

PARENTAL INFLUENCE AND ACADEMIC PERFORMANCE OF JUNIOR SECONDARY SCHOOL LEARNERS IN BASIC SCIENCE

Aminu Aliyu, Ph.D

*Department of Curriculum and Instruction,
Adamu Augie College of Education, Argungu,
Kebbi State.*

Abstract

A survey research design was adopted to examine the parental influence and academic performance of junior secondary school learners in basic science. The aim was to find out how parental socioeconomic background and parental involvement influence the academic performance of students in basic science at junior secondary school. The technique used was stratified sampling and random sampling techniques. Basic science learner's questionnaire (BSLQ) and Basic science performance test (BSPT) were used to obtain data. Multiple regression and independence sample t-test were used in data analysis. The findings revealed that parental education has greatly predicted the student's academic performance in basic science. It was also found that there was no statistically significant difference in scores for basic science students (male and female) in terms of their parental involvement in Junior secondary school 1, 2 and 3. It is recommended that parents as stakeholders in the education of their children should understand the academic needs of their children in terms of psychological needs, economic needs and sociological needs and the consequence of these on their children's academic performance.

Keywords: Basic science; parental socio-economic background; parental involvement; Junior secondary school; learners' academic achievement

Introduction

Parents play a primary part in their children's academic success (Crosnoe, 2001). Basic science allowed children to gather essential knowledge in science for the understanding of more complex and abstract concepts in life. It is necessary to lay a solid foundation in basic science to form ideas based on scientific reasoning. Basic science serves as a foundation that lay scientific knowledge to students which will be used in

their later lives and the experience gained in basic science will guide them to become scientifically literate, (Na'Allah, 2016). Therefore, parents have to influence their children to have a better understanding of science. Most researchers agree that family experience affects the success of children at school, provided that schooling begins at home. Parental involvement in many ways influences students' achievement. Parent support helps to engage and maintain processes in student learning by providing all necessary materials for effective learning. Parental involvement is an important aspect of a child's personality development which was directly related to a child's academic performance (Singh & Mahajan, 2021). Parental involvement includes parental readiness to devote their time and resources toward their children learning. Children whose parents are involved in their overall development exhibit good behaviour and attitudes towards their learning. Singh and Mahajan (2021) said a family is a unit of society that defines the future and personality of a child. It also provides a solid foundation to make them productive members of society. Parental involvement and support in children's learning will encourage the student to build self-confidence, active and remain focused on their education.

How children behave signifies their parenting style, along with their parental socio-economic status. Academic achievement plays a vital role in producing the best students who will contribute greatly toward the development of a country. Students' academic achievement was influenced by many factors, among these factors are parental socio-economic background (Enbeyle, Desta & Pandey, 2020). Woolfolk (2007) described socio-economic status as an individual member's position within the society based on wealth, power, history and prestige. The parental socioeconomic background is a composite term composed of social class, financial status, household size, family composition, parents' level of schooling, profession and other variables relevant to family life (Osuafor & Okonkwo, 2013) society. The parental socio-economic background factors like parent level of education, occupation, family size, family income and social class provide an important argument in providing education to children from low socioeconomic backgrounds to high socio-economic background parents. This study focused on three parental socio-economic factors which include parents' level of education, occupation and social class.

Most students in Nigerian secondary schools cannot pursue their education because of the socio-economic imbalances they face. These socio-economic imbalances cause some students to drop out of school, to be absent from time to time, or not to pay attention to what has been thought which will affect their academic achievement. Also among the factors that are connected with the students' poor academic achievement is lack of parental involvement in the achievement of students learning (Takwate, Sallah, Iliya & Godwin, 2019). Many studies have emphasized that one of the factors affecting students' academic attainment is parental background (Ojimba, 2013 & Ayanleye, 2015). Yunus and Hamza (2016) explained that parents are expected to encourage and guide their children to become well-accomplished people. It was observed that the level of

