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Correlates of Students' Entry Qualifications, Gender, Interest, School type and Academic Performance in Mathematics among NCE Students in Kano State, Nigeria

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Abstract

This research study investigates and analyzes the relationship between students' entry qualifications, gender, interests and school type on academic performance in mathematics among Nigeria Certificate in Education students in Kano State, Nigeria. To give direction to the study, four each of research questions and hypotheses were formulated and tested at 0.05 level of significance. The study adopted Correlational research Design and from a population consisting of all NCE students who graduated from the college, a sample of one hundred (100) students with mathematics combination were selected. The data collection procedures were administration of questionnaire (Students' Mathematics Interest Questionnaire SMIQ) adopted from Snow (2011) and a documentary analysis. The study used descriptive statistics (frequency, percentage, mean and standard deviation) analysis for the research questions and Spearman's Rank Order Correlation at 0.05 level of significance respectively. The study finds that students' successes in NCE mathematics were not influenced by the entry qualifications and interest (despite high); The male samples had higher interest and also performed better than female samples in the final NCE mathematics and the samples from private schools performed higher than that from public schools' considering the two means of the final performance. The study recommends that relevance and importance of mathematics be re-emphasized through curricular and extra –curricular activities to boost students' interest making it a determining factor in performances. Teachers' pedagogical knowledge be updated through conferences, workshops and seminars attendance and most importantly, certified and registered mathematics teachers to handle instructions and others to be retrained. Establish learning platform for teachers and students to facilitate and supplement classroom instructions.

Keywords: Entry Qualifications, Gender, Interest, Performances, Mathematics

1. INTRODUCTION

The quest for knowledge advancement in relation to the prior knowledge and the struggles to cope with the challenges of tertiary level of education by students are cases for concern to researchers. The switch from one education policy to another (though for the national need of the time) may have an impact on the education level of the country. The technological advancements of developed nation may not be unconnected with the diversification of the curricula to incorporate the immediate need of the country. The

urge for keeping in pace with the advanced economies necessitated the shift to science and technology not only in Nigeria but the world over. The prospective candidates for admissions into institutions of higher learning opted for sciences in an answer to the national focus regardless of gender despite that some tasks discriminate among male and female in terms of capability of execution. Entry qualifications into institutions of higher learning used to be the outcome of the performances at the school certificate examinations and/or matriculation examinations. The West African Examinations Council (WAEC), National Examinations Council (NECO), National Business and Technical Examinations Board (NABTEB), National Board for Arabic and Islamic Studies (NBAIS) and National Teachers Institute (NTI) are the examination bodies that conducted the senior secondary school examination to the students of the final year whose grades were given according to Temitope (2022) on a nine points grading viz: -A1, A2, B3, C4, C5, C6, D7, E8 and F9. On the final grades, the first three (A1, A2 and B3) are the strongest grades while the last three (D7, E8 and F9) are the weakest. The last grade F9 is a failure and not counted among the performances when it comes to consideration for admission. In essence, the stronger the grade the more likely the consideration for admission in addition to other admission requirements.

Ubale (1986) and Joel (1990) found no significant difference in performance for different entry groups. On the other hand differences in performance were observed for various entry groups in studies such as Ohuche (1974), Majasan and Bakare (1974). While in such studies as Ubale (1986), Joel (1990) and Mc Clelland and Kruger (1993) performance in a certain subject at an Ordinary level helps to predict performance at an A-level. Sumaila (2005) concluded that entry qualifications are not in themselves the determinants of success in future, rather extra efforts of the students and the environment upon which they study. Abiem and Odok (2006) in Sumaila and Bello (2018) put that gender variable attracted researchers in mathematics education's attention and claims that girls achieved better than boys in some mathematics topics while boys had upper hand in in other topics such as trigonometry, geometry. Köse (2001) found that girls performed higher in school performance but boys achieved higher in in mathematics. Kaiser-Messmer (1994) in Sumaila and Bello (2018) states studies conducted put boys above girls in performances in mathematics. Fredricks & Eccles (2002) and Watt (2004) in Sumaila (2018) claimed that research documents placed boys higher in mathematical interest than girls.

