

INFLUENCE OF STUDENTS' SOCIOECONOMIC BACKGROUND ON ACADEMIC PERFORMANCE IN BASIC SCIENCE AT UPPER BASIC SCHOOLS IN BENUE STATE

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Abstract

The study investigated the Influence of students' socioeconomic background on academic performance in basic science at upper basic schools in Benue State. The study was guided by one research question and one hypothesis was tested at 0.05 significance level. The study adopted the causal-comparative or ex-post-facto research design. The population for this study was made up of 29, 558 Upper Basic III students in public secondary schools in Benue State. A sample of 336 Upper Basic III students from 12 Upper Basic schools in Benue State was selected using random sampling technique. Basic Science Performance Test (BSPT) was used for data collection. Research question was answered using mean and standard deviation. The hypothesis were tested using t-test. It was found that there is no significant difference in the mean academic performance in Basic Science of students with low, middle and high socioeconomic background and that there is no significant difference between the mean academic performance in Basic Science of male and female students with low, middle and high socioeconomic background. Based on the findings of this study, it was concluded that socioeconomic background has no significant influence on students' academic performance in Basic Science in Benue State. Also socio-economic background has no significant influence on academic performance of male and female students. The researchers recommended that teachers and parents should offer equal opportunities to both male and female students in Basic Science and science in general since their socioeconomic background and gender have no significant influence on their academic performance in Basic Science.

Key Words: Socioeconomic Background, Academic Performance and Gender.

Introduction

Nations that are considered to be developed and largely civilized have achieved that status through purposeful science education of their citizens (Ajayi, 2017). In recognition of the role of science and technology to national development, the Federal Republic of Nigeria (FGN, 2013, p19) clearly states that "science and technology should form the basis of our development and should influence our thinking and working processes". It is in this respect that the Federal Republic of Nigeria in her National Policy on Education (FRN, 2013) has placed emphasis on science and

technology education as a foundation for the nation's socio-economic emancipation and proper integration into prevailing global culture of science and technology.

The need for scientific and technological progress necessitates the inculcation of the spirit of enquiry and creativity in the Nigerian child. This would be achieved through the exploration of nature and local environment from the pre-primary level with a view to laying a solid foundation for scientific and reflective thinking in the Nigerian child. The resultant effect of this is the teaching of Basic

science and technology at the Basic Education level. This integrated approach to the teaching of science stresses the fundamental unity of science, de-emphasising subject boundaries to make learners see the concepts and themes that embody science as a whole.

Basic Science and Technology is a subject that introduces students at the basic school level to the rudiments of science and technology. At the inception of the 6-3-3-4 system of education, it was called Integrated Science. However, in the current 9-3-4 system of education it is called 'Basic Science and Technology' and comprises four sub-themes. These include Basic Science, Basic Technology, Information and Communication Technology (ICT) and Physical and Health Education (PHE) (Nigerian Educational Research and Development Council, 2009). The theme 'Basic Science' at the Upper Basic school level is a course of study which is devised and presented in such a way that students gain the concept of the fundamental unity of science, the commonality of approach to problem of scientific nature and helps students to gain an understanding of the roles and functions of science in everyday life and the world in which they live (Sambo, Kukwi, Eggari & Mahmuda, 2014).

Basic Science is the foundation for the study of the core science subjects such as; Biology, Chemistry and Physics at the senior secondary level of education. Basic Science provides students at the Upper Basic education level with the initial theoretical and practical frameworks which are inevitable prerequisites for their future study of science. This statement buttressed by Ekundayo (2012) and Agogo and Ode (2017) severally maintain that Basic Science enables students to understand science concepts, principles, theories and laws which are further elaborated in the core sciences.

Despite the central role of Basic Science to the science education career of students, the performance of students in Basic Science is low. Over the years (2016-2020), analysis of students' yearly achievement released by Benue State Examinations Board has brought to limelight the poor performance of students in Basic Science at the Basic Education Certificate Examination (BECE). The low achievement in Basic Science at BECE becomes eminent when one considers the percentage credit passes which has been less than 50 %. This trend of low performance does not augur well as Nigeria looks forward to be among the top twenty scientific, technological and economically developed nations of the world in the year 2020 (Liga & Emaikwu, 2015).

