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STUDENTS' PERFORMANCE IN THE JOINT ADMISSION AND MATRICULATION BOARD (JAMB) MATHEMATICS EXAMINATION: A CASE STUDY OF NIGER STATE

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ABSTRACT

The trend of Performance of students in Mathematics is of immense concern to University authority. In view of this the entrance examination organized in Mathematics by JAMB was assessed in all local Government areas in Niger State between 2005-2009; Analysis of variance (ANOVA) was used to analyze the data and it was observed that there was no significant difference in Students performance in Mathematics in all the local government areas of the three Zones in Niger State. No difference was observed in spite of all provision in some local government areas; a significant difference was observed in the yearly examination only in Zone A of the State. It was discovered that 2005 University matriculation examination (UME) was significantly different from 2009 UME only in Zone A of the State.

***Keywords:** University Matriculation Examination (UME); ANOVA, LSD, Zones, Examination*

INTRODUCTION

Over the years the performance of Students in Mathematics has been nose diving despite all efforts in making Mathematics a single and easily applicable subject in all human endeavors. The poor performance of students in this subject has led to overall general poor performance in all types of examinations conducted by West African Examination Council (WAEC); National Examination Council (NECO) and other examination bodies. For the past years, say 2008 to-date a result being released by WAEC and NECO has not always been palatable, audible and hard to believe, especially November/December Examinations.

The carry over effects has been exhibited in Nigerian University where Mathematics graduates cannot adequately and successfully integrate or differentiate first order equations; even to solve a simple linear equation becomes a big task and these products of Mathematics are believed to turn the unborn generation of this country to industrial and technological advance country.

Although many use to have credits in Mathematics at ordinary level (O'Level), but how, where and taught by whom? These are the great questions crying for answers. Many students migrate to remote areas called miracle centers to take the final year examination with the special aim of having credits at least in Mathematics and English at ordinary level. This has led to the kind of University graduates being produced in the country today. The fear of these paper writers is that what is our hope is, in the future generations if these graduates would be the future teachers in various fields.

This has prompted the writers to re-examine the trend of students' performance in UME Mathematics in all the LGA's that constitute Niger State between 2005 -2009. In order to fish out the hidden miracle centers or LGA and/or find out which LGA and Zones are consistently performing well in such examination. What are the incentives and available facilities provided in these LGA and Zones that make their performance outshined other LGA's and Zones? Could their performance be due to the internet provision, various good Mathematics textbook or evening classes in the LGA or proximity to the tertiary institution in the LGA where qualified and well trained Mathematics teachers and textbooks are available? These and others are the likely factors that could aid good performance in Mathematics.

HISTORICAL BACKGROUND OF MATHEMATICS

According to Fajemidagba O. (1991), the formal teaching of Mathematics started with Arithmetic which is a component of Mathematics at the primary and post primary schools. Then Arithmetic was made compulsory for every primary school student. It is conditioned as a pre-requisite to obtain the primary school leaving certificate. Arithmetic was also made compulsory for students of teacher training colleges in order to qualify for award of grade II or III teacher certificate. At secondary school, Mathematics was been taught where

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Arithmetic was a component of Mathematics like Algebra, Geometry and Trigonometry. Mathematics wa also made compulsory at this level and it must be passed without which a secondary school graduate ma not secure admission into tertiary institution.

The Russian launching of the Sputnik in November, 1957 the first earth satellite in space was instrumental t changes and reforms in schools Mathematics curricula and progrmmes in Nigeria and other parts of th world in general.

Among the change and reforms was the introduction of elementary Mathematics at primary schools t replace Arithmetic in the teacher training colleges. This was aimed at producing primary school teache who could teach the elementary Mathematics in the primary schools. Another change was the introduction o Mathematics and general knowledge to replace Arithmetic and English language in the entrance examinatio into secondary school.

The National common entrance examination was the first board to implement the innovation. As a result o this many primary school in Nigeria were forced to commence the teaching of Mathematics. Furthermore modern Mathematics was introduced to secondary schools in the early 70s as a component or integrate body of knowledge. This introduction replaced the former method whereby Arithmetic, Algebra an Geometry with Trigonometry were taught separately. Introduction of modern Mathematics was th aftermath of the wave of changes in school Mathematics which cut across the industrial nations. As reporte by Onuche (1978) the outcomes of the inter-national conference on science in the advancement of new state in Retrovoth, Israel in July 1960 contained some recommendations for innovations in school mathematic for African states.

