intelligence test, prediction.

1. Introduction

1.1 Background of Study

The study investigated academic performance of students admitted into undergraduate studies through two modes of admission; the nationwide joint admission and admission by individual universities policies. The study was intended to find out the academic performance of students of these two groups, using the two different modes of admission. The intension was to assess which of the two modes of admission admitted students more adequately, according to students' intellectual ability, as reflected in the students' examination performance at the end of the first semester of the first year.

Before the introduction of the national policy on admission of students into Nigerian universities in 1977, universities conducted their admission of undergraduates using the School Certificate and its equivalent qualifications such as the London General Certificate of Education (GCE) and the West African General Certificate of Education, the Advanced Level General Certificate of Education and the Higher School Certificate. Since that year (1977), admission has been through the Joint Admissions and Matriculation Board (JAMB) taken nationwide. The JAMB admissions test is basically a test of intelligence. The structure of the test is "a 3 ½ hour multiple-choice intelligence test in four subjects, with a compulsory paper, the use of English; and test in three subjects of candidates' choice (JAMB Syllabus 2012). These four areas of intelligence tested by JAMB is guided by the various types of intelligence described by Sdorow (1995). Sdorow identified these as linguistic, logical, mathematical, spatial, musical, bodily kinaesthetic, intrapersonal, and interpersonal intelligence.

In the JAMB test, students who score 200 over 400 examination score were considered for admission, and those below 200 were not considered. It is this group not considered that usually enter the university through individual university entrance examination (C.E.). This mode of entry does not use test of intelligence such as the JAMB test. This is how universities admit into the same programmes students who did not take the JAMB examination. These two groups of students take the same lectures and use the same lecture materials; are given instruction by the same lecturers and instructors, take the same examination and are graded by the same examiners who are usually the same lecturers. In addition to these, the researcher established that the two group entry qualifications were comparable. There was no significant difference between the two groups when their entry qualifications were evaluated through a questionnaire. The age level of students in the two groups was similar and participants were both male and female each with adequate comparable representation (see questionnaire on participants' demography in appendix 1).

From this questionnaire, it is derived that of the 300 respondents, 279 entered the university between the age of 17 and 23 while 21 were admitted at age above 23 and below 17. Of these 279 entered with very superior entry grades to qualify, 156 with above average grades, while 87 entered with average grades. 98 had attempted JAMB intelligence test and got admitted, 117 twice, and 85 three times. 150 entered through JAMB while 150 entered through C.E. 269 had attempted JAMB before entry while 31 did not. Of the 300 respondents, 53 obtained JAMB scores above 300, 190 obtained scores between 200 and 299 while 57 obtained scores below 200 at the year of entry (See table 1 on Psychological and Demographic characteristics).

Table 1: Summary of Demographic data obtained from questionnaire in appendix I.

ITEM ONE:	(i)	Male Participants	150
	(ii)	Female Participants	150
ITEM TWO:	(iii)	Those who entered the University between age 17 and 23	279
	(iv)	Those who entered the University at above age 23 and below 17	21
ITEM THREE:	(v)	Entered the university with very superior grades	57
	(vi)	Entered with above average grades	156
	(vii)	Entered with average grades	87
ITEM FOUR:	(viii)	Attempted JAMB only once before entry	98
	(ix)	Attempted JAMB twice before entry	117
	(x)	Attempted JAMB more than twice	85
ITEM FIVE:	(xi)	Entered the University through JAMB	150
	(xii)	Entered the University through C.E. examination	150
ITEM SIX:	(xiii)	Number that attempted JAMB before entry	269
	(xiv)	Number that did not attempt JAMB at all	31
ITEM SEVEN:	(xv)	Obtained JAMB score above 300	53
	(xvi)	Obtained JAMB score between 200 and 299	190
	(xvii)	Obtained JAMB score below 200	57

This study wanted to find out the difference in performance of these two groups. The research wanted to see whether one mode of admission was more appropriate and adequate compared to the other mode: that is, admission through JAMB and admission without JAMB. JAMB is Joint Admissions and Matriculation Board. The intension was that the findings of the research would contribute to the process of making admission policies for the federated states in Nigeria and for individual universities.

1.2 Literature Review

Academic performance has been defined as the degree to which a student is accomplishing his or her tasks and studies (Ali, Jussoff, Ali, Mokhtar & Syafena, 2000). They state that there are several ways to determine students' academic performance, which include grade point average (GPA), cumulative grade point average (CGPA) and test results. Researchers in Malaysia and in the United States of America, for example, have used these to evaluate students' academic performance. Some of these studies are those of Manan and Mohamad (2003) and Agus and Makhbul (2002). Many researchers in other countries use these three methods to determine students' academic performance. Some of these researchers are Galiher (2006), Darling (2005), Broh (2002), Amy (2000) and Stephens and Sihaben (2002).

