

## INFLUENCE OF FAMILY SOCIO-ECONOMIC- STATUS ON SECONDARY SCHOOL STUDENTS ACADEMIC ACHIEVEMENT IN MATHEMATICS

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### **Abstract**

*The study investigated the influence of family socio economic status on secondary school students' academic achievement in mathematics. Based on the purpose of the study three research questions were posed answered and three null hypotheses were formulated and tested at 0.05level of significance. Descriptive survey research design was adopted for the study. The population of the study comprised of 16,886 SS2 students from Owerri Education zone of Imo State. A sample of 866 students was drawn using proportionate sampling technique. The instruments for data collection are Socio-economic Status Scale and Mathematics Achievement Test (MAT). The validity of the instruments was done by two experts two from Measurement and Evaluation and one expert from Mathematics Education. The reliability of the instruments were 0.81 and 0.72 determined using test retest method. Data collected were analyzed using mean and standard deviation for the research questions while t-test and AONVA were used to test the hypotheses. Results of the study indicated that family type, parents' occupation and educational level of parents, did not have significant influence on students' achievement in mathematics. Consequently, it is recommended that Parents should continue to get involved in their children's academic progress by monitoring their activities in and out of school, ensuring that home work is done, providing all necessary materials they need in school and meeting with their teachers when the need arises.*

**Keywords:** Family Socio-Economic- Status Academic Achievement and Mathematics

## **Introduction**

Mathematics is very essential in our daily life activities and has much regards in the society due to its relevance in industrialization, entrepreneurship, scientific and technological development of any nation. Mathematics is a core subject in the school curriculum and it is made compulsory at both primary and secondary school levels in Nigeria. Without a pass in mathematics at the West African Examination Council (WACE) level, it becomes difficult for any student to obtain admission to study most courses at the higher institution in Nigeria. Smith (2004) indicated that mathematics provides a powerful universal language and intellectual tool kit for abstraction, generalization and synthesis. It is the language of science and technology. It enables us to probe the natural universe and to develop new technologies that have enabled us control and master our environment and change societal expectations and standards of living. Any nation without a plan for improved standard in mathematics also has a plan of non-development in science and technology. Tella (2013) supported this by saying that mathematics is the bedrock for technological advancement, and development for all nations. Paisay (2010) noted that mathematics is a passage to understanding many other subjects. Mathematics teaches children important problem-solving skills that they can apply to other aspects of their lives. It helps them to think in a logical manner, and also helps them to view and analyze things in a more sophisticated way. It becomes worrisome that this subject with much importance in the development of individuals and nation in general suffers a high level of hatred, rejection, neglect and above all poor performance at both internal and external examination. Many Nigerian students are performing below expectation in their academics. The trend in the academic achievement of secondary school students in Nigeria in the last two decades has become a major source of concern to all stakeholders in the educational sector (Nwadinigu and Azaka-Obieke, 2012). There is a mass decline in the achievement of students in both National Examinations' Council (NECO) and the West Africa Senior Secondary Certificate Examination (WASSCE) (Dawa, Adamu & Olayomi, 2005). Several factors such as attitude of students and teachers, study habit, teachers' qualification, teaching methods, school environment, government policy, school location, family types have been identified in several studies as factors influencing students' academic achievement (Edwards, 2000; Aremu & Sokan, 2003; Asikhia, 2010; Akomolufe & Olorumfemi-Olabisi, 2011).

Studies from Jeynes (2002), Hochschild (2003) & Crewalas cited in Gunendra and Sujana (2017) established that student's outcomes is affected by socio economic status of the parents.

Socio-economic status of parents has been found to be a function of the level of their educational attainment as well as their occupation. Jensen in Akinifesi (2013) asserted that socio-economic status today largely a matter of educational and occupational status. Parental socio-economic status (SES) and students' academic performance can be determined by member of factors or variables. They include the following: - Parental education, Parental occupation, family size, Family physical environment and parental encouragement.