LITERATURE REVIEW

Measure of Locations

There are three types of measure of locations; these are the Mean, Mode and the Median. They are used to describe the centre of a set of data. In this paper the mean would be made use of; Mean of the population of interest is donated by $\bar{X}$ while the sample mean as $\bar{x}$

$$i.e\ \bar{X} = \frac{\sum_{i=1}^{N} X_i}{N}, \qquad i = 1,2,3,\ldots\ldots,N$$

$$\bar{x} = \frac{\sum_{i=1}^{n} x_i}{n}, \qquad i = 1,2,3,\ldots\ldots,n$$

$$\bar{x} = \frac{\sum_{i=1}^{N} f_i X_i}{\sum_{i=1}^{N} f_i} \text{ --- for frequency distribution table for the population}$$

$$\bar{x} = \frac{\sum_{i=1}^{n} f_i x_i}{\sum_{i=1}^{n} f_i - 1} \text{ --- for frequency distribution table for sample}$$

where $\sum_{i=1}^{N} f_i$ *is the total frequence for the population.*

$\sum_{i=1}^{n} f_i$ *is the total frequence for the sample.*

3.2. Measure of Variations

Among the measure of variations are Variance, Standard deviation, Range, Quartiles, Mean deviation etc. used in this paper is the variance. It is a measure of dispersion or variation from the mean. It is denoted as δ^2 and calculated as

$$\delta^2 = \frac{\sum_{i=1}^{N} \overline{X_i - (X)^2}}{N} \quad for\ the\ population$$

$$\delta^2 = \frac{\sum_{i=1}^{n} \overline{x_i - (x)^2}}{n-1} \quad for\ sample$$

$$\delta^2 = \frac{\sum_{i=1}^{n} f_i \overline{X_i - (X)^2}}{\sum_{i=1}^{n} f_i - 1} \quad for\ grouped\ sample\ data$$

Where $Nor \sum_{i=1}^{n} f_i$ *is the population size and n is the sample size.*

Analysis of Variance (ANOVA)

In the early 20th century; that 1918, Ronald Fisher developed analysis of variance (ANOVA) as a statistical tool for evaluating the multidimensional experiment. As the name connotes i.e. Analysis of variance, it focuses on the analysis of sample variance of different population. It is a statistical tool that used to determine the existence of a difference between two or more means of population independently drawn (Keller warrack, 2003). According to Keller Warrack, ANOVA was put into use in 1920s in determining whether the difference in fertilizer treatment could produce different crop yield.

ANOVA is an additive model in the sense that it treats only the main effects and leaves the non-additive part (Williams, Pike and Silverg, 1952; Gauch, 1952). ANOVA procedures provide rules for assessing the effects of one or more factors on an interval dependent variable. There are many ANOVA models, but the following model will be used for this paper. This is a two way ANOVA model without interaction.

$Model: y_{ij} = \mu + \alpha_i + \beta_j + \epsilon_{ij}$ Where y_{ij} are the responses or yield in the ith row of factor A and jth column of factor B; μ is the grand mean; α_i is the ith row effect; β_j is the jth column effect; ϵ_{ij} is the residual error.

Assumption:

(i) ϵ_{ij} is assumed to be independently and identically distributed as a normal variate with mean zero and variance δ^2 i.e. $\epsilon_{ij} \sim iid\ N(o, \delta^2)$

(ii) $\sum_{i=1} \alpha_i = \sum_{j=1} \beta_j = 0$

(iii) $E(\epsilon_{ij}) = 0; E(y_{ij}) = \mu + \alpha_i + \beta_j$

According to Mandel (1961), a non-additive situation is obtained if assumption is made that for any given row $E(y_{ijk} - y_{ij})$ is a linear function of β_j. This is shown in the equation below.

Let $y_{ijk} = \mu + \alpha_i + \beta_j + (\overline{[\alpha\beta)]}_{ij} + \varepsilon_{ijk}$

From the assumption above

$\overline{[E(y]}_{ijk}) = \mu + \alpha_i + \beta_j + (\overline{[\alpha\beta)]}_{ij}$

$\overline{[E(y]}_{ijk}) = \mu + \beta_j$

$Therefore; E(y_{ijk} - y_{ij}) = \alpha_i + (\overline{[\alpha\beta)]}_{ij}; E(\overline{[\alpha\beta)]}_{ij} = 0$

$\rightarrow E(y_{ijk} - y_{ij}) = \alpha_i;$ This is independently of j and hence exhibiting additively.