These researchers say that students' grades are scores for their classes and overall tenure; which are a tallying or average of assignment and test scores. They say that these grades may be affected by certain factors such as attendance and instructor's opinion of the students; and that these grades may be in percentages, or may be put in A – F intervals or in grade point averages (GPA) from 0 - 4 and above.

Thome (2000) enumerated certain tests and scores as standardized. These are nationwide tests, Standard Achievement Test (SAT), the Stanford –Binet Intelligence Scale and the California Achievement Tests (CAT). In Nigeria, Ali *et al.* (2000) lists the General Certificate of Education Examination and the West African Examinations Council (WAEC) as standardized tests. According to them, these constitute basic entry requirements for students. Nigeria universities depend on standardized tests for selection of students into their academic programmes. These tests include the General Certificate Examinations Council (WAEC) standardized test. In addition to these tests, there is a standardized test referred to as Joint Admission and Matriculation Board (JAMB) test which every Nigerian university adopt for selection of students. This has been in use since 1977 in Nigeria. It is mainly a test of intelligence.

Sdorow (1995) discussed the concept of multiple intelligence. He says that the brain involved separate system for different adaptive ability which he calls intelligence. Sdorow says that there are seven types of intelligence, each of which is developed to a different extent in each person. The types of intelligence include linguistics, logical mathematical, spatial, musical, bodily kinesthetic, extrapersonal and interpersonal (Sdorow, 1995).

The Joint Admission and Matriculation Board test (JAMB) used in the admission of students into Nigeria Universities test for four of these types of intelligence for each discipline and subject course majors.

Houghton Mifflin Publishing Company discussed the views of many researchers on intelligence tests. Becker (2003) discussed what intelligence testing is, its origin, advantages and disadvantages and types of intelligence tests. Garder (2003) exposed his involvement in standardized testing. From these sources, relevant facts emerged about intelligence tests and standardized tests. Binet (1905) says that standardized intelligence tests measure intelligence. Angoff (1982), Binet (1905), Binet and Simon (1916), Herring (1922) and Kuhlmann (1912) have the following views about intelligence and standardized tests; that these tests are measurement tools used by teachers to assess students' progress. That contrary to popular belief, intelligence tests do not measure amount of knowledge a person has already. From the works of these persons, the following are enumerated as the advantages of intelligence tests. That school systems compare test results with other school districts and also help parents and administrators determine a student's academic abilities. In addition, they say that it allows employers to determine an employee's ability to perform particular tasks and enables individual people confirm that they have high intelligence quotient. Standardized tests measure a person's capability for learning and potential intelligence. They do not measure knowledge. This is counted as a disadvantage (Pratt, 1917; Roid, 2003 and Sattler, 1965). There are different types of intelligence test. These are identified in the works of Becker (2003), Sattler (1965), Terman (1916) and Terman and Merrill (1937). These types of intelligence tests include Wechsler intelligence test, Multiple Intelligence tests, Kaufman Brief Intelligence test, Wechsler Adult Intelligence Test and Free Wonderlic Test.

In recent years, certain psychologists have made efforts to review and enrich the contents and scopes of intelligence tests. This has been so since 1973. The psychologists include Terman and Merrill (1973), Thorndike, Hagen and Sattler (1986). In Nigeria, certain test of intelligence have been in use as test for selection of students into universities. These are the West African Examination Council and General Certificate Examination tests and recently, the Joint Admission and Matriculation Board tests.

There are certain factors which Thome (2000) says can affect academic performance of students. These include extracurricular activities and the culture of the people and environment in which children are raised. It is also generally believed that parental assistance with home-work, poor motivation and racial and minority discrimination are other factors that can affect students' academic performance.

Also related to academic performance among students, Ali, Jusoff and Ali *et al.* (2000) enumerated active learning, students' attendance to class, extracurricular activities, peer influence, course assessment and demographic factor as some other factors. To measure academic performance, grade point averages (GPAs) have been widely used by different researchers. Some of these researchers are Galihir (2006), Darling (2005), Broh (2002) and Amy (2006). Grade point averages are calculated at the end of every semester. On the other hand, certain researchers have used test results to measure academic performance. Some of these researchers are Hijatzi and Nagzi (2006), Hake (1995) and Tho (1994). In this work, the researcher used the method of Hake and Tho for data collection.

