

Socio-Economic Background and Mathematics Achievement of Students in Some Selected Senior Secondary Schools in Southwestern Nigeria

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Abstract: The study investigated the relationship between students socio-economic background and Mathematics achievement in some senior secondary schools in Southwestern Nigeria. The study adopted the descriptive survey design that employs simple frequencies and percentages for the analysis of the data. Four research questions were answered in the study. The subjects for the study were 1722 students senior secondary two mathematics students selected from 36 schools from each of the senatorial districts in Southwestern Nigeria. Two research instruments were used for data collection. The findings revealed that majority of the students lived with their father and mother only and they have the basic things needed in a house for good education. The findings also revealed that the parents of the students lived mainly in the urban areas and are educated with private businesses of their own; have investments ranging from stocks and shares to owing houses. Also the results showed that majority of the students were of average academic ability in mathematics. With a conducive environment like this, students academic achievement in mathematics should be better than students, who do not have such facilities.

Key words: Socio-economic background, Mathematics achievement, cultural goods, education, students, Southwestern Nigeria

INTRODUCTION

There have been several studies carried out regarding the effect of socio-economic status of students on their academic achievement. Some of these studies have conflicting results as to the relationship between students socio-economic status and their performance academically. Keeves and Saha (1992) opined that in most countries of the world, educational achievements are related to the social background of the students. This includes the gender of the students, the socio economic status of the family (and hence the student) and the ethnicity and language characteristics of the student. Studies carried out by Mok and Flynn (2008) to examine the achievement of students in catholic schools in New South Wales showed that parents level of education made a significant contribution to achievement. High Socio-Economic Status (SES) schools also scored better in the Higher School Certificate than medium or low SES schools (Mok and Flynn, 2008). In a meta analysis including approximately 200 studies by White (1982), a high correlation between SES and achievement was found ($r = 0.875$), while Keeves and Saha (1992) demonstrated that SES indirectly influences student achievement while the direct effects on student achievement are associated with other variables. Beaton *et al.* (1996) reported that the more educational

resources in the home the higher the student achievement than those who reported little access to such resources. Strong positive relationships were found between mathematics achievement and having study aids in the home. It was reported that in most countries where the Third International Mathematics and Science Study (TIMSS) were carried out, the more books the student reported in the home, the higher their mathematics achievement.

Backman suggested that positive parental attitude towards their children such as high interest in their children's academic efforts; provision of household equipment like television, computers, books, educative video, radio, good school, closeness and intimacy with children can bring about good academic performance. Fraser (1994) also looked at the effects of home environment on 408 Aberdeen children's academic achievement and found out that two variables with the highest correlation with educational attainment are parental encouragement and parental education. In a home where parents are fairly or highly educated, there is the tendency that they would aspire to see their children better than they are educationally. This inspiration will force them to motivate their children by providing for their basic needs in education hence their performance in their academic work in school will improve. This may further explain why children from high Socio-Economic Status

(SES) performed individually better than those from the middle and low socio-economic status. According to Ogwu (2004), the high SES parents are able to provide their young children with high quality childcare books and toys to encourage them in their various learning activities at home. The researches of Olubadewo and Ogwu (2006) revealed that parents SES greatly influenced the academic performance of their children in English and mathematics.

Soares and Collares (2006) was of the view that family economic resources, which include the existence of some goods in the students house like the number of bathrooms, cars, radios, TVs, fridges, freezers, vacuum cleaner, computer, the number of family members per room in the students' house, the existence of house maids and whether or not the student works always have to be considered in research on students achievement. He went further to say that family spending patterns above the subsistence level reflect family values, including the cultural ones. Families that highly value their children education, spend proportionally more on cultural goods and other schooling resources.

The choice of purchasing cultural goods can be attributed to parents cultural capital. Soares and Collares (2006), however, were very critical about the use of the concept of cultural capital and went further to propose that the analytical separation of achievement and cultural capital is theoretically inadequate, since one of the expressions of cultural capital is the achievement level itself.

Therefore, instead of trying to measure the cultural capital of the family, the concept of household cultural resources, which include the number of books in the students house (besides the textbooks), the number of magazines, daily newspapers, encyclopedias, atlas, dictionary and calculator and the existence of an adequate place for studying at the house and father's and mother's level of education were proposed.

Soares and Collares (2006) suggests that cultural capital transmission takes place via constant interactions among parents and children and among children and other adults, especially at situations where the main goal is the consumption of cultural goods. The amount of these interactions retained by a child is called the child's social capital. This include the amount of time spent by parents talking to children about books, movies, TV programs, listening to music with them, having family meals together, talking about school issues, helping them to do homework and giving incentives for children's high achievement. Beyond family background and family cultural resources, other family characteristics can affect

students achievement. Previous findings show that family size is negatively associated with students achievement. A bigger family cannot provide the same economic, cultural and social resources to all the children as a smaller family of the same economic background (Soares and Collares, 2006).