Multiple Comparisons

When a null hypothesis is rejected, it implies that there is a significant difference in at least two or more means of the population (Keller warrack, 2003, Kendal, 1967). In order to determine which of the means differ, a multiple comparisons test is performed. There are many of these tests such as Fisher's least significant difference method, Bonferroni, Turkey's multiple comparison method, Scheffe, Duncan multiple Range.

The type of multiple comparison tests to use should be based on the sample size, type I and type II error, sizes and the equality of population variances. For this paper Fisher's LSD method shall be used because it is most appropriate for our data. The Fisher's LSD test statistics and confidence interval are as follows

$$t = \frac{\overline{x_1 - (x_2)} - (\mu_1 - \mu_2)}{\sqrt{sp^2\left\{\frac{1}{n_i} + \frac{1}{n_j}\right\}}}$$

And the confidence interval is $\overline{x_1 - (x_2)} \pm t_{\alpha/2}\sqrt{sp^2\left\{\frac{1}{n_i} + \frac{1}{n_j}\right\}}$ with $v = n_1 + n_2 - 2$, degree of freedom. Where sp^2 is the pooled unbiased variance estimate of the two populations. Since MSE is also an unbiased common variance estimator of the populations of interest and MSE is based on all the observations in the K samples, the sp^2 will be replaced with MSE with v=n-k degrees of freedom.

$$t = \frac{\overline{x_1 - (x_2)} - (\mu_1 - \mu_2)}{\sqrt{MSE\left\{\frac{1}{n_i} + \frac{1}{n_j}\right\}}}$$

And the confidence estimator is thus $\overline{x_1 - (x_2)} \pm t_{\alpha/2}\sqrt{MSE\left\{\frac{1}{n_i} + \frac{1}{n_j}\right\}}$

Therefore the LSD is $t_{\alpha/2}\sqrt{MSE\left\{\frac{1}{n_i}+\frac{1}{n_j}\right\}}$ If $|\bar{x}_i - \bar{x}_j| > LSD.$ then $\mu_i and\, \mu_j$ differs otherwise $\mu_i and\, \mu_j$ are not significantly different. If $n_i = n_j$, then LSD would be the same for all the pairs but if $n_i \neq n_j$ then LSD would have to be calculated for each pair

METHODOLOGY

The target population is the population of candidates that sat for university matriculation examination in Niger State between 2005 - 2009. This is aimed at getting the best local government whose performance is the best in Mathematics within the year stipulated above. It is also aimed at knowing which Zone in the State was the best. The candidates result was stratified into the local governments where the UME was taken in Niger State. There are twenty five (25) local governments in Niger state; each of these represents a stratum. A purposeful selection of the best candidates score was selected each year in each local government for the period stipulated above. These scores thereby formed the experimental units while the local government represents the experimental blocks in their respective Zones.

Finally, there are three Zones in the State each having a minimum number of eight local governments. The Zonal data was obtained by taking the average of the best candidates over the year in all the local government that constitutes the Zone each year. Then the data obtained would be used to address the following research questions.

Research Questions

1. Is there any significant difference in the Students performance in UME's Mathematics result in all the local governments that constitute the three Zones in Niger State?
2. Is there any significant difference in the Students performance in UME's Mathematics in all the Zones of Niger State?

Research Hypotheses

H_{01}: There is no significant difference in the Students performance in UME's Mathematics in all the local government that constitutes Zones in Niger State.

H_{11}: There is significant difference in the Students performance in UME's Mathematics in all the local government that constitutes Zones in Niger State.

H_{02}: There is no significant difference in the Students performance in UME's Mathematics in all the Zones of Niger State.

H_{12}: There is significant difference in the Students performance in UME's Mathematics in all the Zones of Niger State.

Data Analysis

The data collected for this research was a secondary data and here we use Statistical software Minitab 14 was used to analyze the data using two way analysis of variance.

Data Presentation and Analysis

ZONE "A":

The **table 1.0** below shows the scores of the best candidate in Zone A by local government areas.