In the research efforts of Zhang and Manon (2000); Johnson (2000) no significant differences in achievement was discovered between boys and girls on the process of getting acquainted with mathematics. Kiptum, Rono, Too, Bij, and Too (2013) claimed that gender issues impact achievement in mathematics citing that female students show less interest in mathematics and this perhaps caused the decline in their performance. Omenka, and Kurumeh (2013) concluded and claimed that gender does not affect students' achievement in a specific topic (Number and Numeration) with Ethno mathematics teaching approach. Sumaila and Bello (2018) defined interest as a feeling of wanting to achieve or attain certain quality. Therefore, subject specific interest is a feeling of wanting to achieve or attain certain level of quality linked to educational attainment. An interest in mathematics calls for paying more attention and achieving high in it. Fisher, Dobbs-Oates, Doctoroff, & Arnold (2012) reported that interest a subject is a factor to reckon with for success in learning and achievement, while on the contrary Köller, Baumert, & Schnabel (2001) maintained that interest in mathematics had no significant influence on achievement. In the work on gender

(Fredricks & Eccles, 2002) and Watt (2006) hold that there is gender differences in students' interests as girls had lower interest in mathematics compared to boys.

Schools differ in operational procedures, location, career and occupational prospect, ownership and academic achievement and this provide the basis for the differences. Attending schools of varying mission and vision impacted positively on the academic and other performances. Despite the variations in approaches and operations, Sumaila and Bello (2018) concluded that the school students attended does not predict academic achievement.The level of attainment and success over time in educational pursuit of students can be termed as the achievement. The Nigeria Certificate in Education (NCE) was made to be the minimum requirement for taking the teaching profession by the Federal Republic of Nigeria (2004). In this direction, the study investigated the predictability of students' gender, interest and schools attended on academic performance in mathematics among NCE students in Kano State, Nigeria.

The Kano State College of Education and Preliminary Studies (formerly College of Arts Science and Remedial Studies) as the first state owned tertiary institution came into being in 1973. The College offers courses namely: - IJMB in humanities, Social and Management Sciences and the Sciences; Diploma in English Education affiliated to Bayero University, Kano and Diploma in Mathematics Education affiliated to Ahmadu Bello University, Zaria and remedial Programmes in SSCE and TC II referred. In 2015, the College disaffiliates from Institute of Education, Ahmadu Bello University, Zaria and other institutions that award the certificates of the Diploma programmes and instead mount the Nigeria Certificate in Education (NCE) programme. The disaffiliation was in compliance with Kano State Government's order of stopping all Diploma programmes whose products took up teaching job. However, in September 9th, 2018, the status of the College was upgraded to a full pledged College of Education and additional mandate of running the NCE was added. The College has graduated four sets of students beginning from 2017 to date.

Statement of the Problem

The frequent report that students' performed poorly in mathematics in the SSCE, shows that they are unable to attain high grades in the subject and can be concluded that students' had been having lack of interest. In addition, the low admissions into NCE programme with mathematics combination is drawing down annually thereby culminating the number of potential mathematics teachers in both public and private schools. Some students' inability to graduate within the stipulated study period can also count among the forces that calls for this study. WAEC Chief Examiner's reports as the annual performances report from the examination body portrays that the students' performance in the mathematics is not any better than previous years. The areas of weakness were specifically that students were unable to attempt mathematics questions thereby committed avoidable errors in the process of finding the correct answers. There was an observed failure to understand words problems as such were unable to form the mathematical relation leading to the solution and draw required diagrams correctly was observed. Specifically, however, the Chief Examiner's report of the year 2018 outlined some of the students shortcomings including inability to form mathematical relations from word problems, solve probability problems; solve equation simultaneously involving indices and solve problems in geometry particularly mensuration.

The annual graduation grades of the students keeps changing over time and for documentation and forecast of the factors responsible for such phenomenon, this study investigates and analyses the correlation between the students entry qualifications, gender, interest, school attended and academic performance in mathematics among NCE students in Kano State, Nigeria.

Objectives of the Study

The objectives of the study are to determine the predictability of students' entry qualifications, gender, interest and school type on the academic performance in mathematics among NCE students. On Specific note, the objectives of this study are to ascertain whether:-

1 Students' entry qualifications correlate with students' performance in NCE mathematics

2 Students' gender correlates with students' academic performance in NCE mathematics.

3 Students' interest correlates with students' academic performance in NCE mathematics.

4 School type correlates with students' academic performance in NCE mathematics.

Research Questions

To guide the conduct of this study the following research questions were framed:-

1 Could there be a correlation between students' entry qualifications and academic performance in mathematics?

2 What is the gender difference in correlation of students' academic performance in mathematics?

3 To what extent is the correlation between Students' interest in mathematics and the academic performance in mathematics?