On the aspect of the school subjects to be used to analyse performance, researchers say that not all school subjects need be used. They say that certain school subjects are more suitable than others in measuring performance, especially in school tests and cumulative grade point averages. Masri and Almed (2007) state that these school subjects include English, Modern Mathematics, Additional Mathematics, Physics and Accounts.

Certain researchers in Nigerian had studied University selection examination in relation to selection into Nigeria Universities; predictive power of selection examination score and predictive value of the Joint Admissions and Matriculation Board (JAMB) in Nigeria. Afemikhe (2005) found no significant difference between the effectiveness of JAMB and the individual university selection examination. The researcher thus concluded that there was no need to use these two examinations together for selection of students under the same condition in one particular year. According to this researcher, use of one of them at a time would be adequate. The researcher suggested that since JAMB Matriculation examination was widely accepted, it should be used alone for university admission exercise.

Acho, Aligba and Omananyi (2010) found that high score in GCE/WAEC did not predict high performance in mathematics at the university predegree end-of-tenure examination, and that this finding betrayed the Senior Secondary Certificate Examination result in mathematics. Abdullahi (1983), on the other hand, found that there was a significant and positive relationship between UME scores and student first year scores in a study of the prediction value of the Joint Admissions and Matriculation Board (JAMB) and University Matriculation Examination (UME).

Certain researchers have identified some control variables that may influence test results. These are socio-economic status of parents, parents' educational levels, class attendance, extra-curricular activities and peer group influence. Agus and Makhbal (2002) indicate that students from families of higher income levels perform better in their academic assessment as compared to those who come from families of lower income bracket. Checchi (2000) also concluded that family income provides an incentive for better student performance and richer parents internalize this effect by investing more resources in the education of their children; and that once the investment is undertaken, the students fulfil parents' expectation by performing better in their studies.

But Raza Nagzi (2006) found that there is negative relationship between students' performance and students' family income. Also, Beblo and Lauer (2004) found that parents' income and their market status have a weak impact on children's education.

On parents' educational level, Ermisch and Franceconi (2001) say that there is a significant gradient between each parent's educational level and their child's educational attainment. Also, the mother's effect is stronger than the father's effect (Agus and Makhbul, 2002). There is also the aspect of active learning by students. Researchers say that this leads to better students' attitude and improvements in students' thinking and writing. This finding was supported by Felder and Brent (2003). However, Delong's studies did not support this hypothesis (Delong, 2008).

Class attendance has also been identified as a factor that affects students' performance. Collett *et al.* (2007), Chow (2003), Darben and Eclis (1995) and Romer (1993) found that attendance has a small but statistically significant effect on students' performance. They state also that missing of classes by students leads to poorer performance.

Extra-curricular activities and peer influence have also been identified as factors that can influence students' performance. Extra-curricular activities are found to be beneficial in building and strengthening academic achievement (March & Kleckman, 2002; Guest and Schmaider (2003); Caldwell and Smith (2005). Hanushek *et al.* (2002), Goethal (2001) and Gonzales *et al.* (1996) have found that peer influence has more powerful effect than immediate family. This finding was, however, contradicted by Goedtals (2001), Giuliiodoni, Lujan and Dicarto (2006).

We can observe these various control variables as those that can influence the result of studies that look into prediction effects of university admission examinations. Before students attain the stage of doing the university admission examinations, these variables have been controlled. On the basis of this, the result of such admission examination can be seen as valid. For example, such variables as extra-curricular activities, parents' supervision, socio-economic status of parents, poor influence, class attendance, and so on have been controlled by the maturing process of students through the secondary school. Also, to control these variables is the sheer large number of students that take this examination and their various backgrounds. Large populations of test participants have been found to neutralize the effect of a control variable (Dunn, 1999). The GCE, WAEC and the UME examinations are used to measure students' suitability for entry into the university and thus are seen to be valid. The studies of Afemikhe (2005), Aligba and Omananyi (2010) and Abdullahi (1983) found the JAMB examinations to be valid, popular and acceptable for the selection of students into Nigerian universities. The two modes of measure for admission of students can, therefore, be assessed to find out their comparative effects. The other mode is generally referred to as the Continuing Education mode (C.E).

