Gender Differences in Mathematics Interest and Achievement in Junior Secondary School Students, Niger State, Nigeria

Oluyemo A. A[1], A. Musbahu[2] (PhD), Prof. I. J. Kukwil[3], Prof. C. M Anikweze[4], Shaluko Y. D[5]

[1,2]*Dept. of Physics, Niger State College of Education, Minna, Niger State, Nigeria*

[3,4] *Dept. of Measurement and Evaluation, Nasarawa State University, Keffi, Nasarawa State, Nigeria*

[5] *Technical Education Dept. Niger State College of Education, Minna, Niger State, Nigeria*

Abstract: **This study assessed the influence of gender differences in mathematics interest and achievement of Junior Secondary School Students (JSS) in Niger State, Nigeria. Correlation Survey design was adopted for the study. The target population for this study consists of 5,368 (2,705 male and 2,663 female) JSS 1 students in 2012/2013 academic session from 92 public and private Junior Secondary Schools in Zone 'B' of Niger State. The sample of this study consist 361 (182 male students and 179 female) and multi-stage stratified random sampling technique was employed in the selection. Two instruments were developed for the study which consists of an Inventory on Students' Interest in Mathematics (ISIM) and a Mathematics Achievement Test (MAT). Descriptive statistic (mean and Standard Deviation), Chi square, t test, biseria correlation and it is associated simple regression of Ordinary Least Square (OLS) method were used to establish relationship between the variables and to test null hypothesis at the 0.05 level of significance. The instruments were validated and the reliability coefficient was established using the test-retest method. The data obtained were analyzed using mean with the criterion mean set at 2.5.The findings of the study revealed that male students excel in Mathematics more than their female counterparts.. Based on the findings of the study, it was recommended amongst others that teachers should make use of alternative teaching methods like the use of games and simulations to motivate students' interest (both male and female) in the learning of Mathematics.**

Keywords: **Mathematics, Gender differences, Interest, Achievement, Students.**

I. INTRODUCTION

Students' interest towards learning Mathematics and their implications for Mathematics instruction have long been a common concern among Mathematics educators. Interest towards Mathematics has been considered an important factor influencing participation and success in the subject. Mathematics is made up of a set of concepts, facts, principles, and operations that are fundamentals to the existence of every individual (Hafiz & Hina, 2016). Gender has also been reported to play a role in students' interest and hence achievement in Mathematics. For instance, Eccles and Wang (2015) emphasized that females express less interest in Mathematics than their male peers.

Achievement in the subject is crucial for students' admission into scientific and technological professions. That is why mathematics has been made as a compulsory subject in all primary and secondary schools in Nigeria. Over the years, education has focused on access and parity, that is, closing the enrollment gap between girls and boys while insufficient attention has been paid to retention and achievement or the quality and relevance of education. The first and second national campaigns on 'Access' were successfully launched in Yola, Adamawa State for girls and in South – East for boys in the year 2010 and 2011, respectively.

With most efforts focused on closing the secondary school enrollment gap between girls and boys, insufficient attention has been paid to gender dynamics that affect children's larger participation in school. The relationship between gender and educational input, such as curricula, interest, textbooks, pedagogy and teacher training, are rarely made explicit. Similarly, the links between gender inputs and interest are issues often overlooked in education as programmes, policies and strategies; in spite of the fact that they contribute to reinforcing the gender gap in education. Analyzing the relationships between girls and boys and between teachers and learners can lead to identification of the root causes of inequality. It can also suggest systematic, transformative changes to educational system that will eliminate those causes. Interventions involving both girls and boys appear to be successful in addressing constraints that limit girls' participation in education (Kost-Smith *et al.,* 2012).