Parents who have formal education see the need to adequate monitoring of their children in the school. They are interested in the performance of their children in the school. Thus, a child who discusses with the class mates, watches and listens to educative programs from television stations and video tapes on television, radio, read newspaper, journals and educative magazines is likely to perform significantly well. Parental education is an index of measuring the socio-economic status of parents and it has a significant relationship with the academic achievement of their children. Parents' level of education is important to schooling as parents want their children to maintain the status quo (Mallan, 2009). It is also believed that parents with higher educational levels have stronger confidence in their children's academic abilities and they also have higher expectations of their children. They expect that their child will earn good grades behave well in school and attend college. These expectations and confidence in their children motivate them to do well at school. The confidence parents have in their children also help them to build their own confidence and self-concept which is important in their education (Mallan, 2009). However, parents' over expectations might also cause stress to their children which translates to poor educational attainments. Eccles (2005) pointed out that children learn by example often through observations at home. If a child's parents are reading books, attending ongoing educational classes and taking them along to the museums, libraries- all activities educated parents are more apt to do- they are engaging the child in a number of direct learning experiences that will help him or her to achieve the best in education. Parents are the primary persons in raising children in any society that is why the family is regarded as the primary agent of socialization (Adekey, 2002). It is through parents' occupation and efforts that children are socialized to become productive citizens in education and general life (Adekey, 2002). Parental occupation determines the structure of their income or earnings.

Parental involvement in education takes many forms including the provision of secure and stable environment, intellectual simulations, parent to child discussion, good models of constructive social and educational values

and high aspirations relating to personal fulfillment, contact with school to share information, participation in school events and school work and governance (Desforges & Abouchaar, 2003). Epstein (1992) established that parental involvement in education-checking homework, attending school meetings and events, discussing school activities at home has a very powerful influence on students' academic performance. While parental involvement positively affects student's academic achievement, low socio-economic parents are least likely to be involved in their children's education (Gratz, 2006). Low socio-economic parents are often working most of the time to take care of their families and they have no or limited time to participate in their children's education (Ratcliff & Hunt, 2009). However, the researcher is aware that the low socio-economic parents are also willing and just as eager to help their children succeed in their education as their counterparts in high socio-economic status but they are limited by their low level of education, income and occupation. Bawa (2000) reported a parental involvement in education project as part of a wide learning and educational achievement in nursery, primary and special school in Newham. Evaluation over the years indicated considerable enthusiasm for working together on the part of the parents and even the teachers. Teachers felt that parents' attitude had become very positive and had also raised their expectations. However, there was no evidence reported which related the initiative to impact on pupil's achievement and also the researcher only focused on the nursery school, primary school and Special school but this study only focused on public secondary school students.

In Nigeria just as it is around the world, adolescents are raised in different family types from the conventional nuclear family where two parents exist to other family forms such as the single parent setting. Some families' are managed by only one parent, which is described as single parenthood. This may be caused by death of spouse, separation, divorce, unwanted pregnancy and adoption (Kewswet & Dapa, 2010). Although a two-parent family does not necessarily guarantee happiness, adjustment and well-behaved children or adolescent, nor does single parent family guarantee the opposite, studies show that lack of adequate parenting has been known to result in adolescent problems; that adolescent from intact home, have model for identification, are less delinquent, exhibit less non-compliant and deviant behaviour and are better adjusted to life than those from single parent homes (Amadi, 2011; Hetherington & Stanley-Hagan, 2002 cited in Santrock, 2005). Researches indicate that adolescents from single parent families' show poorer adjustment, are more likely to have academic problems, exhibit high rates of antisocial behaviour and emotional disorders, indulge in sexual promiscuity, take drugs and have low self-esteem. They are also found to be easily lured into thuggery

and other vices like stealing and truancy (Kembe, 2005; Nwali, 2002 cited in Igba, 2006).

