

## Effects of Parental Socio-Economic Status on Performance of Students in Mathematics in Shongom Local Government Area, Gombe State

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### Abstract

The study investigated the effects of parental socio-economic status (SES) on performance of students in mathematics in Shongom Local Government Area of Gombe State. The study employed a Causal- Comparative Research Design. The population of the study comprised of all senior secondary (SS) II students in Shongom Local Government Area of Gombe State. Three (3) out of the ten senior secondary schools were sampled for the study using simple sampling technique. Students participated in the study; these comprise 44, 75 and 32 from these schools in the order above. The instrument for the data collection was students' questionnaire and the students' third term 2013/2014 session results. Data were analyzed using Pearson Correlation Coefficient ( $r$ ) at 0.01 level of significance. The results reveal that there is significance difference between parental socio-economic status as it connects to parental educational level, and family income and the students' performance in mathematics: But shows no significant difference on parental occupation and family size and students' performance in mathematics. The study recommended subsidizing the cost of education to help alleviate imbalances of the low socio-economic groups.

**Keywords:** Effects, Parental, Socio-Economic Status, Performance, Mathematics.

### Introduction

The importance of mathematics to Nigeria is no longer debatable. Mathematics is useful in aspect of life as politics, government, military, science and technological advancement, economics and socio-cultural environment (Odili, 2006). In addition, Ezeilo in Odili (2006) noted that technological development cannot successfully happen without developing mathematics.

Despite the significance attached to mathematics, poor performance in the subject has been on the increase year in year out. The poor performance has been attributed to so many factors ranging from failure on the part of the government, teachers, parents, community and lots more. This poor performance has generated long debates among education

professionals and experts. It has continued to be a big obstacle in the realisation of both educational and employment desire of many candidates as mathematics is "gate keeper" for many careers. As such, this problem has the concern of every stakeholder in the education sector. In fact, dependency on government have not yielded the desired results.

Majo, (2000) lamented that despite the huge amount of money disbursed for the improvement of the educational sector, the situation is worse than before.

Therefore, educators and professionals have been concerned on investigation of other possible reasons for these mass failures which may pave ways to offer solutions. One of these researchable issues among experts is the correlation between students' performance in mathematics and

parental socio-economic status. Blevin (2011) pointed out that in America; one of the most debated issues among educational professionals was the correlation between academic performance of students and the socio-economic status of parents.

Akinsanya, Ajayi and Salami (2011) opined that parental involvement has a significant impact on students' outcome through the primary, basic and secondary education. Also on the international scene, Kemunto (2012) reiterated that one of the factors that was serious handicap to good school progress was poverty. This could be as a result of low wage, large family, retrenchment and death of a breadwinner. The influence of parental support on academic achievement is appealing that the society in general, and educators in particular have considered it an important ingredient for the remedy of many educational problems.

Most students in Nigerian secondary schools are daily confronted with challenges of coping with academics under hard and emotional constraints.

Hill and O'Neil (1994) found that when the family's income increased by \$10, 000 per annum it produces an increase of 2.4% in student achievement. Guo and Haris (2000) confirmed that socio-economic status of parent had significant effect on mathematics performance of children from early childhood. Guo and Harris added that poverty on the other hand acts negatively by lack of having early cognitive development within the home. However, in Nigeria, due to the present economic situation many parents are forced saddle the young ones with home activities such as hawking, fetching of water, clearing the house before and after school. This excessive pressure on the children take away all their time needed for school work. The end result is usually poor school performance and possibly dropout from school (Osonwa, Adejobi, Iyan&Osonwa, 2013).

Kemunto (2015) reiterated that one of the factors that was serious handicap to good school progress was poverty. This could be as a result of low wage, large family, retrenchment and death of a bread winner. Tsui (2005) asserted that, for the past four decades, students in the United States have consistently shown that family income is related to children cognitive development. He said, children of low class families are more likely to drop out of school. Such children do poorly on standardised test scores than the middle or upper class children.

Jabor, Machtmes, Kungu, Buntal and Nordin (2011) examined income of parents and come out with the fact that there is a consistent positive relationship between family income and students' academic performance.

Akpotu (2007) discovered that as family increase, family investment on children education also increases. That is to say, the higher the income of a family, the higher the school and socio-economic benefits the child enjoys. This in turn leads to high academic performance.

Anyanwu (2013) gave a summary of the effect of poverty on socio-economic wellbeing where in the North East sub-region was about 71.3% poor, which is second to North – West with 77.76% poor. By Anyanwu's analysis, Shongom Local Government Area is 71.36% poor. This means the children of this area will not perform well academically as these variables will negatively affect them.