YEAR/LGA'S	1	2	3	4	5	6	7	8
2005	41	50	54		58	47	56	57	52
2006	51	51	61	60	40	57	57	49	
2007	55	60	52	54	60	58	66	50	
2008	43	49	66	64	58	---	60	64	
2009	58	65	50	63	59	62	65	66	

Source: Joint Admission and Matriculation Board, Minna (2005-2009)

Table 1.1 Two way Analysis of Variance (ANOVA) for the best candidate scores in Zone A

Two-way ANOVA: Scores versus Year, LGA

Source	DF	SS	MS	F	P
Year	4	577.15	144.288	1.16	0.349
LGA	7	834.40	119.200	0.96	0.479
Error	28	3476.85	124.173		
Total	39	4888.0			

$\alpha = 0.05$

S = 11.14 R-Sq = 28.88% R-Sq (adj) = 0.93%

From table 1.1 since the years P-value = 0.349 is greater than $\alpha = 0.05$ there is no sufficient evidence to reject to reject H_0, hence we shall accept the null hypothesis and conclude that there is no significant difference in the yearly performance of the student from the local government areas in the Zone. Similarly, the P-value=0.479 is greater than the$\alpha = 0.05$; it shows that there is no significant difference in the performance of students in the eight local government areas of the Zone.

Furthermore, the R^2 of 28.88% implied that there is a poor correlation(r=0.29) between the yearly and Local government UME's examination in Mathematics.

ZONE "B"

Table 2.0 below shows the scores of the best candidate in Zone "B" by local government areas.

YEAR/LGA'S	1	2	3	4	5	6	7	8	9	
2005	52	52	54	41	54	56	52	56	-	
2006	57	44	43	40	55	50	39	50	-	
2007	43	46	58	-	44	44	46	44	41	
2008	42	54	52	53	38	54	52	54	68	
2009	46	56	49	66	47	58	47	58	63	

Source: Joint Admission and Matriculation Board, Minna (2005-2009)

Table 2.1 Two way Analysis of Variance (ANOVA) for the best candidate scores in Zone "B"

Two-way ANOVA: Scores versus Year, LGA

Source	DF	SS	MS	F	P
Year	4	1012.76	253.189	1.19	0.334
LGA	8	1324.80	165.600	0.78	0.624
Error	32	6805.64	212.676		
Total	44	9143.20			

$\alpha = 0.05$

S = 14.58 R-Sq = 25.57% R-Sq (adj) = 0.00%

From table 2.1 since the years P-value = 0.334 is greater than $\alpha = 0.05$ there is no sufficient evidence to reject H_0; hence we shall accept the null hypothesis and conclude that there is no significant difference in the yearly performance of the student from the local government areas in the Zone. Similarly, the P-value=0.624 is greater than the$\alpha = 0.05$; There is no significant difference in the performance of students in the Nine local government areas of the Zone.

Furthermore, the R^2 of 25.57% implied that there is a very poor correlation(r = 0.26) between the yearly and Local government UME's examination in Mathematics.

ZONE "C"

Table 3.0 below shows the scores of the best candidate in Zone "C" by local government areas.

YEAR/LGA'S	1	2	3	4	5	6	7	8	
2005	53	54	60	65	-	58	60	--	
2006	57	55	50	58	56	45	---	---	
2007	46	50	44	72	59	65	56	42	
2008	64	62	55	59	63	52	68	49	
2009	60	60	54	68	64	69	59	60	

Source: Joint Admission and Matriculation Board, Minna (2005-2009)

Table 3.1 Two way Analysis of Variance (ANOVA) for the best candidate scores in Zone "C"

Two-way ANOVA: Scores versus Year, LGA

Source	DF	SS	MS	F	P
Year	4	2863.6	715.900	2.75	0.048
LGA	7	3603.8	514.825	1.98	0.094
Error	28	7283.6	260.129		
Total	39	13751.0			

$\propto = 0.05$

S = 16.13 R-Sq = 47.03% R-Sq (adj) = 26.22%

From table 3.1 Since the years P-value = 0.048 is less than $\propto = 0.05$ we shall reject the null hypothesis and conclude that there is significant difference in the yearly performance of the students in UME Mathematics from the local government areas in the Zone. Similarly, the P-value=0.094 is greater than the$\propto = 0.05$; There is no significant difference in the performance of students in the eight local government areas of the Zone, despite the difference in the yearly performance; hence, there is no sufficient evidence to reject H_0. Therefore we shall accept H_0.