Moreover, family's daily routine, which is indicated by behaviour rules, organized schedules, trust, punctuality, cleanliness, family's general psychological climate, which is indicated by parent's relationship, educational approach to the child, frequency of parent's participation at the child's activities; constant presence of stress, which is indicated by economic problems in the family, loss of beloved ones, disease and addictions are some of the factors to be considered. The absence of one parent in the students life because of divorce, abandonment, mothers option (to be a single mother), can affect student's achievement levels (Soares and Collares, 2006).

The process of learning depends not only of family factors but also of students' personal characteristics that are naturally correlated with family characteristics but have an effect on their own. Therefore, in order to analyze achievement, some students personal characteristics must be taken into account. Okoye (1989) further states that the socio-economic status of the parents affects students academic performance.

The health, diet, sleeps, natural and social contacts all have their influence upon the students mental development. If they are properly nourished with balanced diets they will be healthy, their brain would develop properly and so they could have an excellent brainpower, which they need for good academic performance (Ayeni and Adu, 2003). Bojuwaye and Eniola (1992) have also argued that marital relationship of the parents, socio-economic status of the family, authority pattern in the home, how warm or hostile the parents are all have their effect on the social learning and psychological experience of the child at home and at school. Parents, who are restrictive are known to have children that are submissive and dependent. Furthermore, children from broken homes and unstable marriage relations perform poorly in school.

It must be realized that for success in academics, a scholar needs to be calm, peaceful, coordinated and free in spirit so as to give room for effective concentration and satisfactory learning. It is in the light of these conflicting evidences that the present study investigated the relationship between the socio-economic background of students and their mathematics achievement in the selected secondary schools in Southwestern Nigeria.

Table 1: Specification for MAT

Topics	Knowledge No. of item 30%	Understanding No. of item 47%	Application No. of item 23%	Total No. of items
Mensuration (22)	4	4	2	10
Numbers and numeration (16)	2	3	2	7
Plane geometry (20)	2	4	2	8
Equations and inequalities (12)	1	1	1	3
Algebraic expressions (14)	2	3	1	6
Statistics and probability (16)	1	4	1	6
Total	12	19	9	40

Research questions: The following research questions are answered in the study:

- What type of people live at home with you most or all of the time?
- What is the basic household equipment that is found in your house?
- What are your parents' occupations?
- What are the performances of the students in Mathematics?

Participants: One thousand seven hundred and twenty two senior secondary two students, who were randomly selected from the two senatorial districts of Southwestern Nigeria participated in the study.

Instruments: Two instruments were used for data collection. The instruments were constructed by the researcher. They are Socio-Economic Background (SEB) and Mathematics Achievement Test (MAT). SEB consist of section A, which deals with the biodata of the students like name of school, State, Local Government Area, gender, age and date of birth. Section B deals with questions relating to the socio-economic background of the students like which of these people live at home with you most or all of the time, which of these things are in your home? about how many books are there altogether in your home?, what are your parents occupation?. The instrument was administered on 50 students, who were not part of the population for the study and the Cronbach alpha value calculated was found to be 0.75.

Mathematics Achievement Test (MAT): This test was developed by the researcher in order to assess the level of acquisition of mathematical concepts of the students. It covers the main topics of mathematics taught in SS2 up to the third term of the school year. It consists of 40-item multiple-choice questions with 4 options A-D and was based on three cognitive levels knowledge, understanding and application. The specification for the construction of MAT is presented in Table 1.

The test items were scored manually. Each correct answer attracted one mark, while a wrong answer was scored zero. The level of achievement of a student was taken to be the student's total test score. MAT was trial tested on 50 SS II students in three different schools in

Ibadan metropolis. Kuder-Richardson formula KR-20 was used to determine the reliability coefficient. The value obtained was 0.74. The average difficulty index obtained was 0.45, which shows that the instrument was neither too difficult nor too simple.

RESULTS AND DISCUSSION

The results showed that 1355 students representing 78.7% responded that their mother stayed with them at home most and all of the time, while 367 students, which represents 21.3% said their mother do not live with them most or all of the time. About 869 students representing 50.5% said that their father lived with them most or all of the time, while 853 students representing 49.5% said their father doesn't live with them most or all of the time. About 214 students representing 12.4% said their stepmother lived with them most or all of the time, while 1508 students representing 87.6% said their stepmother do not live with them most or all of the time. About 1627 students representing 94.5% said their stepfather do not live with them most or all of the time, while only 95 students representing 5.5% said their stepfather lived with them most or all of the time. About 806 students representing 46.85 said one or more brothers lived with them most or all of the time, while 916 students representing 63.2% said one or more brothers do not live with them most or all of the time. About 763 students representing 44.3% said one or more sisters lived with them most or all of the time, while 959 students representing 55.7% said none of their sisters lived with them most or all of the time. About 228 students representing 13.2% said one or more grand parents lived with them most or all of the time, while 1494 students representing 86.8% said none of their grandparents lived with them most or all of the time. About 396 students representing 23.0% said another relative or relatives such as uncles, aunts, cousins lived with them most or all of the time, while majority of the students (1326) representing 77.0% said none of their relatives such as uncles, aunts, cousins lived with them most or all of the time. About 251 students representing 14.6% said another person or persons not relatives lived with them most or all of the time, while 1471 students representing 85.4% said no other person or persons, who are not relatives lived with them most or all of the time.