This low performance has been blamed on a number of school related factors among which are; inappropriate teaching methods used by science teachers, inadequate science equipment, poor library and laboratory facilities, teachers' qualification and teachers' motivation. However, Soraya, Elaheh and Masoud (2011) claim that predictors of academic achievement often lay on a continuum with cognitive measures, intelligence and mental abilities at one extreme and non-cognitive variables such as socio-economic status at the other extreme. Academic achievement at school is not only linked with school-related factors, but also with the socio-economic environment in which students are raised.

The environment at home is a primary socialisation agent that could influence a child's performance in school and aspirations for the future. One of the major factors that determine the home environment of the child is socio-economic background of the parents. Socio-economic background or status is the blend of economic and sociological measures

of an individual's work experience and the economic and social positions of an individual or family in connection to others on the premise of income, educational level and occupational status (Majoribanks, 2016). In a similar view, John (2009) describes socio-economic background as any measure which attempts to classify individuals, households or families in terms of indications such as occupation, family size, income and education in relation to their interaction in the society. The socio-economic background of a student is most commonly determined by combining parents' educational level, occupational status and income level (Jeynes, 2012). Socio-economic background is key to students' life both within and outside of the school.

The socio-economic background of a child is most commonly determined by combining parents' educational level, occupational status, and income level (Jeynes, 2012). Lareau (2013) observes that socio-economic status is typically broken into three categories; high, middle, and low. To describe the three areas a family or an individual may fall into when placing a family or individual into one of these categories any or all of the three variables (income, education, and occupation) can be assessed. In addition, Ogunshola and Adewale (2012) found that low income and little education have shown to be strong predictors of a range of physical and mental health challenges due to environmental conditions which may be the entire cause of that person's social predicament to begin with.

Socio-economic background dictates the quality of home life for children. Students from low socio-economic background are at a disadvantage in school because they lack an academic home environment, which could influence their academic success at school. In other words, when children are poorly

catered for and are deprived of the basic learning resources such as pens, pencils, relevant text-books, reading tables and chairs, such children are very likely to perform poorly in their academic work. On the other hand, students from middle and high socio-economic backgrounds are provided with the necessary learning resources at home which could enhance their academic performance in school.

Lareau (2013) observes that students with low socio-economic background struggle with time management issues. Such students are often sent away from school for non-payment of school fees. They could miss some of the lessons while they are away from school due to non-payment of fees. Children whose parents are of low socio-economic status are made to engage in petty trading to earn income with which to pay school fees and buy books and as a result give little time to their studies which result in poor academic performance (Onwukwe, Agommuoh & Agommuoh, 2017). Conversely, the high socio-economic parents encourage their children to have extra coaching after school period (Jeynes, 2012). Thus, students with middle and high socio-economic backgrounds have more time for their studies and are engaged in extra lessons after school (Rofikul & Zebun, 2017). On the contrary, students with low socio-economic background have less time for their studies and may not be engaged in extra lessons at home. The variation in study time and engagement in extra lessons of students with various socio-economic backgrounds could influence their academic performance.

Families with high socio-economic status often have more success in preparing their young children for school. This is because they typically have access to a wide range of resources to promote and support child development. They are able to provide their