There have been gender differences in the achievement of students in some forms of examinations, test or assessment, distort the meaning of test and decisions based on it. Considering the West African Examinations Council (WAEC, 2009) and the National Examinations Council (NECO, 2009), Senior School Certificate Examinations (SSCE) results were reported to have recorded very low percentage passes in mathematics at credit level, Federal Ministry of Educaton (FME, 2010). In trying to find out the reasons for this unfortunate situation in mathematics education in Nigeria, Leder & Forgasz (2018) blames students' poor learning interest and teachers' failure to use appropriate and stimulating teaching methods. The situation may be due to lack of motivation of students (Lazarides *et al.,* 2019).

The above evidences show that gender and interest manifest in teaching and learning processes, despite the observed poor achievement in mathematics has been a matter of serious concern to all well-meaning educators. Students' poor achievement in mathematics over the years has been attributed to the fact that the subject is difficult. This study therefore sought to provide data on the students achievement in mathematics tests as it relates to sex (male or female), school location (urban or rural) and school type (private or public) in North central six geopolitical zone of Nigeria.

II. STATEMENT OF THE PROBLEM

Observations and reports from examining bodies like WAEC, NECO and JAMB revealed that a high percentage of secondary school students continue to perform poorly in Mathematics examinations (Darragh, 2018). Considering the analysis of the results of the examination conducted by the West African Examinations Council (WAEC) in Nigeria in May/June 2008, it was published that out of about 13.8% of the candidates who had credits and above in Mathematics and English Language plus three other subjects, 7.32% were males while 6.43% were females signifying that the males performed slightly better than the females (Oluwatayo & James, 2011). The interest in raising the level of achievement in Mathematics has been a major concern to researchers in recent times, and this study investigates the interaction/relationships between students' gender and interest, and mathematics achievement vis-à-vis school type (public and private) in zone 'B' of Niger state, Nigeria.

Purpose of the Study

The purpose of the study is to assess the interaction of gender and interest with the Mathematics achievement of Junior Secondary Schools in the Niger State, Nigeria. Specifically, the objectives study intends to:

1. Determine students' achievement in Mathematics across gender.
2. establish students' interest towards the learning Mathematics by gender
3. Estimate the relationship between male students' interest and achievement in Mathematics test.
4. Estimate the relationship between female students' interest and achievement in Mathematics test.

Research Questions

The following research questions were raised to guide the study:

1. What is the difference between mean achievement of male and female students in Mathematics?
2. What is the level of students' interest towards the learning of Mathematics by gender?
3. What is the relationship between male students' interests and achievement in Mathematics test?
4. What is the relationship between female students' interests and achievement in Mathematics test?

Research Hypotheses

The following hypotheses will be tested at the 0.05 level of significance:

HO_1: There is no significant difference between mean achievement of male and female students in Mathematics.

HO_2: There is no significance association between achievement of male and female students in Mathematics.

HO_3: There is no significant relationship between male students' interests and achievement in Mathematics test.

HO_4: There is no significant relationship between female students' interests and achievement in Mathematics test.

III. RESEARCH METHODOLOGY

Research Design

The study adopted correlation survey design. Emaikwu (2012) viewed correlation survey as the type of study that seeks to establish relationship between two or more variables. This design is considered suitable because the study is concerned with conditions or relationships that exist among gender, interest and achievement.

Population of the Study

The target population for this study consists of 5,368 JSS 1 students in 2012/2013 academic session from 92 Junior Secondary Schools in Zone 'B' of Niger State. The population is made up of 2,705 male students and 2,663 female students. The common characteristic of the population is that they are all JSS 1 students that offered Mathematics as a compulsory subject.

Sample and Sampling Techniques

The sample of this study consist 361 JSS 1 students in 2012/2013 academic session from 12 Junior Secondary Schools in zone 'B' of Niger State which consist of 182 male students and 179 female students from public and private schools of the zone. The multi-stage stratified random sampling technique was employed to select the 12 schools for the study from 92 Junior Secondary Schools in Zone 'B' of Niger State. At the first stage, geo-political zone 'B' was randomly selected for the study from the three geo-political zones of Niger State. At the second stage, the 92 Junior Secondary schools in zone 'B' was stratified along school type (public and private), three Junior Secondary Schools from each stratum was randomly selected for the study making a total of 12 Junior Secondary Schools. At the third stage, 361 students were randomly selected from the 12 Junior Secondary Schools, students were stratified along male and female dichotomy before simple random sampling was employed.

