

# **Relative Effects of Parents' Occupation, Qualification and Academic Motivation of Wards on Students' Achievement in Senior Secondary School Mathematics in Ogun State**

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## **Abstract**

The importance of mathematics to an individual and the society is clearly beyond debate thus, every individual needs some knowledge of mathematics in order to live a useful life and be an effective member of the society. Despite this importance role accorded mathematics in the school curriculum, many academically capable students prematurely restrict their educational and career options by discontinuing their mathematical learning early in the high school. The poor results in this subject have continued to be stumbling-blocks in the realisation of the educational and employment desire of many candidates because it is a gatekeeper for many careers. This study investigated the relative effects of parents' occupation, education and academic motivation of wards on students' achievements in senior secondary school Mathematics in Ogun State, Nigeria. The study employed ex-post facto type of research and the sample was selected using the multi-stage sampling technique. Two thousand four hundred students from 60 selected schools in nine local government areas within Ogun State, Nigeria were involved and two research instruments namely; Students' Questionnaire; ( $r = 0.81$ ) and Mathematics Achievement Test; ( $r = 0.84$ ) were used. Data were analysed using multiple regression at .05 level of significance. The result reveals that parents' education has the highest significant influence on the academic achievement of students in Mathematics while the effect of academic motivation had the least effect among the variables which exerted significant effects on students' academic achievement in Mathematics.

**Key words:** Parents' education; Occupation; Academic Motivation; Achievement.

## **Background to the Study**

Students' academic achievement and educational attainment have been studied within different frameworks. Many of them have a focus on parents' education, occupation or home background (like; family income, language of the home, activities of the family and work methods), while other studies looked at it from the teachers' variables (such as teacher's age, experience, education, gender, etc), school variables (such as environment, structures, buildings, location, etc), students' variables (such as attitude, self-concept, self-esteem, study habit, interest, etc) or parents' support (such as achievement motivation of wards, parental attitudes towards education, the aspiration of parents, etc).

There is evidence that parents' education will affect students' academic achievement in Mathematics. According to Grissmer (2003), parents' level of education is the most important factor affecting students' academic achievement. Taiwo (1993) submits that parents' educational background influence the academic achievement of students. This, according to him, is because the parents would be in a good position to be second teachers to the child; and even guide and counsel the child on the best way to perform well in education and provide the necessary materials needed by him/her. This was supported by Musgrave (2000) who said that a child that comes from an educated home would like to follow the steps of his/her family and by this, work actively in his/her studies. He said further that parents who have more than a minimum level of education are expected to have a favoured attitude to the child's education and to encourage and help him/her with school work. They provide library facilities to encourage the child to show examples in activities of intellectual type such as reading of newspapers, magazines and journals. They are likely to have wider vocabulary by which the children can benefit and develop language fluency.

Onocha (1985) concludes that a child from a well educated family with high socio-economic status is more likely to perform better than a child from an illiterate family. This is because the child from an educated family has a lot of support such as a decent and good environment for academic work, parental support and guidance, enough textual and academic materials and decent feeding. He or she is likely to be sent to good schools where well seasoned teachers will handle his/her subjects.

Children's academic achievement was found to be affected by varying family processes. Campbell and Wu (1994) said that the home environment and family processes provide a network of physical, social and intellectual forces and factors which affect the students' learning. According to them, the family's level of encouragement, expectations, and educational activities in the home are related to socio - economic status, while Song and Hattie (2004) agreed that families from different socio-economic groups create different learning environments that affect the child's academic achievement. There is no doubt that parents' attitudes help to condition their children's attitudes. A parent who shows complete disregard for education might have some effect upon his/her children's educational progress.