### **Statement of the problem**

Poor performance in secondary school mathematics is no longer news. The researcher noticed the poor state of parents in the North-East, where Shongom Local Government Area falls as pointed out by Anyanwu (2013). He discovered that the poverty level of the region stands at 71.3%. This is why the researchers'

interest has been on the effect of parental socio-economic status on performance of SS II students in mathematics in Shongom Local Government Area. Variables considered included: parental educational level, family income, parental occupational status and family size.

### Objective of the study

The purpose of this study was to determine the effects of parental socio-economic status on performance of senior secondary II students in mathematics in Shongom Local Government of Gombe State. Specifically, the study seeks to:

1. Ascertain the effect of parental educational level and their children performance in mathematics.
2. Determine the effects of family income on the performance of students in mathematics.
3. Determine the impact of parental occupation on the performance of students in mathematics.
4. Investigate the effect of family size on the performance of students in mathematics.

### Hypotheses

Four null hypotheses were formulated and tested at 0.01 level of significance.

HO<sub>1</sub> There is no significant relationship between parental educational level and the performance of students in mathematics

HO<sub>2</sub> There is no significant relationship between family income and the performance of students in mathematics

HO<sub>3</sub> There is no significant relationship between parental occupational level and the performance of students in mathematics

HO<sub>4</sub> There is no significant relationship between family size and the performance of students in mathematics

### Methodology

The design used for the study was a Causal- Comparative Research Design. This design as described by Fraenkel and Wallen (2018) seeks to identify associations among variables, to determine the consequences of differences that already exist among groups. The population of the study comprised of all senior secondary (SS) II students in Shongom Local Government Area of Gombe State. There are ten (10) senior secondary schools in the local government area with a total population of 536 students in SS II.

The researcher selected 3 out of 10 senior secondary schools by a process of simple sampling. Here, a sample frame of all the 10 schools was constructed. Numbers were assigned to each school and these numbers were written on pieces of papers, folded and put in a bag which was drawn randomly without replacement until the required 3 schools were selected. After this the use of proportional stratified sampling was employed to have the number of elements in each school. The sizes of the schools were not equal. So a sampling fraction given by the formula  $S.F = \frac{n}{N}$ , where  $n$  = size of the sample 150 and  $N$  = size of the population (276) from which the sample was drawn. Therefore each school contributed a fraction of  $\frac{150}{276} = 0.5435$  its size to the sample. The table below shows number of students

sampled from each school.

The instrument for data collection were the questionnaires and students' mathematics result record for the end of third term 2013/2014 session. The researcher used structured type of questionnaire which is also known as closed ended questionnaire. The respondents were just to tick (✓) the most appropriate response.

Parental socio-economic status was treated under the following variables: educational

level, occupational status, family income and family.

The instrument was subjected to face validity. This was done by three experts in the Faculty of Education; University of Jos. The validates corrected double barre and misleading questionnaire items, wrong spellings and grammatical errors. It was ensured that each question was related to the topic under study. There was adequate coverage of the topic; before final draft of the questionnaire was produced.

The Cronbach coefficient Alpha was used in estimating the internal consistency which gave the estimated reliability of the test. The reliability of the instrument was found to be 0.76.

The researcher administered the questionnaire to the respondents of each

school on the dates fixed. 100% of the questionnaires were collected back since it was done on the spot. Each respondent's third term mathematics result was extracted from either their continuous Assessment (CA) booklet or result summary sheet. This procedure went on in all the schools without much hitches.

The Statistical Package for Social Scientist (SPSS) version 20.0 software was used in determining the correlation coefficient (r) at 0.01 level of significant.

### Results

After using Statistical Package for Social Scientist (SPSS) to analyse the data collected, the

Pearson Correlation Coefficient (r) was obtained. Here below are the hypotheses and results obtained for each.

### Hypothesis I

There is no significant relationship between parental educational level and the performance of students in mathematics

Table : Parents Educational Level and Performance of Students in Mathematics

		VAR00001	VAR00006
VAR00001	Pearson Correlation	1	0.574
	Sig. (2-tailed)		0.00
	N	150	150
VAR00006	Pearson Correlation	0.574	1
	Sig. (2-tailed)	0.000	
	N	150	150

Source: Statistical Package for Social Scientist (SPSS)

Table : Correlation Coefficient ( $r=0.574$ ) shows a positive moderately string relationship. This means the relationship is positively significant at 0.01 level of significance (2-tailed).