Parental Influence and Academic Performance of Junior Secondary School Learners in Basic Science

parental involvement is low in junior secondary schools in Kebbi State. The quality of education is determined not only by the instructors but also by how successfully or unsuccessfully parents participate in their children's education. According to some studies, a child's academic success is influenced by the extent of parental participation (Chen, 2008, Oyedare, Ogunjinmi, & Durojaiye, 2016). The Nigerian government has initiated programmes to involve parents in a basic education programme to build a strong relationship between parents, teachers and students to enhance total educational attainment. Despite these efforts made by the government many parents failed to guide and support their children's educational practice to influence their academic achievement. This study aims to investigate Parental influence and academic performance of junior secondary school students in basic science

Topor, Keane, Shelton and Calkins (2010) explain further that the contribution of parents toward their children's achievement has not been demonstrated well among scholars. They note that children's classroom activities, the children's perception of cognitive competence and the quality of the student-teacher relationship are associated with parental involvement.

Objective of the Study

The objectives of the study are as follow;

1. To examine how parental socioeconomic background influence the academic performance of learners in basic science at junior secondary school
2. To find out how parents' involvement influence the academic performance of males and females in basic science at the junior secondary school

Research Questions

1. Which socio-economic background factor(s) is the best predictor of academic performance in the Basic Science programme?
2. A) Is there any difference in academic performance in basic science between male and female learners based on their parental involvement in junior secondary school 1?
b) Is there any difference in academic performance in basic science between male and female learners based on their parental involvement in junior secondary school 2?
C) Is there any difference in academic performance in basic science between male and female learners based on their parental involvement in junior secondary school 3?

Methods

The survey method was adopted for the study. There were 6821 learners from 15 junior secondary schools. Using Yamane (1967) formula for determining sample size 377 learners were selected then stratified random sampling was used to choose the sample size of learners. Strata were formed and then a simple random sampling technique was applied to each stratum where the sample size was selected. About 147

learners were sampled from JSS 1, 124 from JSS 2 and 106 from JSS 3. The breakdown of the sample size used in this study is presented in table 1.

Two instruments were used in this study. Basic science learners' questionnaire (BSLQ) and Basic science performance test (BSPT). The BSLQ was adapted and contained three sub-scales (level of education, occupation and social class). It was validated for content and construct and the reliability coefficient was found to be $r=0.819$ for a level of education, 0.779 for a level of education and 0.865 for a social class using Cronbach alpha. The basic science performance test (BSPT) was designed by the researcher to measure the academic performance of learners in basic science in JSS 1, JSS 2 and JSS 3. Items were drawn from basic science curriculum content in use of each level. The items were developed based on Bloom's taxonomy of cognitive, educational objectives. The table of the specification was designed to guide the item construction for each level. BSPT was content validated and item analysis was performed and found that the discrimination index of the items was moderate to high and the difficulty level of the items was moderate (see Appendix attached). The reliability coefficient for JSS 1 $r=0.75$, JSS 2 $r=0.74$ and JSS 3 $r=0.81$ was found using KR-20. Multiple regression was performed to determine which factor greatly predicts academic performance. An independent sample t-test was also conducted.

Results

Demographic Information

Table 1 present the demographic information of the respondents by gender

Table 1: Learners demography (N=377)

C l a s s		B o y s		G i r l s		T o t a l
		N	%	N	%	
J	S S	110	70.7	43	29.3	154
J	S S	88	71.0	36	29.0	124
J	S S	75	70.8	33	29.2	106
T o t a l		267	70.8	110	29.2	377

Note: JSS= Junior secondary school

One hundred and forty-seven students comprising 70.7% boys and 29.3% girls were from JSS 1, 124 students comprising 71.0% boys and 29.0% girls were from JSS 2 and 106 comprising 70.8% boys and 29.2% girls were from JSS 3. In all 70.8% representing 267 were boys and 29.2% representing 110 were girls from the JSS 1, 2 and 3.