Theories with different topics such as intrinsic motivation, self-concept, attribution, goal orientation, self-efficiency, and expectations have been established in previous studies. Many studies have examined the relationships among those constructs and students' achievement. Schunk, Pintrich and Meece (2008) affirm the fact that there is a consistent finding of motivation being related to achievement behaviours. The impact of motivation on learning of Mathematics by a child cannot be undermined. Hall (1989) believes that there is a need to motivate students so as to arouse and sustain their interest in learning Mathematics. He further opines that

Mathematics academic achievement should be considered a continuous process until there is evidence of improvement in interest and performance of the learners in the subject.

According to Gesinde (2000), academic motivation could be seen as self-determination to succeed in academic work. He posits that the urge to achieve varies from one individual to the other, while for some individuals, the need for achievement is very high and for others it may be very low. What could be responsible for the variation could be the fact that academic motivation is believed to be developed during socialisation processes and learning experiences.

The parents' interest and encouragement have a great impact on student's performance in the school. More so, children's school achievement is specially accounted for by the variation in parental attitudes than by the variation in the material circumstance of parents. Habel (1986) said that the psychological makes up of individual parents has a great influence on the behaviour, attentiveness and performance of a child in the school. Lankard (1995) points out that where parental encouragement is low, relatively few students, regardless of their intelligence or socio-economic status levels, plan to go to college. On the other hand, where parental encouragement is high even when socio-economic status and intelligence are relatively low; more students plan to go to school. They concluded that the way and manner in which the family is organised and the direction in which the family system is changing is important as this reflects on the child's performance in school.

According to Yee and Eccles (1988), different disciplines engaged in by parents through their various education have different emphases on the education of their children. It thus appears that career modelling from parents could make a noticeable impression on children's intellectual development. For example, mothers who engage in menial jobs like hair dressing, sewing, petty trading, farming, catering among others, are more likely to have less contact hours with their children. This can affect the vocabulary and communication skills of their children. These mothers will most likely want their children to toe the line of their trade and as a result may not bother to lay much emphasis on the early intellectual development of their children.

Lankard (1995), indicated that motivation, norms, beliefs, values, habits and attitudes of people with the environment and the expectations the parents have for their children influence the latter's educational performances of their wards. Maple and Stage (1991) similarly found that parental variables such as parental education and interest in the child's school work contributed to choice of Mathematics / Science related majors.

Parents' involvement has a significant positive impact on students' outcomes throughout the elementary, middle school and secondary years. Several of these studies indicated that parents / family involvement have a lasting effect throughout the educational careers of students (Frendrich, 1999; Kaspro, 2001; Trusty, 1999; Weissberg, 2001). According to Lawrie and Brown (1992), parents' perceptions of the abilities of their children may be a powerful developmental influence on how the children will come to view their ability. In turn, children's perceptions of their abilities will influence expectations for success, achievement, interest in school subjects, and future careers (Eccles, 1989; Gross, 1988; Haladyna and Shaughnessy, 1982).

Bamidele (1987) asserts that parents' aspiration for the child could affect his/her achievement in school while Morish (1995), believes that well educated parents will wish their own children to benefit as they have done from their good education and will provide the necessary cash in order that this may be accomplished. Expressing this in terms of high socio-economic home, Ezewu (1983), said that in order for high socio-economic status' families to maintain their status, they do everything possible to ensure that their children attend the best

nursery and primary schools which guarantee admission to highly placed secondary schools. These highly placed secondary schools provide the best routes to university education, thus guaranteeing access to a prestigious occupation and high income for their children.

Research by Rothman (2004), showed that the most important factor associated with the educational achievement of children is not race, ethnicity or immigrant status. Instead, the most critical factors according to him appear to be socio-economic factors. These factors as stated by him include parental educational levels, neighbourhood poverty, parental occupational status and family income. He thus concluded that if we do not consider how educational policies complement or conflict with policies related to family welfare, work, poverty, housing and neighbourhood conditions, then we will continue to face significant obstacles in attaining the goal of narrowing the achievement gaps. This conclusion clearly points to the fact that differences in socio-economic background of students breed achievement gaps.