The lucky dip method of random sampling was used in all the stages of sampling. Serial numbers of the elements in the sampling frame was recorded on pieces of papers folded and mixed thoroughly before respondents were asked to pick at once without replacement. This technique gives the respondents equal opportunity of being selected thereby, reducing the bias effect that may interfere with the validity and reliability of the study. See Table 1 for detail of sample size.

Table 1: Sample Distribution of the Study by School Type, School Location and Gender

S/N	Name of School	School Type	School Location	Number of Students		Total
				Male	Female	
1	JSS Diko	Public	Urban	20	20	40
2	JSS Kwasau	Public	Urban	35	38	73
3	JSS Madalla	Public	Urban	22	20	42
4	JSS Mutum daya	Public	Rural	10	10	20
5	JSS Gwam	Public	Rural	12	10	22
6	JSS Maikujeri	Public	Rural	11	11	22
7	JSS Hudal Islam College	Private	Urban	15	15	30
8	Niger Baptist High School	Private	Urban	8	7	15
9	Mawo Comprehensive School	Private	Urban	20	20	40
10	Our Lady School Suleja	Private	Urban	13	12	25
11	Bapist School Paiko	Private	Rural	10	11	21
12	Christ the King Junior Seminary Gwada Village	Private	Rural	6	5	11
Total				182	179	361

Instrumentation

The researcher personally developed two instruments for the study which consist of an Inventory on Students' Interest in Mathematics (ISIM) and a Mathematics Achievement Test (MAT). ISIM contains 20 items that reveals students' interest in Mathematics based on Likert type scale of Strongly Agree (4-points), Agree (3-points), Disagree (2-points) and Strongly Disagree (1-point). This instrument structured in such a way that every item elicits level interest which is scored and summed up the marks of every item to give a total for every student. The lowest mark for each and every item of the ISIM is 1 mark and for 20 items minimum score for the lowest level of interest is 20 marks. Therefore, the highest and lowest score of the inventory were 80 and 20 respectively. The criteria set for the interest inventory is that any student that scores within the range of 20 – 30 (low interest), 31 – 65 (moderate interest) and 66 – 80 (high interest). Mathematics Achievement Test (MAT) is made up of 20 multiple-choice items with four options A, B, C and D. Each item has one correct option (the key) and three distracters. And every item attracts one mark making the highest scorer who got all the items correctly to have 20 marks and lowest scorer 0. The scores harvested from the MAT were converted to percentages using these criteria: Excellent (70-100), Very good (60-69), Good (50-59), pass (40-49) and fail (0-39). Each instrument has section 'A' consisting of essential bio-data that will serve as secondary independent variables, while the MAT and ISIM constitute Section B.

Validation of the Instruments

Content validity was ensured for Mathematics Achievement Test (MAT) by developing a test blueprint/table of specification based on the Benjamin Bloom's taxonomy of educational objectives in the cognitive domains (cited in Anikweze, 2010) constituting of: knowledge, comprehension, application, analysis, synthesis and evaluation as presented in Table 2.

Table 2: Table of specifications for 20 items Mathematics Achievement test for JS 1 students

S/N	Content Area	Time	Know 10%	Comp 40%	App 45%	Anal. 5%	Syn.	Eva.	Total Items	%
1	Simple equation	2 hours	1	1	2	_	_	_	4	20%
2	Plane shape	2 hours	1	1	2	_	_	_	4	20%
3	Fraction	2 hours	_	2	2	_	_	_	4	20%
4	Algebraic simplification	2 hours	_	1	2	1	_	_	4	20%
5	Statistics	2 hours	_	3	1	_	_	_	4	20%
Total Items		10 hours	2	8	9	1	_	_	20	100%