1.3 Problem of the study

For some time now in Nigeria, thousands of candidates who fail to secure admission to universities through the nationally conducted entrance examination by the Joint Admissions and Matriculation Board (JAMB), are offered admission through the entrance examination conducted by individual universities. The problem of this study, therefore, was: could the admission exercise carried out by individual universities to admit students who otherwise could not be admitted through the nationally conducted entrance examination by JAMB, produce students of comparable intellectual standard?

1.4 Research Hypotheses

The following hypotheses were formulated to guide the study.

- (a) There is no significant difference in students' performance in English language between the group admitted through JAMB and those admitted through University process (C.E).
- (b) There is no significant difference in students' performance in Modern Mathematics between those admitted through JAMB and those admitted through University process (C.E).
- (c) There is no significant difference in students' performance in Additional Mathematics between those admitted through JAMB and those admitted through University process (C.E).

- (d) There is no significant difference in students' performance in Physics between those admitted through JAMB and those admitted through University process (C.E).
- (e) There is no significant difference in students' performance in Accounts between those admitted through JAMB and those admitted through University process (C.E).
- (f) There is no significant difference in students' performance in overall students' performance in the 5 subjects between those admitted through JAMB and those admitted through University process (C.E).
- The Delta State University refers to the non-JAMB group Continuing Education (C.E.).

1.5 Purpose of Study

The research intended to ascertain which of the two modes of students' selection into the university is more adequate. The purpose was to make a comparison of these two methods of admission using students' test scores. The finding would form the basis for recommendation on the admission process in universities. The finding would be relevant to those who make admission policies. It would contribute to ensuring more valid and reliable mode of entrance examinations in Nigerian universities. It would contribute to ensuring that the best students are admitted.

2. Method

The method used to investigate the effectiveness of the two modes of admission selection exercise includes:

2.1 Participants

The researcher used intact classes where thirty (30) respondents per class were selected male and female through random sampling technique. This was done through balloting. The age of the respondents ranged between 17 years and 23 for both JAMB and C.E. groups. These were the students whose test scores were used for the study at the end of the first semester.

The study was carried out in Delta State University, Abraka, Nigeria, using students admitted to the University in the 2009/2010 Session through the JAMB admission mode and the Continuing Education admission mode. There were 2,653 students in all, out of whom 300 male and female students were proportionately and randomly selected for the study, using the balloting technique.

2.2 Research Instrument

The results of the students in the JAMB group and in the Continuing Education group in the First Semester examination in the first year of study by the students in Delta State University, Abraka, Nigeria were collected and collated in the five subject areas of English Language, Modern Mathematics, Additional Mathematics, Physics and Accounts.

Test results were gathered for each subject areas of students in their first semester of the first year. The test scores were gathered and the mean for each group computed. It was the test scores and the mean that were used for the t-test method of data analysis.

2.3 Design

The research was a predictive study which used the two-group comparison design. It was a descriptive survey of the ex post facto type, as no variable were manipulated.

2.4 Procedure

After the students were admitted through the JAMB admission mode and the Continuing Education admission mode, they were placed in the same class, taught by the same lecturers and exposed to the same course materials. They were also made to take the same examinations at the end of the first semester in their first year of study, in the five subject areas of concern. Their examination scripts were marked by the same lecturers who had taught the students. The results of the students that made up the study sample were arranged into the two groups of students and analysed accordingly. The statistic that was used to analyse the data was the t-test. The t-test was considered appropriate for the analysis because the study was concerned with determining if the academic performance of the two research groups differed significantly.

3. Results

The results showed that there was no significant difference in the performance of students in English language between students who come into the university through JAMB, and those selected by the individual university entry process (C.E.). But for the other four subject areas, the hypotheses were rejected. The 6th hypothesis that measured the overall students' performance in the five subject areas for the two groups was also rejected.

3.1 Hypothesis (a): table 2:

T-test analysis of students' performance in English language between the group admitted through JAMB and the group admitted by individual university (C.E.)

Subject Area	N	X	DF	SD	t-calculated	t-critical	Alpha	Decision
Accepted	30	54.97	29	13.687	0.917	1.960	0.05	
	30	51.53	29	13.216				

Hypothesis (a) states that there is no significant difference between the two groups in English Language. The result showed that the group admitted through JAMB had a mean score of 54.97, while the other group, Continuing Education (C.E.) had a mean score of 51.53. The t-calculated was 0.917 while the t-critical was 1.960. The t-calculated was lower than the t-critical, thus the null hypothesis was accepted, at an alpha of 0.05 level of significance. This means that there was no significant difference in the academic performance of the two groups of students in English Language.