Research Question 1

Multiple regression was conducted to see which factor (level of education, occupation and social class) greatly predicts the student's academic performance in basic science. The results of this regression between the level of education, occupation and social class and students' academic performance in basic science were given below in the Tables. It is shown in Table 2 that only 49.6% of the independent variables (level of

Parental Influence and Academic Performance of Junior Secondary School Learners in Basic Science

education, occupation and social class) explain a significant amount of the variance in the dependent variable (students' academic performance) in basic science. $R^2=.496$ (Adjusted $R^2= .491$, $F(3, 373) = 122.139$, $p < .05$).

Table 2: Model Summary for the socio-economic background (level of education occupation and social class) in Basic science

M o d e l S u m m a r y									
C h a n g e S t a t i s t i c s									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df 1	df 2	Sig. F Change
1	.704	.496	.491	1.181	.496	122.139	33	73	.000
a. Predictors: (Constant), level of education, occupation, social									
b. Dependent Variable: performance									

Similarly, the regression analysis shows that all the independent variables are relevant toward influencing students' performance in Basic science hence $p < .05$.

Table 3: Coefficients in multiple regression analysis for the socio-economic background (level of education, occupation and social class) in Basic science

Collinearity Statistics									
Unstandardized Coefficients									
Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF		
1	(Constant)	-.234	.098		-2.391	.017			
	Level of education	.215	.012	.651	17.305	.000	.955	1.048	
	Occupation	.047	.021	.08	12.191	.029	.996	1.004	
	Social class	.097	.025	.149	93.946	.000	.953	1.049	

a. Dependent Variable: performance

It can be seen from Table 3 that one independent variable (level of education) has significantly contributed to the performance of students. It made the largest contribution to the student's performance and significantly predict the student's performance (Beta= .651, $t(373) = 17.305$, $p < .05$). This means that level of education provides the largest and a significant unique contribution to the prediction of the student's performance when the variance is explained by all other factors in the model measured. It was also seen from Table 4 that there was a significant unique contribution of parental social class to the student's academic performance in basic science (Beta= .149, $t(373) = 3.946$, $p < .05$). However, parental occupation also significantly predicts the student's academic

performance in basic science even though it made less contribution to the prediction of the performance. (Beta= .081, t (373) =2.191, p< .05). Therefore, this regression analysis result indicated that there is a positive correlation between the parental socio-economic background and academic performance of students in basic science. Therefore, the regression equation would be:

$$\text{Performance} = \text{level of education (.215)} + \text{social class (.097)} + \text{occupation (.047)} + \text{-.234.}$$

This means that when the level of education increases by 1% the student's performance will also increase by 21.5%. However, this shows that students' performance in basic science was influenced by the level of education of their parents.

Multicollinearity was determined and it indicated a perfect linear relationship between the three independent variables. It was shown that the tolerance value for each of the independent variables was .955, .996 and .953 and the VIF value for each was 1.048, 1.004 and 1.049. The tolerance values were above 0.1 and the VIF values were less than 10, thus the data set did not indicate multicollinearity. Pallant (2005) and Ringle, Wenda and Becker (2015) recommended that the value of Tolerance should be above .10 or a VIF value of above 10, indicating multicollinearity. The assumptions were not violated.

Research question 2

To answer this research question the total scores obtained from the administration of BSPT that ranged from 8-20 marks were used. An independent-samples t-test was conducted to compare the academic performance for JSS 1, 2, and 3 males and females basic science students at 0.05 level of significance presented in Table 5 below.