The content validity established for MAT instrument by using the table of specifications (Table 2) in order to have adequate representative samples from all aforementioned five topics. Also, face validity was established for the 20-item MAT by subjecting it to the two experts' judgment using validation form of 20 items which gave logical consensus of 0.72 indexes. The two experts were from the Department of Mathematics and Statistics, Federal University of Technology, Minna, Niger State, and the Department of Educational Foundations, Nasarawa State University, Keffi validated the instruments by checking for appropriateness and relevancy of the items, adequacy and agreement with the blueprint, clarity of expression and size of print. And, for the 20 items Inventory on Students' Interest in Mathematics (ISIM), the same process applied for MAT to get face validity as earlier explained was adopted to get logical consensus index of 0.76.

Reliability of the Instruments

Inventory on Students' Interest in Mathematics (ISIM) and a Mathematics Achievement Test (MAT) was pilot tested on a small portion of the population who are not part of the sampled respondents. The instruments were pilot tested on 20 students. The harvested scores used to determine the reliability of the instruments. Cronbach coefficient Alpha method of estimating reliability was employed to compute coefficients of internal consistency. This is considered suitable because Cronbach coefficient Alpha is more general method of estimating internal consistency for instruments with scales that provide responses on a continuum of 'Strongly Agree, Agree, Strongly Disagree and Disagree' (Emaikwu, 2011). The reliability coefficients indices were 0.82 and 0.79 for ISIM and MAT respectively. Item difficulty index of 0.50 for MAT was obtained. Finally, item discriminating power for MAT was computed to be 0.40 (average for all items).

Method of Data Collection

The developed and validated 20-item test, 20 items of interest inventory and answer sheet were administered to the students with the assistance of their teachers in form of the Continuous Assessment (C.A.) test. The researcher supervised the work of the teachers and students. The researcher also made sure that the questions were given to the teachers at the exact time for the test so as to increase the accuracy of the result. The ISIM was administered first to students after proper guidance on bio-data and left students alone to choose the option that is best suit their level of interest out of Strongly Agree, Agree, Disagree and Strongly Disagree in the inventory by ticking (√). After 30 minutes, the students indicated that they had finished and they were asked to pass the instruments forward from back for collection immediately. The MAT was administered after ISIM and 10 minutes was given to fill the bio-data before attempting the 20 items question within 1 hour allocated time.

The students were left alone to choose from the available 4 options which consists 3 distracters and 1 key (answer) labeled A, B, C and D by shading on answer sheet attached to the instrument.

Method of Data Analysis

Descriptive statistics was used to analyze mean difference between male and female achievement in mathematics. Biserial correlation was used for relating male, female students' interests with their mathematics achievement under research questions. The t-test statistics was used to find significance difference between mean achievement of male and female students and chi-square of Test of independent association for relating students' interests' level and their mathematics achievement at 0.05 level of significance.

IV. RESULTS AND DISCUSSION

Research Question One

What is the difference between mean achievement of male and female students in Mathematics?

Table 3: Descriptive Statistics for Difference between Mean Achievement of Male and Female Students in Mathematics

Variable	n	Mean	Mean difference	S.D
Male Achievement in Mathematics	182	58.5	11.3	26.3
Female Achievement in Mathematics	179	47.2		26.3

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Table 3 shows the descriptive statistics for difference between mean achievement of male and female students in Mathematics. It is evident that the male students' mean achievement score in Mathematics and that of female students are obtained to be 58.5 and 47.2 respectively. These results reveal that male students excel more in Mathematics than their female counterparts. The standard deviations for male and female students are given by 26.3 and 23.1 respectively. The achievement shows a high standard deviation and mean, this is because of divergent abilities of students whereby some performed excellently well and other performed lowly. The implication of this is that teachers do not carry every student along in the teaching of mathematics particularly in the zone studied.

Research Question Two

What is the level of students' interest towards the learning of Mathematics by gender?