Researchers like Harikrishan (1992) revealed that Socio-economic status was significantly and positively related to academic achievement of students in education courses. Goswami (1982) cited in Preeti & Garima (2015) found that socioeconomic status group has positive relationship in the achievement tests of science, languages and humanities students. A significant difference was found in academic achievement and socioeconomic status of students studying in different types of school's Panda (1998) in Preeti & Garima (2015). Stanslaus (2016) investigated influence of parental socio-economic status on students' academic performance in public secondary schools in Tana River County, Kenya. Results of the study showed that socio economic status have positive relationship with students' achievement. Josephine, Damaris and Patriciah (2015) investigated Influence of Parents Economic Status on Girls' Academic Performance in Mixed Day Secondary Schools. Results of the study showed that economic status influenced girl's academic performance in mixed day secondary schools. Osuafor and Okonkwo (2013) investigated Influence of Family Background on Academic Achievement of Secondary School Biology Students in Anambra State. The results revealed that family structure, parents' occupation and educational level of parents did not have significant influence on students' achievement in biology. Caroline, Grace and Christy (2015) investigated Socio-Economic Status on Students' Academic Achievement in mathematics. Results showed that socio status have positive relationship with academic performance in mathematics. Gunendra and Sujana (2017) examined the effect of Socioeconomic status on performance in Mathematics among students of secondary schools of Guwahati city. Results showed that parents' socioeconomic status affects their children's performance in the subject. Iade, Nwadingwe, & Igbinosa (2014) Socio-Economic Status and Gender as Predictors of Students' Academic Achievement in Economics the results showed that There is significant relationship between parental educational attainment and students' academic achievement in Economics; There is prominent association between occupational background of parents and student's academic achievement; There is significant difference in the mean scores between Socio- Economic Status and Students' academic achievement due to gender and there is significant association between parental socio-economic status (SES) and academic achievement. Preeti and Garima (2015) investigated Impact of socioeconomic status on academic-achievement of school students. Results showed that the academic achievement was influenced by the socioeconomic status.

### **Purpose of the study**

The main purpose of this study was to determine the influence of family socio economic status on academic achievement of secondary school students in mathematics. Specifically, the study determined the influence of:

- i. What is the influence of family type (single and two parent families) on students' academic achievement in mathematics?
- ii. What is the influence Occupation of parents (civil servant/ trading) on students' academic achievement mathematics?
- iii. What is the influence of Parents' level of education on students' academic achievement in mathematics?

### **Research questions**

Three research questions guided the study.

1. How does the family type (single and two parent families) influence students' achievement in mathematics?
2. How does the occupation of parents (civil service/trading) influence students' achievement in mathematics?
3. How does the parents' level of education (high, middle and low) influence students' achievement in mathematics?

### **Hypotheses**

Three null hypotheses were formulated and tested at 0.05 level of significance.

- H01.** Family type has no significant influence on the mean achievement scores of students in mathematics.
- H02:** Parents' occupation has no significant influence on students' mean achievement scores in mathematics.
- H03:** Parents' educational level has no significant influence on students' mean achievement scores in mathematics.

### **Method**

The study adopted Ex- post facto research design. The study was carried out in public secondary schools in Owerri Educational zone of Imo state of Nigeria. Owerri Education zone consists of six local government Areas. The population of the study consisted of all 16,886 SS2 students in public secondary schools in Owerri education zone in the state. A sample of eight hundred and sixty -six (866) students was used for the study. Three local government Areas, Owerri west, Ikeduru and Owerri municipal, were randomly sampled from the six local government Areas. Out of 175 secondary schools in the education zone, 14 schools were sampled by proportionate sampling technique. In each of the 14 schools, one intact class was randomly