4 Can difference in performance in mathematics be established between public and private school students?

Null Hypotheses

The following four hypotheses were formed and tested at 0.05 level of significance.

H_{o1}: There is no significant correlation between the different students' entry qualifications and academic performance in NCE mathematics.

H_{o2}: There is no significant correlation between different gender's academic performance in NCE mathematics.

H_{o3}: There is no significant correlation between Students' interest and students' academic performance in NCE mathematics.

Ho_4: There is no significant correlation between students of different schools' academic performance in NCE mathematics.

Significance of the Study

The findings of the study would provide to the College:

1) a database capable of forecasting students final grades in relation to the different entry qualifications

2) source of information as to the planning of the college academic activities relevant to mathematics to boost the performance
3) reference material for fellow researchers interested in replication of the same study or embark on a fresh one looking at other variables.

2. METHODOLOGY

Correlational research design was utilized for the study whose population consists of all NCE mathematics students first set (2014) of KASCEPS Kano to (2021). The sample of the study will consist of one hundred (100) students from NCE mathematics graduates. The samples of the study were drawn from four sets admitted in 2014, 2015, 2016 and 2017. The sampling techniques used were stratified and simple random sampling for selecting students from the four sets comprising of 60 male and 40 female. The instrument used for the study was Students Mathematics Interest Questionnaire adopted from Snow (2011), a 20 item questions. Questionnaire administration of the research instrument and a documentary analysis of students' records files were the main data collection procedures. Descriptive statistics (Mean and standard deviation) were used for research questions while Spearman's Rank Order Correlation and Pearson's Correlation) were used for taking decisions as inferential statistics.

Data Presentation

The study data on the students' entry qualification, gender, interest and school type are presented in Tables 1 through 5 below.

Table 1: Gender Distribution of the Study Samples

	Male	Percent	Female	Percent	Total	Percent
	60	60%	40	40%	100	100%
Total	**60**	**60%**	**40**	**40%**	**100**	**100%**

From Table 1, there were 60 (60%) male and 40 (40%) female samples totaling 100 from Kano State College of Education and Preliminary Studies, Kano.

Table 2: Distribution of the Sample of the Study by the Type of Schools Attended

School Attended	Sample	Percent
Private Schools	35	35%
Public Schools	65	65%
Total	**100**	**100%**

From Table 2, 35 (35%) of the samples attended private schools while 65 (65%) of the samples attended public schools.

Table 3: Distribution of Grades of both the Entry Qualifications and the Final Performances for the Sample of the Study

Grades	Entry Qualification		Final Performance	
	N	%	N	%
Pass	-	-	25	25
Merit	-	-	11	11
Lower Credit	85	85	38	38
Upper Credit	14	14	19	19
Distinction	1	1	7	7
Total	100	100	100	100

From Table 3, out of 100 samples, 85 (85%) obtained Lower Credit, 14 (14%) obtained Upper Credit, 1 (1%) obtained Distinction to qualify for admission to read Mathematics at NCE level. Also presented is the distribution of grades of the whole samples of the

study after completion of the three year NCE course in mathematics as follows:- 25 (25%) students scored a Pass 11(11%) Merit, 38 (38%) scored Lower Credit, 19 (19%) scored Upper Credit while 7(7%) scored a Distinction.

Table 4: **Distribution of Grades of both the Entry Qualifications and the Final Performances for both Public and Private School Samples of the Study**

Grades	Public Schools Entry Qualification		Public Schools Performance		Private Schools Entry Qualification		Private Schools Performance	
	N	%	N	%	N	%	N	%
PASS	-	-	16	24.6	-		9	25.7
LOWER CREDIT	-	-	11	16.9	29	82.9	4	11.4
CREDIT	57	87.7	20	30.8	6	17.1	14	40
UPPER CREDIT	7	10.8	14	21.5	-	-	7	20
DISTINCTION	1	1.5	4	6.2	-	-	1	2.9
Total	**65**	**100**	**65**	**100**	**35**	**100**	**35**	**100**

From Table 4, 57 (87.7%) of the samples scored Credit, 7 (10.8%) scored Upper Credit while 1 (1.5%) scored a Distinction in entry qualifications for public schools, while 29 (82.9) and 6 (17.1%) scored lower Credit and Credit for private schools respectively. On the final performances, 16 (24.6%), 11 (16.9%), 20 (30.8%), 14 (21.5%) and 4 (6.2%) public schools samples scored a Pass, Lower Credit, Credit, Upper Credit and Distinction in the final NCE Mathematics respectively. Also 9 (25.7%), 4 (11.4%), 14 (40%), 7 (20%) and 1 (2.9%) scored Pass, Lower Credit, Credit, Upper Credit and Distinction in the final NCE Mathematics for Private School. Conclusively, the public schools samples outscored the Private schools samples in all grades with 16 > 9, 11 > 4, 20 > 14, 14 > 7 and 4 > 1 respectively.