The kind of mental challenges to which a child is exposed at various periods is likely to determine the kind of mental abilities which he/she displays. Mullis (2002), notes that parents can take many positive steps to help their children, including the following: they can encourage students to pursue advanced course work, to invest significant amount of time in their homework and to devote more time to reading than to television. An interest in reading and learning can be fostered by reading aloud to children; holding family discussions about reading materials, school work and current events and encouraging frequent trips to the library to gather more information about interesting topics.

The idea that parental support has positive influence on students' academic achievement is so intuitively appealing that society in general, and educators in particular, have considered parental support an important ingredient for the remedy of many problems in education. Among the empirical studies that have investigated the issue quantitatively show that Mathematics achievement is influenced by this factor. Becher (1984) in the study of Henderson and Berla in 1994; considers one factor that contributes to Mathematics achievement as the support and participation of families in their children's education in positive ways. Through this support children achieve higher grades and test scores, have better attendance at school, complete more homework, demonstrate more positive attitude, graduate at higher rates and are more likely to enroll in higher education.

Smith and Hausafus (1997) noted that parents can support Mathematics and Mathematics teachers' efforts by helping their children to see the importance of taking advanced Mathematics courses, emphasising the importance of Mathematics in today's careers, limiting television set watching, and visiting science/Mathematics related exhibition and fairs with their children. Family support is a factor in Mathematics academic achievement and in children's expectation of themselves. They explained further that interest in Mathematics career of the adolescents and their educational aspirations were more related to their parents' educational goals for them than to their best friends' goals. Simpson, Koballa, Oliver and Crawley (1994), concluded that attitude is a "crucial factor" in career choice. Their research findings show that parental involvement in children's learning activities positively influence their levels of achievement and motivation to learn. Sharma (2004) in his study indicates that the influences of parental involvement upon students' primary education make a difference and concluded that parental support in a students' academic success in secondary school may be a factor that cannot be ignored.

Parent supportiveness has been shown to be an important variable that positively influence children's education. Research findings have indicated that family support improves

facets of children's education such as daily attendance (Cotton and Wikelund, 2001; Sheldon and Epstein, 2001; Simon, 2000), student's achievement (Brooks, Bruno and Burns, 1997; Cotton and Wikelund, 2001; Henderson, 1987; Herman and Yeh, 1980; Sheldon and Epstein, 2001; Simon, 2000; Van Voorhis, 2001; Zellman and Waterman, 1998) behaviour (Cotton and Wikelund, 2001, Henderson 1987; Sheldon and Epstein, 2001; Simon 2000) and motivation (Brooks, Bruno and Burns, 1997; Cotton and Wikelund, 2001; Grolnick and Slowiaczek, 1994). The studies concluded that parent support have a large role in children's academic achievement.

The benefits of parental support are well-documented; therefore, there is reason to believe that a high level of parental support could influence their children's academic achievement. Research reviewed also indicated that parental support in homes make it more possible for children to do their homework (Henderson, 1987; Simon, 2000; Zellman and Waterman, 1998), improve their language skills (Cotton and Wikelund, 2001; Goldring and Shapira, 1993) have low school absentee rates (Griffith 1996) and even have good grades in Mathematics test (Henderson, 1987).

### **Purpose of the Study**

The purpose of this study was to examine the relative effects of parents' education, occupation and academic motivation of wards on students' achievement in senior secondary school Mathematics in Ogun State, Nigeria.

### **Statement of the Problem**

Based on the background, the central problem of this study was that secondary school students are performing poorly in Mathematics examinations and this performance generates concern amongst the stakeholders in education business. As a result, this study sought to investigate the extent to which parents' education, occupation and academic motivation of wards determine the Mathematics achievement of secondary school students in Ogun State, Nigeria.

### **Research Hypothesis**

There is no joint and relative effect of parents' education, occupation and academic motivation of wards on students' academic achievement in Mathematics in Ogun State, Nigeria.