children with high quality child care, books and toys to encourage children in various learning activities at home. Also, they have easy access to information regarding their children's health as well as social, emotional and cognitive developments. In addition, families with high socioeconomic status often seek out information to help them prepare their young children for school. Students with high socio-economic background are likely to receive more parental attention and have more access to resources which enable them perform better than children from low socioeconomic families (Alordiah, Akpadaka & Oviogbodu, 2015; Omer, Ayse & Zehra (2015). The additional attention and support could lead to better academic performance (Eamon, 2016). Educational level of parents determines their status and level of influence in the society. Educational attainment varies with income levels. Education provides diverse opportunities for individuals to function in the society. Students from literate homes may likely have a higher academic performance than those from illiterate homes (Erick & Nyakundi, 2012). Parents with high educational attainment and expendable incomes are often more successful in preparing their children for school because they may have access to a wide range of resources to promote and support their children's education. Educated parents may also help their children in doing assignment. They may explain some concepts which their children find difficult to understand. This support by educated parents could enhance their children's academic performance in the school. However, it is not clear whether the socioeconomic factors could be the reason behind the low performance in Basic Science in Benue State. It is therefore, imperative to investigate the influence of socioeconomic background of students on

their academic performance in Basic Science.

Statement of the Problem

The academic performance patterns in Basic Science among Upper Basic students show that there is low performance in the Basic Education Certificate Examination (BECE, 2009-2018) conducted by Benue State Examination Board. This problem has continued to generate public concern and outcry in the state and Nigeria at large, given the fact that Basic Science and Technology is the foundation of science and technology education. The implication of this persistent low performance of students in Basic Science and Technology is that a weak foundation may have been laid for them in science and technology education.

There are many factors such as students' personality and socio-economic background that are likely to have influence on the academic performance of students in Basic Science. The socio-economic background of some students could affect provision of necessary learning resources for effective learning in Basic Science and Technology. Many families in Nigeria are facing economic challenges and are finding it difficult to pay for their children's education and provide the necessary learning resources which could influence the academic performance of such students. It is therefore, imperative to study influence of students' socioeconomic background on academic performance in Basic Science at upper basic schools in Benue State across gender.

Research Question

The study was guided by one research questions:

1. What is the difference in the mean academic performance among students with low, middle and high socio-economic background?

Hypotheses

The following hypothesis was formulated and tested at 0.05 level of significance:

1. There is no significant difference in the mean academic performance among students with low, middle and high socio-economic background.

Research Method

The study employed the causal-comparative or ex-post-facto research design. This type of research design is aimed at the discovery of possible causes for behaviour pattern by comparing subjects in whom this pattern is present with similar subjects in whom it is absent or present to a lesser degree (Emaikwu, 2012). The ex-post facto research design is suitable for this study because it is not possible for the researcher to directly manipulate the independent variables (sociocultural background and gender) which have already occurred. Hence, the researcher can only determine the after-effect of socioeconomic background and gender on academic performance. The area of this study was Benue State, Nigeria. The population for this study was 29, 558 Upper Basic III students in public secondary schools in Benue State. The sample for the study comprised 336 Upper Basic III from 12 Upper Basic schools in Benue State. The sample was selected using random sampling

technique. Twelve secondary schools were randomly selected across Benue State. Twenty eight Upper Basic III students were then randomly selected from each of the schools giving a total of 336 students.

Basic Science Performance Test (BSPT). The BSPT had two sections. Section A sought information on the respondents’ Socio-economic background indices such as the parents’ average annual income, parents’ educational level and parents’ occupation. Section B is a 50 items objective test with options A, B, C and D drawn from six topics in Basic Science. The topics are: Living Things, Environmental Pollution, Soil Erosion, work, Energy and Power, Changes in Matter and Ozone layer. The BSPT was used to measure students’ academic performance in Basic Science. The instrument was validated by three experts from the Department of Science and Mathematics Education, Benue State University, Makurdi. Kuder-Richardson Formula KR-21 was used to determine the reliability coefficient of the Basic Science Performance Test which was found to be 0.94.

Research question was answered using mean and standard deviation. The hypothesis was tested at 0.05 alpha level of significance using t-test.

Results

Research Question One

What is the difference in the mean academic performance among students with low,

middle and high socio-economic background?