### Hypothesis 2

There is no significant relationship between family income and the performance of students in mathematics

Table 2: Family income and performance of students in mathematics

		VAR00002	VAR00006
VAR00002	Pearson Correlation	1	0.581
	Sig. (2-tailed)		0.00
	N	150	150
VAR00006	Pearson Correlation		
	Sig. (2-tailed)		
	N	150	150

Source: Statistical Package for Social Scientist (SPSS)

From table correlation Coefficient ( $r=0.581$ ) was a positive moderately strong relationship. It means the correlation at 0.01 level of significance (2-tailed)

**Hypothesis3: There** is no significant relationship between parental occupational status and the performance of students in mathematics

Table 3: Parents' occupational status and performance of students in mathematics

		VAR00003	VAR00006
VAR00003	Pearson Correlation	1	0.365
	Sig. (2-tailed)		0.00
	N	150	150
VAR00006	Pearson Correlation	0.365	1
	Sig. (2-tailed)	0.000	
	N	150	150

Source: Statistical Package for Social Scientist (SPSS)

From the table above, the correlation coefficient was  $r = 0.365$ . This shows that the relationship is positive and moderately weak. In other words the relationship is not significant at 0.01 level of significance (2-tailed)

**Hypothesis 4**

There is no significant relationship between family size and the performance of students in mathematics.

Table 4: Family size and performance of students in mathematics

		VAR00004	VAR00006
VAR00004	Pearson Correlation	1	0.152
	Sig. (2-tailed)		0.63
	N	150	150
VAR00006	Pearson Correlation	0.152	1
	Sig. (2-tailed)	0.000	
	N	0.2	150

Source: Statistical Package for Social Scientist (SPSS)

From table above, the correlation coefficient was a weak relationship. In other words, the relationship was not significant at 0.01 level of significance (2-tailed).

### Discussion of Findings

The results of the work according to the analyses of data collected were discussed with respect to the hypotheses stated earlier as follows:

#### Hypothesis 1

There is no significant relationship between parental education level and performance of students in mathematics.

Table 2, the correlation coefficient ( $r=0.574$ ) was positive and moderately strong. This showed significant relationship. The null hypothesis therefore was rejected. That is to say there is a strong relationship between parental education level and their children's performance in mathematics. The level of parent's education is a strong predictor of children's academic achievement. This is in agreement with Onocha (1985), Barry (2006) and Akinsanya (2011). In fact, parental educational status is one of the most stable aspects of parental socio-economic variables that affect performance in Mathematics

#### Hypothesis 2

There is no significant relationship between family income and the performance of students in mathematics

The result from table 3 indicates that correlation coefficient ( $r = 0.581$ ) was stronger than that of parental educational level. The null hypothesis was therefore rejected. Meaning there is positive significant relationship between family income and students' performance in mathematics. This confirms findings by Osonwa, Adejobi, Iyam and Osanwa (2013) who studied senior secondary

school students in Ibadan. They discovered that children from lower income groups scored significantly lower than children from higher income families.

#### Hypothesis 3

There is no significant relationship between parental occupational level and the performance of students in mathematics

The result as indicated in table 4 ( $r=0.365$ ) in moderately weak. It means the relationship is not significant. The null hypothesis was accepted. PISA (2012) revealed that in the United States and United Kingdom where professionals are among the highest paid in the world. Students whose parents work as professionals do not perform as well in mathematics as children in the Shanghai – China and Singapore whose parents work in manual occupation (p.4). Therefore, occupations of parents do not matter much in determining students' achievements in mathematics.

#### Hypothesis 4

There is no significant relationship between family size and the performance of students in mathematics

The result in table 5 shows that the relationship is very weak. This means that between family size and performance of students in mathematics in Shongom LGA.

### Conclusion

The study revealed that:

1. There was significant relationship between parental socio-economic status and performance of students in mathematics. In relation to the parents' educational level and family income.

2. There was no significant relationship between parental occupational status and family size and performance of student in mathematics. This agrees with a similar finding by Joseph (2010), who studied the pre-degree students and discovered that there was no significant difference between the family size and academic performance.

## Recommendations

Based on the findings from the study, the following recommendations were made:

1. Government should help alleviate the imbalances of parental socio-economic status by subsidising the educational expenses of the low socio-economic group.
2. Both government and schools need to focus on parents' awareness programmes that could lead to better students' achievement in mathematics.
3. Parents should fully be involved in ensuring their children succeed in mathematics by providing the needed materials that will promote good learning.
4. Poverty alleviation/reduction programmes should be intensified by government.

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