Table 5: Independent samples t-test

Class	Variables	N	\bar{X}	S	d	t	d	f	Sig. (2-tailed)
JSS 1	Males	10	4.91	.283	-1.75	14	5	.082	
	Females	4	3.98	.152					
JSS 2	Males	8	8.92	.272	-1.28	12	2	.200	
	Females	3	6.97	.167					
JSS 3	Males	7	5.92	.273	-.272	10	4	.786	
	Females	3	1.94	.250					

From the Table 5 result it can be said that there was no statistically significant difference in scores for basic science students (male and female) based on their parental involvement in JSS 1, 2 and 3 where $p > 0.05$ therefore, the null hypotheses was accepted. However, the result of the descriptive analysis shows that the mean scores for females were higher than the mean scores of male basic science students in JSS 1, 2, and 3. For JSS1, male (M=.92, SD=.283) and female (M=.98, SD=.152); JSS 2, male (M=.92, SD=.272) and female (M=.97, SD=.167) and lastly JSS 3 male (M=.92, SD=.273), female (M=.94, SD=.250). Comparing the three results, one can say that parent is greatly

Parental Influence and Academic Performance of Junior Secondary School Learners in Basic Science

involved in the learning process of their female child which has an impact on their performance in basic science more than their male counterpart. This result was supported by Pandey and Thapa (2017) finding who said girls perceived greater parental involvement concerning parental support, parental interaction, and parental satisfaction as compared to boys. This affects girls' performance by scoring higher than boys. Even though the mean scores for females were higher than that of males but these differences failed to be shown at the level of confidence therefore, females and males in junior secondary schools do not differ significantly in their academic performance due to their parental involvement. Hence the formulated hypotheses were accepted.

Findings of the Study

The findings in this study are:

1. It was found out that all the parental socio-economic factors conceptualised in this study predicted the basic science learners' academic performance in junior secondary school. But the parental education has greatly predicted the learner's academic performance in basic science.
2. There was no statistically significant difference in scores for basic science learners (male and female) in terms of their parental involvement in Junior secondary school 1, 2 and 3.

Discussion of the Results

The data collected and analysed from 377 respondents from 15 junior secondary schools in Kebbi State, indicated that socio-economic parental background factors initially conceptualised (education, occupation and social class) in this study have predicted the academic performance of students in the basic science programme. This was established in Table 2 where the regression analysis shows us that all the independent variables are relevant toward influencing students' performance in Basic science hence $p < .05$. It was also revealed in Table 4 that parental education made the largest contribution to the student's performance and significantly predict the student's performance (Beta = .651 $p < .05$). This finding is supported by many research findings (Ogbugo-Ololube, 2016 & Okiemute, 2017) who found out that socio-economic background factors influence students' performance at school. This implies that parental socio-economic background has any chance to increase or decrease the child's interest in learning to achieve better performance in school. Parents have to provide all the necessary learning materials, support and encourage their children in school activities to improve their performance. However, from the regression analysis, parental education is highly influenced in their children's performance. The finding is inconsistent with several studies that have been carried out concerning parental education and student academic performance (Akinsanya, 2011; Adewale & Ogunshola, 2012; Ahmad & Naeema, 2013; Bakar, Mamat, & Ibrahim, 2017; Hamzah & Yunus, 2018; Enbeyle, Desta & Pandey, 2020) They show there is a significant impact between parental

education and their children performance in various disciplines. This implies that educated parents are more concerned with improving their children's success at school. They often have more time to prepare, guide, advise and give many examples of the well-being of well-educated persons to their children to arouse their interest in learning for them to take part in various learning activities. Because they wanted their children to be well educated as they did.

Concerning parental involvement, the result found that there was no significant difference between basic science students (male and female) in Junior secondary school in Kebbi State. The finding of this study is not in line with the finding of Vijaya, Vijaya & Rajeshkumar (2016) who found out that there was a significant difference in parental involvement of high school students concerning gender.

Conclusion

It is quite clear from this study and as a concluding note, the children can achieve better performance when parents provide them with enough attention and get involved directly in their learning. Therefore, parental involvement has a significant role to play in the child's academic success. At the same time, parental socio-economic background accelerates students' academic achievement. Out of the three components of parental socio-economic background (level of education, occupation and social class) initially conceptualized in this study, it is traced that parental education has greatly predicted the student's academic performance in basic science. It is evident in the findings that there is no difference in scores of males' success in comparison to females, based on their parental involvement. Parental socio-economic background and parental involvement have more roles to play in the academic performance of a child.