### **Methodology**

#### **Research Design**

The study is a non-experimental type and an ex-post facto research design was adopted.

#### **Population and Sample size**

The target population for this study comprised all the senior secondary school one students (SSS 1) in Ogun State. The sample of the study was selected using the multi-stage sampling procedure. At the first stage, nine local government areas were purposively selected from twenty local government areas in Ogun State. At the second stage, the stratified random sampling technique was used to select a total of 60 senior secondary schools from 147 senior secondary schools in the 9 LGAs selected in Ogun State, Nigeria and this represented a total of 40 per cent of the entire schools in the nine local government areas selected. At the third stage, simple random sampling technique was employed to select a total of 40 SS1 comprising male and female students from each of the participating schools. Altogether, a total of nine local government areas, 60 schools and 2,400 students were involved in the study.

## **Instrumentation**

In order to collect data and provide answers to the research hypothesis, Students' Questionnaire (SQ) and Students' Mathematics Achievement Test (SMAT) research instruments were developed and employed by the researchers in gathering data. Under the Students' Questionnaire (SQ) instrument, the researchers created four sections for measuring variables that related to the students. These are: (a) Demographic Data; (b) Parents' Qualification; (c) Parents' Occupation and (d) Academic Motivation. The Students' Mathematics Achievement Test (SMAT) was used to measure the achievement of students in Mathematics and Kuder Richardson formula 20 was used to establish the internal consistency of the instrument.

### **Validity of the Instruments:**

For the purpose of this study, both the face and content validity of the instruments were ensured. To ensure validity of the instruments, the initial drafts of the instruments were scrutinised by four experts in questionnaire and content construction who were required to check for all non-technical flaws in the instruments. Such inputs enhanced a thorough validation in order to ensure that the instruments actually measured what they were intended to measure in relation to the research hypothesis. Based on the suggestions and comments of these experts, the necessary corrections were made and the final version of the instruments was trial tested on a sample of 50 students who were not part of the real study sample, in Ijebu-Ode LGA of Ogun State, Nigeria. The data collected showed that the students did not have problems responding to the items in the questionnaire.

### **Reliability of the Instruments:**

In computing the reliability of this research instruments, Cronbach's alpha ( $\alpha$ ) was utilised in estimating the reliability coefficient. The scores for each item were encoded in SPSS software. The Cronbach alpha reliability of the instruments was established as SQ = 0.81 while the reliability of the test was estimated as 0.84. The construct, content and criterion related validities were found to be adequate.

## **Data Collection and Analysis Procedure**

The necessary data for this study were obtained from students of the selected schools in the selected local government areas. After collection of data, questionnaire responses without corresponding responses to achievement tests were discarded. The idea was to have complete sets of the students' related instruments. 2,400 copies of the questionnaire were distributed to the selected students in the 60 schools in the 9 local government areas and a total of 1951 questionnaire, fully responded to, were utilized and data collection lasted for 28 working days. Data were analysed using multiple regression at .05 level of significance.

## **Results and Findings**

**H<sub>01</sub>:** There is no joint and relative effect of parents' education, occupation and academic motivation of wards on students' academic achievement in Mathematics in Ogun State, Nigeria.

**Table 1:** Joint and Relative Effect of Parents' Occupation, Qualification and Motivation of Wards on Students' Achievement in Mathematics

<b>R</b>	<b>Adjusted R<sup>2</sup></b>	<b>F</b>	<b>Sig.</b>	<b>Variables</b>	<b>Beta</b>	<b>t</b>	<b>Sig.</b>
0.071	0.140	2.753	0.046	Occupation	0.034	-1.652	0.085
				Qualification	0.052	2.480	0.018
				Motivation	-0.016	-0.362	0.653

The Table above shows a R-value (0.071) with an adjusted R<sup>2</sup> (0.014) which shows that only 14% of the variance in students' achievement is accounted for by the parents' occupation, qualification and motivation from parents. The F-value (2.753) which is significant at 0.05 ( $p < 0.05$ ) shows that the effect of three variables on students' achievements is significant.