Furthermore, the R –square 47.03% implied that there is low correlation(r = 0.47) between the yearly and Local government UME's examination in Mathematics. But better than the reject two previous R^2 in Zone A and B. In view of this, a multiple comparison test shall be used to differentiate the significant yearly performance from other years using Fisher's LSD test Statistics and confidence interval, the following conclusions were made

Fisher's LSD = $t_{\propto/2}\sqrt{MSE\left(\frac{1}{n_i}+\frac{1}{n_j}\right)}$ $i \neq j$ $V = n_i + n_j - 2;$ $\propto = 0.05$

$n_1 = n_2 = n_3 = n_5 = 8;\ n_4 = 7;\ u_1 = 43.75; u_2 = 40.125; u_3 = 54.250;$
$u_4 = 59.000;\ u_5 = 61.75.$

For: $|u_1 - u_2| = 3.65;\ |u_1 - u_3| = 10.50; |u_1 - u_4| = 15.25;$
$|u_1 - u_5| = 18.00;\ |u_2 - u_3| = 14.125; |u_2 - u_4| = 18.875;$
$|u_2 - u_5| = 21.625; |u_3 - u_4| = 14.75;\ |u_3 - u_5| = 17.50;\ |u_4 - u_5| = 17.50.$

Similarly for, Fisher's LSD:

$u_1 and\ u_2 = 2.145\sqrt{260.129\left(\frac{1}{8}+\frac{1}{8}\right)} = 17.30 > 3.65$

$u_1 and\ u_3 = 2.145\sqrt{260.129\left(\frac{1}{8}+\frac{1}{8}\right)} = 17.30 > 10.50$

$u_1 and\ u_4 = 2.160\sqrt{260.129\left(\frac{1}{8}+\frac{1}{7}\right)} = 18.03 > 15.25$

$u_1 and\ u_5 = 2.145\sqrt{260.129\left(\frac{1}{8}+\frac{1}{8}\right)} = 17.30 < 18.00$

$u_2 and\ u_3 = 2.145\sqrt{260.129\left(\frac{1}{8}+\frac{1}{8}\right)} = 17.30 > 14.125$

$u_2 and\ u_4 = 2.160\sqrt{260.129\left(\frac{1}{8}+\frac{1}{7}\right)} = 18.03 < 18.875$

$u_2 and\ u_5 = 2.145\sqrt{260.129\left(\frac{1}{8}+\frac{1}{8}\right)} = 17.30 < 21.625$

$u_3 and\ u_4 = 2.160\sqrt{260.129\left(\frac{1}{8}+\frac{1}{7}\right)} = 18.03 > 14.75$

$u_3 and\ u_5 = 2.145\sqrt{260.129\left(\frac{1}{8}+\frac{1}{8}\right)} = 17.30 > 17.50$

$u_4 and\ u_5 = 2.160\sqrt{260.129\left(\frac{1}{7}+\frac{1}{8}\right)} = 18.03 > 17.50$

The following conclusions were made if $|u_i - u_j| > LSD \quad for\ i \neq j$. Hence u_i *is significantly different from* u_j *each other;* otherwise insignificant.

From the above analysis: - $u_1 and\ u_2; u_1 and\ u_3; u_1 and\ u_4; u_2 and\ u_3; u_3 and\ u_4; u_3 and\ u_5;$ *and* $u_4 and\ u_5$ are significantly different from each other, while $u_1 and\ u_5;$ $u_2 and\ u_4;$ *and* $u_2 and\ u_5$ are insignificantly different from each other.

i.e. Arranging the yearly average in ascending order shows the relationship

u_2----------u_1

----------u_3 u_4----------u_5

3.1

Individual 95% CIs for Mean Based on Pooled Standard Deviation

```
Year  Mean ------+---------+---------+---------+---
1     43.750   (--------*---------)
2     40.125 (--------*---------)
3     54.250          (---------*---------)
4     59.000            (---------*---------)
5     61.750              (--------*---------)
         ------+---------+---------+---------+---
               36        48        60        72
```