Table 1: Mean and Standard Deviation of Academic Performance in Basic Science of Students with Low, Middle and High Socioeconomic Background

Students’ Socioeconomic Background	N	Mean	Std. Deviation	Std. Error Mean
Low	184	64.28	13.11	1.19
Middle	104	66.82	10.59	0.97
High	48	65.68	10.42	0.90

Result in Table 1 shows the difference in the mean academic performance scores in Basic Science of students with low, middle and high socioeconomic background. Table further reveals that the mean academic performance scores of students with low socioeconomic background is 64.28 with a standard deviation of 13.11, that of students with middle socioeconomic background is 66.82 with a standard deviation of 10.59 while the mean academic performance scores of students with high socioeconomic background is 65.68 and a standard deviation of 10.42. The difference in the mean academic performance scores in Basic Science between students with low and middle socioeconomic background was 2.54

in favour of students with middle socioeconomic background. The mean academic performance difference between students with low and high socioeconomic background was 1.40 in favour of students with high socioeconomic background. While the mean academic performance difference between students with middle and high socioeconomic background was 1.14 in favour of students with middle socioeconomic background.

Hypothesis One

There is no significant difference in the mean academic performance among students with low, middle and high socio-economic background in Basic Science.

Table 2: ANOVA of Multiple Regression of Academic Performance in Basic Science of Students with Low, Middle and High Socioeconomic Background

Model		Sum of Squares	Df	Mean Square	F	Sig.
3	Regression	2.560	3	.853	1.981	.121 ^d
	Residual	47.379	110	.431		
	Total	49.939	113			

Result in Table 2 reveals that $F(3, 113) = 1.981$; $p = 0.121 > 0.05$. Thus, the null hypothesis is not rejected. This implies that there is no significant difference between the mean academic performance in Basic Science of students with low, middle and high socioeconomic background. Thus, based on evidence from data analysis, there is no significant difference in the mean academic performance in Basic Science of students with low, middle and high socioeconomic background.

Discussion of Findings

The study investigated the influence of socioeconomic background of students’ on their academic performance in Basic Science in Benue State, Nigeria. The findings of the study were discussed based on the research question and the corresponding hypothesis that guided the study.

Findings revealed that there is no significant difference in the mean academic performance in Basic Science of students with low, middle and high socioeconomic background. Thus, based on evidence from data analysis, there is no significant difference in the mean academic performance in Basic Science of students with low, middle and high socioeconomic background. The finding agrees with that of Ogunshola and Adewale (2012) that parental socio-economic statuses and parental educational background did not have significance effect on the academic performance of the students.

However, the finding disagrees with that of Rofikul and Zebun (2017) that significant difference exist among different socio-economic status group in their academic achievement. The finding also disagrees with that of Onwukwe, Agommuoh and

Agommuoh (2017) that students from low socio-economic backgrounds attend public schools more than those from high socio-economic backgrounds and they achieve less academically than those of high socio-economic backgrounds. The finding also disagrees with that of Alordiah, Akpadaka and Oviogbodu (2015) that students of parents with high socioeconomic status performed better than students of parents with low socioeconomic status. The finding also disagrees with that of Omer, Ayse and Zehra (2015) that high socioeconomic status student outperformed low socioeconomic status students on scientific reasoning and nature of science tests.

It is believed that occupational status corresponds to the educational attainment of an individual. Therefore, obtaining better jobs, exploring and retaining better positions are becoming inevitable leading to improvement in the socio economic status. Parental high occupation status reflects in their income level. Parents with high occupational rank may be able to provide the necessary incentive for their children learning, with high income level, they are able to provide better nourishment for their family while students from low parental occupation status have little opportunities to go to school because their parents lack adequate income to provide them with high quality education. Despite these, the present study found no significant difference in the mean academic performance in Basic Science of students with low, middle and high socioeconomic background.

Conclusion

Based on the findings of this study, it was concluded that socioeconomic background has no significant influence on students' academic performance in Basic Science in Benue State. Also socio-economic background has no significant influence on

academic performance of male and female students.

Recommendations

The researchers recommended that teachers and parents should offer equal opportunities to both male and female students in Basic Science and science in general since their socioeconomic background and gender have no significant influence on their academic performance in Basic Science

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