Table 4: Descriptive Statistics on the Level of Students' Interest towards the Learning of Mathematics by Gender

Level of Interest	Male		Female		Total	
	n	%	n	%	n	%
High	25	14	20	11	45	12.47
Moderate	62	34	32	18	94	26.04
Low	95	52	127	71	222	61.49
Total	182	100	179	100	361	100

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Table 4 shows the level of students' interest towards the learning of Mathematics by gender. It is obvious that 14% of male students expressed high level of interest towards the learning of Mathematics. Thirty four percent of the male students expressed moderate level of interest towards the learning of mathematics, while the majority of male students represented by 52% expressed low level of interest towards the learning of Mathematics. However, 11% of female students expressed high level of interest towards the learning of Mathematics. Eighteen percent of female students expressed moderate level of interest towards the learning of Mathematics, while the majority of female students represented by 71% expressed low level of interest towards the learning of Mathematics. The finding is that although the majority of both male and female students expressed low level of interest towards the learning of Mathematics, the interest expressed by male students is relatively higher than that of their female counterparts.

Research Question Three

What is the relationship between male students' interests and achievement in Mathematics test?

Table 5: Biserial Correlation Coefficient for the Relationship between Male Students' Interests and Achievement in Mathematics

Variable	n	r_b	R^2
Male students' Interest in Mathematics Achievement in Mathematics	182	0.72	0.52

© SPSS version 20.0

Table 5 shows the biserial correlation coefficient for the relationship between male students' interests and achievement in Mathematics. Correlation coefficient of 0.72 was obtained for male students' interest and achievement in Mathematics test, signifying a positive relationship between male students' interest and their achievement in Mathematics test. The coefficient of determination of 0.52 indicated that 52% of variation in male students' scores in Mathematics is explained by their interest in Mathematics.

Research Question Four

What is the relationship between female students' interests and achievement in Mathematics test?

Table 6: Biserial Correlation Coefficient for the Relationship between Female Students' Interest and Achievement in Mathematics Test

Variable	n	r_b	R^2
Female Students' Interest in Mathematics Achievement in Mathematics	179	0.77	0.59

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Table 6 shows the biserial correlation coefficient for the relationship between female students' interests and achievement in Mathematics. Correlation coefficient of 0.77 was obtained for interest and female students' achievement in mathematics test, signifying a positive relationship between female students' interest and their achievement in Mathematics test. The coefficient of determination of 0.59 indicated that 59% of variation in female students' scores in Mathematics is explained by their interest in Mathematics.

Testing of Null Hypotheses

HO_1: There is no significant difference between mean achievement of male and female students in Mathematics.

Table 11: t-test Statistics for Significance for Significant Difference between Mean Achievement of Male and Female Students in Mathematics

Variable	n	$\bar{X}$	SD	df	Tcritical	p-value
Male Students' Achievement in Mathematics	182	58.5	26.3	359	4.246	0.05
Female Students' Achievement in Mathematics	179	47.2	23.1			

P< 0.05, © SPSS version 20.0

Table 11 showed the t-test statistics for significant difference between mean achievement of male and female students in Mathematics. At 0.05 level of significance and degree of freedom of 359, the t-test value of 4.246 which is greater than the critical value of 1.645 was obtained. Therefore, since the calculated value of t-test is greater than the critical value, the null hypothesis is rejected. Hence, there is a significant difference in the mean achievement scores of male and female students in Mathematics.

*HO_2***:** There is no significance association between achievement of male and female students in Mathematics.

Table 12: Chi-square of Test of Independent of association between interest levels and learning of Mathematics

Group	Interest levels			Df	A	χ^2 Cal	χ^2 Cri
	High	Moderate	Low				
Male Students	25	62	95	2	0.05	6.431	5.991
Female Students	20	32	127				

© SPSS version 20.0, P< 0.05.

Table 12 shows that the chi-square result for significant influence of interest levels on achievement of male and female students in Mathematics. It is evident that at 0.05 level of significance and degree of freedom of 2, the calculated chi-square value is 6.431 which is greater than the critical value of 5.991. Therefore, since the calculated value of chi-square is greater than its critical value, the null hypothesis is therefore rejected in favour of the alternative hypothesis. The implication is that there is a significant influence of interest on achievement of male and female students in Mathematics.