sampled and used for the study. Two instruments were used for data collection. These were the Socio-economic Status Scale (SESS) and Mathematics Achievement Test (MAT). The SESS were adapted by Kalia and Sahu (2012): The scale comprises of 40 items with five dimensions of socio-economic parameters viz- Parental education, Parental occupation, family type, Family physical environment and parental encouragement. The Socio-economic Status Scale (SESS) was in two parts A and B. Part A comprises of demographic data. It elicited information on name of the respondent and school, its location, class level and number of students in the class. Part B: Required information on the objectives of the study. The Mathematics Achievement Test (MAT) is a 50-item multiple-choice test. The items were drawn from the module basic operations on terms involving symbols, expansion of algebraic expressions, factorization of algebraic expressions, factorization of quadratic expressions, solution to linear equations, solution to algebraic equations and linear inequalities in one variable. The distribution of the items across the contents was guided by a test blueprint. The content validity of the instruments was determined by experts in test and measurement who marched the items of the instruments with the research questions in order to determine whether or not the instruments measured what they were supposed to measure. The reliability was determined through the test retest reliability technique. In doing this, the instruments were administered to 50 respondents in 5 senior secondary schools outside the study area. After a period of two weeks, the instruments were re-administered. The data collected on the two tests were analyzed using the Pearson Product Moment Correlation. A correlation coefficient of 0.81 and 0.72 was obtained indicating that the instruments were reliable for the study. The instruments were administered by the researcher through the help of research assistants. The data collected were analyzed using mean and standard deviation for the research questions while t-test and Analysis of variance were used to test the hypotheses at 0.05 alpha levels.

## **Results**

**Research Question 1:** What is the influence of family type (single and two parent families) on students' achievement in mathematics?

**Table 1: Mean and standard deviation of the influence of students' family type on achievement in mathematics**

<b>Family Type</b>	<b>N</b>	<b>MEAN</b>	<b>SD</b>
Single parent families	343	55.56	10.41
Two Parent families	523	56.03	11.36

The mean and standard deviation for the influence of student’s family type on students’ achievement is shown in Table 1. The result in this table shows that students from single parent family had a mean achievement score of 57.56 with standard deviation of 10.41, while students from two parent families had a mean achievement score of 56.03 with standard deviation of 11.36. Students from two parent families therefore had higher mean score in mathematics than the students from single parent families.

**Research Question 2:** What is the influence of occupation of parents (civil service/trading) on students’ achievement in mathematics?

**Table 2 Mean and standard deviation of the influence student’s parents’ occupation on their achievement in mathematics**

Parents’ Occupation	N	MEAN	SD
Civil servants	416	58.06	11.48
Traders	450	57.89	9.93

The mean and standard deviation for the influence of parents’ occupation on students’ achievement is shown in Table 2. The result shows that the mean achievement score of students whose parents are civil servants is 58.06 with SD of 11.48, while the mean achievement score of students whose parents are traders is 57.99 with SD of 9.93. This shows that students whose parents are civil servants had higher mean score in mathematics than those whose parents are traders.

**Research Question 3:** what is the influence of parents’ level of education (high, middle and low) influence students’ achievement in mathematics?

**Table 3: The mean and standard deviation of the influence of parental level of education on students’ achievement in mathematics.**

Parents’ Level of Education	N	Mean	SD
High education (M.Sc/Ph.D)	109	55.30	10.88
Medium (OND/NCE, HND/B.Sc)	374	54.97	11.09
Low (FSLC, SSCE )	383	54.77	10.01

The result in table3 shows that students from high, middle and low parental level of education had mean achievement scores of 55.30, 54.97 and 54.77 respectively. This shows slight difference in the mean achievement scores of the students following the same order as level of education of their parents from high to low.

**Hypothesis 1:** Family type (single and two parent families) has no significant influence on the mean achievement scores of students in mathematics.

**Table: 4** t-test comparison of mean achievement in mathematics of students from single and two parent families

<b>Family type</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>dF</b>	<b>t-cal</b>	<b>t-crit</b>	<b>sig</b>
<b>Single parent families</b>	343	54.56	10.41	544	1.50	1.96	0.13
<b>Two Parent families</b>	523	56.03	11.36				

From the table, the result showed that the calculated t-value (1.50) was less than the critical t-value (1.96) at 0.05 level of significance. Therefore, the null hypothesis was not rejected. This shows that there is no significant influence of family type on students' achievement in mathematics.