3.2 Hypothesis (b) table 3:

T-test analysis of students' performance in Modern Mathematics between the group admitted through JAMB and the group admitted by individual university (C.E.)

Subject Area	N	X	DF	SD	t-calculated	t-critical	Alpha	Decision
Modern Mathematics JAMB	30	57.93	29	9.878	4.486	1.960	0.05	Rejected
Modern Mathematics CE.	30	42.80	29	14.196				

Hypothesis (b) states that there is no significant difference between the two groups in Modern Mathematics. The result showed that the JAMB group had a mean score of 57.93, while the C.E. group had a mean score of 42.80. The t-calculated was 4.486 while the t-critical was 1.960. The t-calculated was higher than the t-critical, thus the null hypothesis was rejected, at an alpha of 0.05 level of significance. This means that there was a significant difference in the academic performance of the two groups of students in Modern Mathematics. The difference was in favour of the students in the JAMB group.

3.3 Hypothesis (c) table 4:

T-test analysis of students' performance in Additional Mathematics between the group admitted through JAMB and the group admitted by individual university (C.E.)

Subject Area	N	X	DF	SD	t-calculated	t-critical	Alpha	Decision
Additional Mathematics JAMB	30	59.93	29	10.058	5.127	1.960	0.05	Rejected
Additional Mathematics CE.	30	42.80	29	14.196				

Hypothesis (c) states that there is no significant difference between the two groups in Additional Mathematics. The result showed that the JAMB group had a mean score of 59.93, while the C.E. group had a mean score of 42.80. The t-calculated was 5.127 while the t-critical was 1.960. The t-calculated was higher than the t-critical, thus the null

hypothesis was rejected, at an alpha of 0.05 level of significance. This shows that there was a significant difference in the academic performance of the two groups of students in Additional Mathematics, the difference being in favour of the students in the JAMB group.

3.4 Hypothesis (d) table 5:

T-test analysis of students' performance in Physics between the group admitted through JAMB and the group admitted by individual university (C.E.)

Subject Area	N	X	DF	SD	t-calculated	t-critical	Alpha	Decision
Physics JAMB	30	57.40	29	8.997	5.590	1.960	0.05	Rejected
Physics CE.	30	42.80	29	14.196				

Hypothesis (d) states that there is no significant difference in the performance of students between the JAMB group, and in C.E. group in Physics. The mean score of the JAMB group was 57.40, while that of the C.E. group was 42.80. The t-calculated was 5.590 while the t-critical was 1.960. The null hypothesis is thus rejected since the calculated-t is higher than the critical-t, calculated at an alpha of 0.05 level of significance. This means that there was a significant difference in the academic performance of the two groups of students; and the difference was in favour of the students in the JAMB group.

3.5 Hypothesis (e) table 6:

T-test analysis of students' performance in Accounts between the group admitted through JAMB and the group admitted by individual university (C.E.)

Subject Area	N	X	DF	SD	t-calculated	t-critical	Alpha	Decision
Accounts JAMB	30	54.70	29	14.067	2.225	1.960	0.05	Rejected
Accounts CE.	30	45.47	29	12.610				

Hypothesis (e) states that there is no significant difference between the JAMB group and the C.E. group in Accounts. The mean of the JAMB group was 54.70, while that of the C.E. group was 45.47. The t-calculated was 2.225, while the t-critical was 1.960. Since the t-calculated is higher than the t-critical, the null hypothesis was rejected. This shows that there was a significant difference in the academic performance of the two groups of students; and the difference was in favour of the students in the JAMB group.

3.6 Hypothesis (f) table 7:

T-test analysis of students' performance in the 5 subject areas between the group admitted through JAMB and the group admitted by individual university (C.E.)

Subject Area	N	X	DF	SD	t-calculated	t-critical	Alpha	Decision
All JAMB students	150	56.99	149	11.543	0.917	7.13	1.660	Rejected
All CE students.	150	45.62	149	13.267				

Hypothesis (f) states that there is no significant difference in the performance of students in the JAMB group and the C.E. group in the 5 subject areas. The mean score for the JAMB group was 56.99, while that of the C.E. group was 45.62. The t-calculated was 7.133 and the t-critical was 1.66. The null hypothesis was rejected since the t-calculated was higher than the t-critical. This means that there was a significant difference in the academic performance of the two groups of students; and that the difference was in favour of the students in the JAMB group.

4. Discussion, Implication and Recommendation

4.1 Discussion

The study set out to investigate the effectiveness of two modes of admission into the University. These two modes are the entrance examination conducted by the Joint Admissions and Matriculation Board (JAMB) and the entrance examination conducted by individual universities (CE). A mode of selection is seen to be more effective between two groups if students admitted perform better than those in the other group in the university in the end-of-semester examinations.