HO_3: There is no significant relationship between male students' interests and achievement in Mathematics test.

Table 13: Regression Equation, Correlation Coefficient and t-test of Significance for Male Students Interest Achievement and Achievement in Mathematics

Table 13a: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.715[a]	0.511	0.509	0.20350
a. Predictors: (Constant), male interest				

Table 13b: ANOVA Table

ANOVA[b]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	330.674	1	330.674	893.062	0.000[a]
	Residual	132.927	181	0.370		
	Total	463.601	182			
a. Predictors: (Constant), male interest						
b. Dependent Variable: achievement						

Table 13c: Table of coefficients for variables

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.54	0.076		1.920	0.301
	male interest	0.515	0.045	0.845	29.884	0.000

a. Dependent Variable: achievement

Table 13c showed the regression equation, correlation and t-test results for male students' interests and achievement in Mathematics test. The structured straight line regression equation relating male students' interest and achievement in Mathematics test is $M_m = 6.54 + 0.515(I_m)$ (Table 13c) showed that the estimate of the slope of M_m is positive, which implies a direct relationship between the dependent variable (M_m) and independent variable (I_m). The regression result also indicated that for a unit increase in male students' interest in Mathematics, their achievement in Mathematics will increase by about 0.52.

Correlation coefficient of approximately 0.72 (Table 13a) was obtained for interests and male students' achievement in Mathematics test, signifying a positive relationship between male students' interest and their achievement in Mathematics test. The coefficient of determination of 0.511 indicated that approximately 51% of variation in male students' scores in Mathematics is explained by their interest in the subject. Furthermore, at 0.05 level of significance and degree of freedom of 181, the t-test value of 1.920 which is greater than the critical value of 1.645 was obtained. Therefore, since the calculated value of t-test is greater than the critical value, the null hypothesis is rejected. Hence, there is a significant relationship between male students' interests and male students' achievement in Mathematics test

HO_4: There is no significant relationship between female students' interests and achievement in mathematics test.

Table 14: Regression Equation, Correlation Coefficient and t-test of Significance for Female Students' Interest Scores and their Achievement in Mathematics

Table 14a: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.765[a]	0.585	0.583	0.20450
Predictors: (Constant),female interest				

Table 14b: ANOVA Table

ANOVA[b]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	330.674	1	330.674	893.062	0.000[a]
	Residual	132.927	178	0.370		
	Total	463.601	179			
a. Predictors: (Constant), female interest						
b. Dependent Variable: achievement						

Table 14c: Table of coefficients for variables

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.04	0.076		1.999	0.301
	female interest	0.545	0.045	0.845	29.884	0.000

a. Dependent Variable: achievement. *$\alpha = 0.05$, © SPSS version 20.0*

Table 14c shows the regression equation, correlation and t-test results for female students' interests and achievement in Mathematics test. The structured straight line regression equation relating interests and female students' achievement in Mathematics test is $M_f = 7.04 + 0.545\ (I_f)$ (Table 14c) which shows that the estimate of the slope of M_f is positive, and this implies a direct relationship between the dependent variable (M_f) and independent variable (I_f). The regression result also indicated that for a unit increase in female students' interest in Mathematics, their achievement in Mathematics will increase by about 0.55.

Correlation coefficient of 0.765 (Table 14a) was obtained for female students' interests and achievement in Mathematics test, signifying a positive relationship between female students' interest and their achievement in Mathematics test. The coefficient of determination of 0.585 indicated that about 59% of variation in female students' scores in Mathematics is explained by their interest. Furthermore, at 0.05 level of significance and degree of freedom of 178, the t-test value of 1.999 (Table 14c) which is greater than the critical value of 1.645 was obtained. Therefore, since the calculated value of t-test is greater than the critical value, the null hypothesis is rejected. Hence, there is a significant relationship between interests and female students' achievement in Mathematics test.