**Hypothesis 2:** Parents' occupation has no significant influence on students' mean achievement scores in mathematics.

**Table 5: t-test comparison of mean achievement in mathematics of students from parents of different occupations**

<b>Parent Occupation</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>dF</b>	<b>t-cal</b>	<b>t-crit</b>	<b>sig</b>
<b>Civil servant</b>	416	55.48	11.48	544	0.95	1.96	0.34
<b>Traders</b>	450	54.60	9.93				

The result in this table showed that the calculated t-value (0.95) was less than the critical t-value (1.96) at 0.05 level of significance. The null hypothesis was not rejected. This shows that there is no significant influence of parents' occupation on students' achievement in mathematics.

**Hypothesis 3:** Parents' educational level has no significant influence on students' mean achievement scores in mathematics.

**Table 6: One-Way ANOVA comparison of mean achievement in mathematics of students from parents with different levels of education**

Source	Sum of Squares	Df	Mean Square	f-cal	f-crit	sig	Decision
Between groups	24.69	2	12.34	0.11	3.00	0.90	Accepted
Within groups	62875.28	863	115.79				
Total	62899.96	864					

The table indicates that the group as main factor is not significant on students' achievement in biology. This is because F-cal (0.11) was less than F-critical (3.00) at 0.05 level of significance. Therefore, the null hypothesis was not rejected. Hence, there is no significant influence of parents' level of education on students' achievement in mathematics.

### Discussion

The result showed that the mean achievement score of students from two parent families are higher than that of the single parent family. The t-test analysis showed that there is no significant influence of family type on students' achievement in mathematics. This may be due to school environment, the natural tendency for students to interact and gain experience from their older students in the school. This result agreed with the findings of Peter (2016) showed that good performance of learner with nuclear family was due to economic support, family support, parental motivation and home study environment.

Also, the result showed that the mean achievement score of students whose parents are civil servants is higher than that of the students whose parents are traders. This may be possible because such parents are likely to be more educated than parents who are traders and are therefore expected to know the value of education more than the traders. However, the t-test analysis indicated that there is no significant influence of parents' occupation on students' achievement in mathematics. The implication of this is that everybody is now aware of the importance of education and in particular science education in this era of science and technology. Even the uneducated traders now invest so much on the education of their children to make sure that the educational opportunity they did not have does not elude their children. This is in accord with the findings of Goswami (1982) found that socioeconomic status group has positive relationship in the achievement tests of science, languages and humanities students. A significant difference was

found in academic achievement and socioeconomic status of students studying in different types of schools.

Finally, the study indicated slight difference in the achievement scores of students belonging to parents with different levels of education. This slight difference may be due to the fact that the highly educated parents belong to the upper and middle classes and are therefore economically buoyant. Consequently, they can afford to provide all necessary textbooks, workbooks and arrange for extra tutorials for their children. In addition, these parents would normally send their children to the 'best' schools where there are well-qualified teachers, well-equipped laboratories and libraries and other necessary things that facilitate success in science subjects (Emejulu, 2006). This is in accord with the findings of Goswami (1982) found that socioeconomic status group has positive relationship in the achievement tests of science, languages and humanities students. A significant difference was found in academic achievement and socioeconomic status of students studying in different types of schools.

### **Conclusion**

This study reveals that family socio economic status such as family type, parental occupation and parental education level had no significant influence on students' achievement in mathematics. The implication of this is that parents of this age are more aware and serious about giving their children the best education they can irrespective of their own shortcomings. Consequently, many researchers indicted parents as contributing to students' poor performance in science especially mathematics.

### **Recommendations**

Based on the findings and discussion made above, the researchers recommend as follows:

1. Parents should continue to get involved in their children's academic progress by monitoring their activities in and out of school, ensuring that home work is done, providing all necessary materials they need in school and meeting with their teachers when the need arises.
2. Since the findings of this study seem to suggest that parents, irrespective of their background status, are getting involved in their children's academic work, they should be regularly informed of their children's academic progress by the school authorities.

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