The beta values -0.052 for education, 0.034 for occupation and -0.016 for motivation show that all the three variables have positive effect on students' achievements. Though, the parents' education has the highest effect or predicts students' academic achievement most, followed by parents' occupation and academic motivation is the least of all. While parents' education and occupation have positive effect on students' academic achievement, the academic motivation has negative effect on the students' achievement in mathematics. This may be due to the fact that parents may be guiding their wards to have the same career with them which the students may not be interested in; this will have adverse effect on the achievement. If the parents also want their ward, to read a particular course which thus (parents) have potential for without considering the potentials of their wards, it may also lead to negative effect of the academic motivation. It could also be seen from the table that only parents' qualification has significant relative effect on achievement.

### Discussion

The result in Table 1 reveals that parents' education has significant influence on the academic achievement of students in Mathematics. This is because parents' education has highest effect or predicts students' academic achievement in Mathematics most. This observation provides the evidence that students of educated parents might performed better than students of uneducated parents in Mathematics achievement. The findings lend support to the results of Onocha (1985), Carlson (1997), Musgrave (2000) and Grissmer (2003) which reported that parents' level of education was the most important factor affecting students' academic achievement.

The results in Table 1 also reveal that parents' occupation is next to parents' education that predicts academic achievement in Mathematics. The result provide evidence that students whose parents belong to the high ranking occupational status might a better grade in Mathematics than their counterparts whose parents belong to the low ranking occupational status. This is because parents with high ranking occupational status might have enough income which can be used to provide the needed materials and support for their children in order to arouse their interest in Mathematics than their counterparts in low ranking occupation whose major obligation is to provide shelter and food for the family. The findings was supported by that of Jaffe (1985), Rain (1998), Simon (2004), Teese (2004), Sharma (2004), Dubey (1999) and Crane (1993).

With respect to the effect of academic motivation and the child's academic achievement in Mathematics; Table 1 shows that the effect of parents' academic motivation of wards on students' academic achievement in Mathematics had the least effect among the variables which exerted significant effects on students' academic achievement in Mathematics. The result also lends support to previous studies which have reported that student's academic motivation has a significant effect on students' performance in mathematics. The result is an indication that students from homes where the parents support the academic studies of their children might achieve better test scores, higher grades, have better attendance at school, complete more homework, demonstrate more positive attitude towards their academic, graduate at higher rates and more likely to enroll in higher education to pursue their career opportunities than children from homes lacking parental support. In the light of this finding, the need arises for parents to provide support which could contribute to the mathematics achievement of their children. This result also agrees with the findings of Steinberg and Silverberg (1986), Thomas (1986) and Steinberg (1993) that parents remain a main contributor to their children's socialisation, attitudes and career aspirations.

### **Summary of Findings**

The major findings are summarised below:

- (i). When the predictor variables; age of mother at birth of the child, parents' education and occupation are taken together, they effectively predicted the academic achievement of students in Mathematics.
- (ii). The variable, parents' education was the most potent predictor of students' achievement in Mathematics while parents' occupation, and age of mother at birth of the child in a decreasing order of magnitude, made significant contributions to the prediction of students' academic achievement in Mathematics.

### **Recommendation**

From the findings of this study, the following recommendations were reached:

- i. Given that the present study is limited to senior secondary schools in Ogun State, similar studies could be carried out in other parts of the country to affirm or refute the conclusion reached.
- ii. Since parents education influences students academic achievement in Mathematics, the government and all stakeholders in education sector should endeavour to implement its policy on basic education for all and thus create an enlighten society in which every parent would be educated enough to have a positive influence on their children especially in their attitude towards Mathematics which in turn would lead to better achievement in the subject.

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