It is expected that when a particular mode of entrance examination is found to be more effective, such a mode should be adopted in future selection. This is why the study was a predictive one, using a survey as the method of data collection.

The findings show that there was no significant difference in the performance of students among those students that study English language. This was derived from students' test scores at the end of the first semester in English language. However, the findings showed significant difference among students who study Modern Mathematics, Additional Mathematics, Physics and Accounts. The research also measured the overall superiority of either of these two modes of admission among all the students in the five subject areas. The findings showed that there was no significant difference.

The research indicated lower mean scores among students in the CE group in the subject areas of study, even in English language. This goes to show that students admitted through JAMB showed superiority in the test scores. Thus it can be concluded that the JAMB mode of entry is superior to the individual university selection mode (C.E). This result supports the stated advantages of standardized intelligence tests which states that intelligence tests are psychological tests used to measure a person's ability to perform intellectual tasks, helps parents and administrators to determine a student's academic ability. That they measure a person's capability for learning (Becker, 2003). The fact that those who entered the university through JAMB showed superior performance is an indication that psychological concept of standardized intelligence test is able to measure students' learning capability. The difference in the performance of the JAMB group and the C.E. cannot be traced to demographic difference, age level, and gender. What could be responsible for the superior performance can only be traced to the use of the JAMB intelligence test.

This finding supports the opinion that intelligence tests measures a person's capability for learning and potential intelligence (Hugoff, 1982; Binet, 1905; Binet and Simon, 1916, Herring, 1922 and Kohlmann, 1912). Of all the 150 respondents that entered the university through JAMB, 53 obtained scores above 300. None of the C.E. respondents scored up to 300. This shows the advantage of intelligence test. Of the 31 respondents who entered the university without attempting the JAMB test, all were in the C.E. programme where students showed lower performance. The 85 respondents that attempted JAMB more than two times before being admitted, 63 were in the C.E. group. This indicates that respondents that scored poorly in the JAMB standardized intelligence test continuously before being admitted into the C.E. programme also performed less in the end of Semester examinations. Demographic data did not return discriminatory performance between male and female respondents in the two programmes. Age also did not account for differences in performance in the two programmes. The JAMB standardized intelligence test is one of the intelligence tests in Nigeria structured along the guidelines of Terman and Merrill (1973). The guidelines were made as efforts to enrich the contents and scopes of intelligence tests (Thorndike, Hegen and Sattler, 1986).

This finding agrees with that of Afemikhe in 2005. Afemikhe concluded that there was no need to conduct another examination for students' admission in Nigerian universities and that the JAMB entrance examination was sufficient for this exercise. However, the result of this study differs from that of Abdullahi in 1983. Abdullahi had compared students' test performance in their first year, between students who were admitted through JAMB and those admitted through another mode UME. He found a significant and positive relationship between the scores of these two groups of students in their first year terminal examinations.

4.2 Implications

The results here imply that the mode of entry through the examination conducted by the Joint Admissions and Matriculation Board (JAMB) is a more effective mode compared to the entry mode conducted by the individual university. The universities can reliably use this selection examination (JAMB) in the admission of their students in all courses in Nigerian Universities. Afemikhe had a similar finding in 2005. This was after the research had to compare the effectiveness of JAMB and Post-JAMB examinations conducted by individual universities in Nigeria. Masri and Almed

(2007) state that certain school subjects are more suitable than others in measuring performance. They listed the school subjects as English language, Modern Mathematics, Additional Mathematics, Physics and Accounts. This guided the choice of subjects used in this research.

The findings also imply that there may be no need to duplicate efforts in the selection exercise to admit students to the university. This duplication of efforts has been on in various universities in Nigeria. Afemikhe (2005) stated that there was no need for this duplication and that JAMB examination could be reliably used by Nigerian Universities. Abdullahi (1983) also found the JAMB entry mode adequate. He made this assertion in his research on the predictive value of the Joint Admissions and Matriculation Board examination for entry into the University.

4.3 Recommendations

Since the findings of this study confirm those studies conducted by Afemikhe (2005) and by Achor, Aliegba and Omananyi (2010), it is recommended that the JAMB admission mode which had students performing significantly better than the individual university admission mode (the CE), should be adopted exclusively for use by Nigerian Universities. In other words, the CE admission mode should be scrapped forthwith in Nigerian Universities.

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