Table 5: **Distribution of Grades of both the Entry Qualifications and the Final Performances for the Samples of Different Gender.**

Grades	Male				Female			
	Entry Qualifications		Final Performances		Entry Qualifications		Final Performances	
	N	%	N	%	N	%	N	%
Pass	-	-	7	11.7	-	-	11	27.5
Merit	-	-	5	8.3	-	-	7	17.5
Lower Credit	52	86.7	22	36.7	34	85	16	40
Upper Credit	8	13.3	21	35	5	12.5	5	12.5
Distinction		-	5	8.3	1	2.5	1	2.5
Total	**60**	**100**	**60**	**100**	**40**	**100**	**40**	**100**

From Table 5, 52 (86.7%) and 34 (85%) of male and female samples scored Lower Credit, 8 (13.3%) and 5 (12.5%) scored Upper Credit while 2 (1.5%) and 1 (2.5%) scored a Distinction in entry qualifications respectively. On the final performances, 7 (11.7%) and 11 (27.5%) of male and female samples scored a Pass, 5 (8.3%) and 7 (17.5) scored Merit, 22 (36.7%) and 16 (40%) scored Lower Credit, 21 (35%) and 5 (12.5 %) scored Upper Credit and 5 (8.3%) and 1 (2.5) scored a Distinction after completing the NCE Course in Mathematics respectively. Conclusively on the male samples outscored the female samples in credit and distinction grades with 22 > 16, 21 > 5 and 5 > 1 respectively.

3. RESULTS

The findings/results of the study subsequent upon the analyses, are presented in Tables 6 - 13 below.

Research Question One

Could there be a correlation between students Entry Qualifications and Academic Performance in Mathematics?

The required data the response to the question is contained in Table 6.

Table 6: Means and Standard Deviations of the Entry Qualifications and Final Performances in NCE Mathematics for all the Samples of the Study

	Entry Qualifications	Final Performances	Mean Difference
Valid (N)	100	100	
Mean (M)	3.16	2.72	0.44
Standard Deviation (SD)	0.39	1.23	

From Table 6, the Mean scores and standard deviations of the entry qualification are 3.16 and 0.39 while that of the final performances are 2.50 and 1.23. The standard deviation (0.39) for the entry qualification indicates that the scores were closer to the mean (3.16) while for the final performances the scores were observed to be scattered away as depicted by the standard deviation (1.23). The mean difference (0.44) between the entry qualifications and the final performances portrays a variation in achievement. To explore the variation further and identify the correlation between the two performances, the analysis in Table 7 show further.

Null Hypothesis One

There is no significant correlation between the entry qualifications and students' academic performance in NCE mathematics.

Table 7: Correlation of Entry Qualifications and Final Performances in Mathematics

Variable	N	r	p-value	Decision
Entry Qualifications	100			
		0.19	0.57	0.57 > 0.05
Final Performances	100			

From Table 7, the calculated Spearman's rho r = 0.19 and the calculated p-value is 0.57 at the research designated p- value = 0.05. By comparison 0.57 > 0.05 and this depicts that entry qualifications did not impact on the final performances in NCE mathematics as such null hypothesis one is retained.

Research Question Two

What is the difference in correlation between male and female students' academic performance in mathematics?

Table 8 presented the data needed for the research question two.

Table 8: Means and Standard Deviations of both Entry Qualifications and Final Performances for Male and Female Samples of the Study

	Male Sample Entry Qualifications	Male Samples Performances	Female Samples Entry Qualifications	Female Samples Performances
Valid (N)	60	60	40	40
Mean	3.13	3.20	3.18	2.45
Std. Deviation	0.34	1.10	0.45	1.11

From Table 8, the Mean and Standard deviation scores of the entry qualifications for male is 3.13 (0.34) while that of the female is 3.18 (0.45). Though both the male and female samples share a mean greater than 3, there is a slight difference in favour of the female samples. Also the Mean and Standard Deviation of the final performances for both male 3.20 (1.10) and female 2.45 (1.11). The means difference of 0.75 shows that

the male samples outperformed the female samples in the final performance of NCE mathematics examination. The extent of the relationships between the entry qualifications and final performances in respect of gender, can be achieved from Table 9.