V. SUMMARY OF FINDINGS

The major findings obtained in this study are summarized as follows.

1. It was found that male students excel in Mathematics more than their female counterparts. There is also a significant difference between mean achievement of male and female students in Mathematics.
2. The regression result indicated that for a unit increase in male students' interest in Mathematics, their achievement in Mathematics will increase by about 0.52, while a unit increase in female students' interest will increase their achievement by about 0.55. There is a significant relationship between interests and male students' achievements in Mathematics test; and between interest and female students' achievements in Mathematics test.
3. The result reveals that female students showed more interest in Mathematics than their male counterpart.
4. The regression result indicated that for a unit increase in urban students' interest in Mathematics, their achievement in Mathematics will increase by 0.50, while for a unit increase in rural students' interest in Mathematics, their achievement in Mathematics will increase by 0.49. There is a significant relationship between interests and urban students' achievement in mathematics; and between interests and rural students' achievements in Mathematics test.

VI. DISCUSSION OF RESULTS

It was found that male students excel more in Mathematics than their female counterparts. This result concurred with the assertions of Gutierrez (2013) and OECD (2014) that gender gaps in academic achievement, especially in Mathematics, continue to be observed worldwide. This result is also in line with those of Martin *et al*. (2016), Colleen *et al.,* (2011) and Morgan (2014) who all observed that in nearly all cases reported, males outscored females in Mathematics tests. Since low achievement in Mathematics may discourage women from pursuing a career in high-paid occupational fields such as engineering, it is conceivable that the inferior Mathematics performance of female students contributes to the persistence of the gender wage gap.

The identification of the root causes of gender differences in academic performance is therefore a fundamental economic issue. Especially the relative importance of societal factors as opposed to biological differences influencing the gender gap in Mathematics has recently been a focus of economic research. The socio-cultural practice, which prescribe varying roles, behaviour, occupation and value standards for both males and females which is not unimportant in the study area, may be responsible for better performance of male students in Mathematics than their female peers (Ebenezer & Adetoun, 2014). Kelly (2013) opined that both women and men choose careers based not just on performance and ability but also on their beliefs about and interest in those occupations.

It was also found that there is a significant relationship between interests and male's achievements, and between interest and female students' achievements in Mathematics test. This also agrees with the finding of OECD *et al*. (2013) that interest in Mathematics has direct implications for students' involvement in areas that require a strong Mathematics background including Science, Technology, Engineering and Mathematics (STEM) disciplines and careers, particularly for females. Lower interest is closely related to lower performance on mathematics-related achievement tests and lower grades in Mathematics, less interest in taking challenging Mathematics curricula prior to enrolling in College (Stoet & Geany, 2018), and less interest in pursuing a career in STEM disciplines (Huang, 2013). Females express less interest in Mathematics than male peers and some studies link that lower interest to fewer females pursuing careers in STEM fields (Huang, 2013). In addition to division of labour linked to gender in the society as earlier noted, common belief that being adept in Mathematics is genetic (inherited) can also be invoked to explain the findings of this work. The implication is that there will continue to be a gap in the roles males and females play in the society especially in the areas of Science, Technology, Engineering and Mathematics, if female students are not adequately encouraged to create interest in Mathematics.

VII. CONCLUSIONS

The results of this study reveal that interest generally influences the students' achievements in Mathematics. There is a significant difference between mean achievement of male and female students in Mathematics. There is a significant relationship between interests and students' achievement in Mathematics test by gender, school location as well as by school type. The results also demonstrate that there may be other factors (environment, quality of teaching, attitude and availability of teaching aids) that contribute to student's achievement in Mathematics.

VIII. RECOMMENDATIONS

Based on the findings of this study, the following were recommended:

Teachers should make use of alternative teaching methods like the use of games and simulations to motivate students' interest (both male and female) in the learning of Mathematics. Government and school managements should organize teachers' development programmes such as in-house training, workshops, seminars, conferences to enhance teachers' pedagogy in the teaching of Mathematics which will translate to improved students' interest in the subject.

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