From the results, it clearly showed that only the mother and father lived with the students most or all of the time hence there is the family cohesion relationship, which is necessary for good academic achievement. This is in agreement with the findings of Bojuwaye and Eniola (1992), who argued that marital relationship of the parents, socio-economic status of the family, authority pattern in the home, how warm or hostile the parents are, all have their effect on the social learning and psychological experience of the child at home and at school.

When the students were asked about those things that can be found in their homes, 1213 students representing 70.4% said calculators can be found in their homes; 417 students representing 24.2% said they have computers at home; 1278 students representing 74.2% said dictionary can be found in their house; 1038 students representing 60.3% said they have study desk/table for themselves; 1092 students representing 63.4% said they have their own bookshelves and books; 877 students representing 50.9% said they have their own wardrobe; 144 students representing 8.4% said they have dishwashing machine at home; 836 students representing 48.5% said they have CD/Video player in their own room. These results showed that most of the students have the basic educational materials in their homes. The result of this is in consonant with Backman, who suggested that positive parental attitude towards their children such as high interest in their children's academic efforts; provision of household equipment like television, computers, books, educative video, radio, good school, closeness and intimacy with children can bring about good academic performance.

On the question of the parents religion, 989 students representing 57.4% said their father is a Christian, while 1028 students representing 59.7% said their mother is a Christian. About 582 students representing 33.8% said their father is a Muslim, while 506 students representing 29.4% said their mother is a Muslim. Only 9 students representing 0.6% said their father is a traditionalist, while 5 students representing 0.3% said their mother is a traditionalist. On the type of residential places their parents live, 330 students representing 19.2% said their father lived in rural areas, while 344 students representing 20.0% said their mother lived in rural areas. About 1200 students representing 69.7% said their father lived in urban areas, while 1145 students representing 66.5% said their mother lived in urban areas. On the type of qualification the parents have, 229 students representing 13.3% said their father hold the WASC certificate, while 271 students representing 15.7% said their mother hold the WASC certificate. About 122 students representing 7.1% said their father hold the OND/NCE certificate, while 158 students representing 9.2% said their mother hold the

OND/NCE certificate. About 288 students representing 16.7% said their father hold the BSc/B.Ed degree. About 67 students representing 3.9% said their father hold the M.Sc/M.A degree, while 31 students representing 1.8% said their mother hold the M.Sc/M.A degree. About 60 students representing 3.5% said their father have Ph.D, while 26 students representing 1.5% said their mother, have Ph.D. On employment type, 682 students representing 39.6% said their father work in the private sector, while 748 students representing 43.4% said their mother work in the private sector. These results showed that majority of the parents of the students are educated and can provide good education for their children. This is in agreement with the findings of the study carried out by Mok and Flynn (2008) to examine the achievement of students in catholic schools in New South Wales, which showed that parents level of education made a significant contribution to achievement.

When asked on the type of investments their parents have, 307 students representing 17.8% said their father have stocks and shares, while 250 students representing 15.2% said their mother invested in stocks and shares. About 41 students representing 2.4% said their father invested in bonds, while 21 students representing 1.2% said their mother also invested in bonds. About 36 students representing 2.0% said their father have life insurance policy, while 12 students representing 1.1% said their mother also have life insurance policy. About 165 students representing 9.6% said their father have landed properties, while 120 students representing 8.5% said their mother have landed properties. About 209 students representing 14.2% said their father have houses, while 105 students representing 7.2% said their mother have houses.

On the annual income of the parents of the students, 222 students said their father's income was between 1-100,000~~N~~, while 189 students said their mother's income was between 1-100,000~~N~~. About 45 students said their father's income was between 101,000-400,000~~N~~, while 39 students said their mother's income was between 101,000-400,000~~N~~. About 38 students said their father's income was between 401,000-800,000~~N~~, while 28 students said their mother's income was between 401,000-800,000~~N~~ and 15 students said their father's income was between 801,000 to over 1,000,000~~N~~, while 8 students said their mother's income was between 801,000 to over 1,000,000~~N~~.

CONCLUSION

When Mathematics Achievement Test (MAT) was administered on the students, the results showed that 384 students representing 22.3% scored between 0-10, while 560 students representing 32.5% scored

between 10-20; 358 students representing 20.8% scored between 20-30; 167 students representing 9.7% scored between 30-35, while 253 students representing 14.7% scored between 35-40 in the test that had 40 multiple choice questions. The results showed that majority of the students were of average academic ability in mathematics.

RECOMMENDATIONS

From the results of the findings, it is therefore recommended that:

- Parents should take interest in the progress of their children especially in mathematics by being supportive in helping them to solve mathematics assignment
- Students should utilize every provision given to them at home by their parents to excel

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