Null Hypothesis Two

There is no significant correlation between different gender's academic performance in NCE mathematics.

The necessary data needed for decision are contained in Table 9

Table 9: Correlation of Entry qualifications and Final Performances in NCE Mathematics for both Male and Female Samples of the Study.

Variable	N	r	p	Decision
Male Entry Qualifications	60			
		0.256	0.048**	0.048 < 0.05
Male Final Performances	60			
Female Entry Qualifications	40			
		-0.013	0.937	0.937 > 0.05
Female Final Performances	40			

From Table 9, the calculated r and p are 0.256 and 0.048 for male and -0.013 and 0.937 for female samples at the research designated p = 0.05. The entry qualifications for male samples correlated with the final performances in NCE mathematics (0.048 < 0.05) as such we fail to retain null hypothesis two.

Research Question Three

To what extent is the correlation between Students' interest in mathematics and the academic performance in mathematics?

Table 10 contains the data for the response to research question three.

Table 10: Summary of Responses on Students Interest in Mathematics

Level of Interest	**Male Interest**		**Female Interest**		**All Samples Interest**	
	N	**%**	**N**	**%**	**N**	**%**
No Interest	3	5	1	2.5	4	4
Very Low Interest	0	0	3	7.5	3	3
Low Interest	3	5	7	17.5	10	10
Moderate Interest	23	38.3	11	27.5	34	34
High Interest	11	18.3	12	30	23	23
Very High Interest	20	33.3	6	15	26	26
Total	**60**	**100**	40	**100.00**	**100**	**100**

From Table 10, 54 (89.9%) of male, 29 (72.5%) of female and 83 (83%) of all samples have interest in mathematics. The interest in the subject mathematics by 89.9% male, 72.5% female and 83% of all samples suffice to presume that interest will greatly impact on the final performances in NCE mathematics by all samples of the study. To explore the magnitude of the correlation, Table 11 illuminates further.

Null Hypothesis Three

There is no significant correlation between Students' interest and Academic Performance in Mathematics.

Table 11: Correlation of Students Interest and Final Performances in NCE Mathematics for all the Samples of the Study.

Variable	N	r	p-value	Decision
Students' Interest	100	0.048	0.633	0.633>0.05
Final Performances	100			

From Table 11, the calculated r and p-value are 0.048 and 0.633 at p-value of 0.05 respectively. The decision from Table 11 is that 0.633 > 0.05 which portrays that the high interest of students in mathematics, have no bearing with the final performances in NCE mathematics as such the null hypothesis is retained.

Research Question Four

Can difference in performance in mathematics be established between public and private school students?

Table 12 contains the much needed data to respond to the research four.

Table 12: Means and Standard Deviations of both Entry Qualifications and Performances for Public and Private Schools Samples of the Study

	Public Entry Qualification	Public Performance	Private Entry Qualification	Private Performance
N (Valid)	65	65	35	35
Mean	3.14	2.68	3.11	2.63
Mode	3.00	1.00	3.00	3.00
Std. Deviation	0.39	1.17	0.53	1.15

From Table 12, the Mean and standard deviation scores of the entry qualifications and performances for both public and private schools are 3.14 (0.39), 2.68 (1.17) and 3.11 (0.53), 2.63 (1.15) respectively. An insignificant mean difference of 0.05 in the final performances in NCE mathematics was noticed in favour of the public schools. However, to ascertain the extent of the correlation, Table 13 provide the data and explanations.

Null Hypothesis Four

There is no significant correlation between students of different schools' academic performance in NCE mathematics.

Table 13: Correlation of Entry Qualifications and Final Performances in NCE Mathematics for Public and Private Schools Samples of the Study.

Variable	N	r	p	Decision
Public School Entry Qualifications	65			
		0.126	0.470	0.470 > 0.05
Public School Final Performances	65			
Private School Entry Qualifications	35			
		0.132	0.295	0.295 > 0.05
Private School Final Performances	35			

From Table 13, the Spearman's rho value r = 0.126 and calculated p = 0.470 for the public schools; r = 0.132 and p = 0.295 for the private schools samples at t p = 0.05. For the two different schools samples, the calculated p-values (0.470) and (0.295) are all greater than the research p-value 0.05 hence, the null hypothesis is thus retained. The private schools samples have a better correlation despite being very weak positive correlations (0.132) than the public (0.126) samples who have also a very weak positive correlation. The entry qualifications for private schools have a positively weak impact

on the final performance while that of the public schools has also a positively very weaker impact on the final performances.