Individual 95% CIs for Mean Based on Pooled Standard Deviation

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LGA  Mean  +---------+---------+---------+---------
1    56.0            (--------*--------)
2    56.2            (--------*--------)
3    52.6          (--------*--------)
4    64.4              (--------*--------)
5    48.4        (--------*--------)
6    57.8            (--------*--------)
7    48.6        (--------*---------)
8    30.2  (--------*--------)
        +---------+---------+---------+---------
        16        32        48        64
```

The diagram 3.1 above can be interpreted as follows: Year 2009(u_15) and 2008$\xi(u\bar{1}_4)$ Students' performance in UME's examination in Mathematics are significantly different from the student's performances of 2005 (u_11) and 2006 (u_12) in Zone C. Although 2007(u_13) student performance is not significantly different from 2008 and 2009 students performance in UME's examination in Mathematics but it is also significantly different from 2005 and 2006 students performance in Zone C. this observation was not observed in other Zones of the State. Within this periods of the research work; Zone C has a lot of tertiary institutions, educational facilities are in the increased than the other Zones, which lead to the positive response

ZONES "A" "B" AND "C"

Table 4.0 The table below shows the mean scores of the best candidate in the three Zones.

YEAR/ZONES	A	B	C
2005	51.9	43.8	46.3
2006	53.3	40.1	42.0
2007	56.9	54.3	40.8
2008	50.5	59.0	51.9
2009	61.0	61.8	54.4

Source: Joint Admission and Matriculation Board, Minna (2005-2009)

Table 4.1 Two- way Analysis of Variance (ANOVA) for the best candidate means scores in the three Zones.

Two-way ANOVA: Scores versus Year, Zones

Source	DF	SS	MS	F	P
Year	4	362.05	90.5133	3.42	0.065
Zones	2	148.62	74.3120	2.81	0.119
Error	8	211.58	26.4453		
Total	14	722.240			

S = 5.143 R-Sq = 70.71% R-Sq (adj) = 48.74%

F-table=F (4, 8); 0.05= 4.53; for year. F-table= F (2, 8); 0.05=3.26 for Zones.

From table 4.1 above it shows that there is no significant difference in the yearly Students performance in UME's examination in Mathematics. It was also observed that there is no significant difference in the students' performances at Zonal levels. This can be substantiated with the F- Calculated value of 3.42 which is less than the F-table value of 4.53 at 5% level of significance. Similarly, the F- Calculated value of 2.81 for comparing the Zones is less than the F-table value of 3.26 at 5% level of significance. Hence, there is no sufficient evidence to reject the two null hypotheses. Although there is high correlation between the yearly students' performances and Zonal students' performance in UME's examination in Mathematics; R^2 of 70.71% implied a strong correlation between the yearly and Zonal students' performances in UME's Examination in Mathematics.

RESEARCH FINDINGS

The research has shown that there was no significant difference in the students' performance in University Matriculation Examination (UME) in Mathematics in all the Local government areas of Niger State at 5% level of Significance. Similarly it was also observed that there was no significant difference in the students' performance in all the Zones that constitute Niger State. However a significant difference was observed in the yearly student performance in Zone C but not in other Zones of the Zones. That is there were insignificant difference in the yearly students performance in UME's in Mathematics in Zones A and B.

In Zone C year 2009 and 2008 students' performance was significantly difference from the year 2005 and 2006 student performance. Furthermore 2007 yearly student performance in UME's Mathematics was not significantly difference from 2008 and 2009 yearly performances but was also not significantly different from 2005 and 2006 yearly students' performance in Mathematics that implies that 2007 students' performance in Mathematics is unique.

Detailed analysis showed that there was no significant difference in 2005 and 2006 yearly student performance but each of the year mentioned above is significantly difference form 2008 and 2009 respectively in Zone C. It was also observed in the detailed analysis that correlation between the yearly students' performance and the GA's was fair in Zone C than other Zones. The R^2 which is a measure of correlation coefficient in Zone C was o.47 while in other Zones A and B was 0.29 and 0.26 respectively.

Finally, it was observed that there was no significant difference in the yearly student performance and at Zonal levels. But there was a significant correlation between the yearly student's performance and the Zones.

The correlation coefficient of 0.71 was obtained when comparing the Zones and the yearly students' performance in UME's Mathematics. This implied a strong relationship between the yearly student performance and the Zones.

CONCLUSION

There was insignificant difference in the yearly performance of students in UME's Mathematics organized by JAMB in Zones A and B. However, students' performance in Mathematics in Zone C in 2007 was unique. It is evident that there was a strong relationship between the yearly student performance in Mathematics and the Zones.

Since there was no significant difference in the students' performance in UME's Mathematics in all the LGA's and Zones, then there was no enough evidence to suspect any LGA or Zone as an Examination malpractice centre. But the significant difference observed in Zone C could implied that the Zones constitute LGA's that are aided with educational facilities that helped the students to make a difference in 2008 and 2009 UME's in Mathematics. Tenable facts observed on ground during the survey proved that Zone C has more tertiary institutions than other Zones.

RECOMMENDATION

We shall recommend from the above findings that the government needs to employ more qualified, dedicated, competent and committed teachers that can work in the LGA's Schools of the State. The teachers of Mathematics should adequately remunerate and consideration should be give to the teachers in terms of conducive accommodations and other incentives.

The government should provide in schools adequate educational teaching materials that will enhance good teaching and learning of Mathematics in the schools of the Local government areas. This can easily be achieved if these teachers are provided with adequate and conducive atmosphere for teaching and learning in the LGA's. of Niger State.

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