THE FINDINGS

This study explored the predictability of Students' Entry Qualifications, Gender, Interest and School Type on academic performance in mathematics among Nigeria Certificate in Education students in Kano State, Nigeria. The followings are the findings from the study;-

- The students prior knowledge (entry qualifications) had no influence in the final performance in NCE mathematics
- Male samples performances are better than the female counterparts considering the two means (3.20 > 2.45).
- The students had high interest in mathematics but the interest has no impact on the final performances in NCE mathematics.
- The interest in mathematics of male samples is higher the interest of the female samples.
- Students from public schools had better performance than the private schools considering the two means (2.68 < 2.63)

DISCUSSION

This study examined the prediction ability of Students' Entry Qualification, Gender, Interest and School Type on academic performance in mathematics among Nigeria Certificate in Education students in Kano State, Nigeria. A correlational study compare two data sets of data for analysis and drawing valid conclusion(s) or inferences. From the findings the students entry qualifications did not correlate with the final performance in NCE mathematics. This finding upheld the works of Ubale (1986) and Joel (1990) who found no significant difference in performance for different entry groups. On the other hand the findings opposed the works of Ohuche (1974), Majasan and Bakare (1974) differences in performance were observed for various entry groups; Mc Clelland and Kruger (1993) performance in a certain subject at an Ordinary level helps to predict performance at an A-level.

The performances of male samples was found to be better than the female counterparts considering the two means (3.20 > 2.45). This finding agrees with the earlier works of Kaiser-Messmer (1994) boys performed better than girls in mathematics. The findings are in contrast with Zhang and Manon (2000); Johnson (2000) and Omenka, and Kurumeh (2013) who find no significant differences in achievement between boys and girls; Köse (2001) girls had higher level of school performance than boys.

Students have high interest in mathematics, but, the impact of the interest on the final performance in NCE mathematics does not manifest. The finding of this study on interest supports the earlier works of Köller, Baumert, & Schnabel (2001) who hold that subject-specific interest in mathematics had no significant influence on achievement. The findings as well is at disparity with Harackiewicz, Durik, Barron, Linnenbrink-Garcia, & Tauer (2008); and Fisher, Dobbs-Oates, Doctoroff, & Arnold (2012) who opined that subject-specific interest is an important factor for advanced achievement.

The interest in mathematics of the male samples is higher the interest of the female samples. This finding is supported by the studies of Fredricks & Eccles (2002) and Watt (2004) ….. boys have more interest in mathematics than their counter part.

Students from public schools had better performance than the private schools considering the two means (2.68 < 2.63). The study contradicts Sumaila and Bello (2018) who reported that the prior school does not a predict academic achievement.

4. CONCLUSION

This study concludes that prior knowledge in mathematics is not a determinant in NCE mathematics. Male samples of the study performed better than the female with respect to the two means; the students have high interest in mathematics but the interest does not influence the final performances in NCE mathematics; the male samples had higher interest than the female samples and students from public schools performed better in the final NCE mathematics. referring to the two means.

Recommendations

The study recommends as follows:-

1 Teachers should highlight the relevance and importance of mathematics to students in such a way that students' interest will not only developed but, rather enable it to be a determinant of performance in subsequent studies. This can be done through curricular and extra curricula activities at junior and senior secondary schools levels.

2 There should be frequent update of teachers' knowledge (both pedagogical and content) to acquaint self with modern means of instructions. This can be done by subscribing to conferences and workshops attendance for both the professional bodies and related.

3 Certified and registered mathematics teachers need be employed to handle mathematics instructions and the uncertified teachers be retrained on the modern instructions procedures. Foundation levels should be all that strong and capable of boosting the morale of students in the subject bearing in mind that mathematics is a core subject and was made to be a necessary and sufficient condition for science and technology careers in terms of admissions into tertiary institutions.

4 The female students should be made to like and perform better in the subject by engaging them as leaders in group instructions.

5 The Colleges should consider the introduction of entrance examination (similar to Post UTME) to admit candidates that are capable of pursuing career in mathematics.

6 Adopt the use of soft skills in conducting instructions to ascertain the preparedness, readiness and state of stability of the learners

7 Conduct a periodic study in relation to students' variables as to the teaching and learning.

8 Establish a functional platform to facilitate lesson delivery and introduce problem solving techniques with a view to supplement the classroom lessons.

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