Recommendation

The following are recommended

1. Parents as stakeholders in the education of their children should understand the academic needs of their children in terms of psychological needs, economic needs and sociological needs and the consequence of these on their children's academic performance.
2. Parents should also organise extra lessons for their children, guiding them to do homework/assignments, supervise their school work, demand for their academic progress e. t. c.

References

- Adewale, A., & Ogunshola, F. (2012). The effects of parental socio-economic status on academic performance of students in selected schools in Edu Lga of Kwara state, Nigeria. *International Journal of Academic Research in Business and Social Sciences*, 2(7), 230–239.
- Ahmad, K. & Naeema, B. (2013). Influence of socioeconomic and educational background of parents on their children's education in Nigeria. *International journal of scientific and research publications*, 3(10), 2250–3153.
- Akinsanya, O. O. (2011). The influence of parents' education on family income on child achievement. *Journal of Family Psychology*, 2(19), 294 – 304.
- Ayanleye, M. O. (2015). *Influence of parental profession on students' academic performance in financial accounting in federal government colleges North-Central geopolitical Zone Nigeria*. (Unpublished master's dissertations), Ahmadu Bello University Zaria Nigeria.
- Bakar, N. A., Mamat, I., & Ibrahim, M. (2017). Influence of Parental Education on Academic Performance of Secondary School Students in Kuala Terengganu. *International Journal of Academic Research in Business and Social Sciences*, 7(8), 296–304.
- Chen, H.F. (2009). *The longitudinal factor structure of parent involvement and its impact on academic achievement: Findings from the ecls-k dataset* (Doctoral dissertation, University of Denver, USA). Retrieved from <https://digitalcommons.du.edu/etd/123>
- Crosnoe, R. (2001). Parental involvement in education: The influence of school and neighborhood. *Sociological Focus*, 34(4), 417-434.
- Enbeyle, W., Desta, G., & Pandey, D. (2020). Parental Influence on Students' Academic Performance - A Case Study of Debre Berhan General Secondary School students, Debre Berhan, Ethiopia. *Journal of PeerScientist*, 3(1), 1-8.
- Hamzah, M. I., & Yunus, A. (2018). Influence of Parental Background of Secondary School Students on Academic Performance in Islamic Studies in Nigeria. *International Journal of Academic Research in Business and Social Sciences*, 8(1), 314–325.

- Na'Allah, M.T (2016). Basic science laboratory facilities assessment in Ilorin metropolis junior secondary schools, Kwara State, Nigeria. In Z.C. Njoku (Ed.). *STAN 57th Annual Conference Proceedings* (pp 340-345). Abuja, Nigeria. Science Teachers Association of Nigeria.
- Ogbugo-Ololube, R. (2016). Impact of Students' Parental Background on Academic Achievement in Secondary Schools in. *International Journal of Scientific Research in Education*, 9(2), 115–126.
- Ojimba, D.P. (2013). Home background and senior secondary students' achievement in mathematics in Rivers State, Nigeria. *Journal of Educational and Social Research* 3(2): 283-294.
- Okiemute, E. (2017). Influence of Parental Background on Secondary School Students "Academic. *IJARIE*, 3(1), 2395–4396.
- Osuafor, A., & Okonkwo, I. (2013). Influence of family background on academic achievement of secondary school biology students in Anambra State. *African Research Review*, 7(3), 156-167.
- Oyedare, O. O., Ogunjinmi, O. O., & Durojaiye, A. M. (2016). Parental Involvement as A Determinant of Students' Academic Performance in Agricultural Science in Selected Secondary Schools in Oyo Metropolis, Oyo State. *Global Journal of Life Sciences and Biological Research*, 2(2), 17–22.
- Pallant, J. (2005). *SPSS survival manual: A step-by-step guide to data analysis using SPSS*. (2nd ed.). Sydney: Allen & Unwin.
- Pandey, P., & Thapa, K. (2017). Parental Influences in Academic Performance of School Going Students. Parental influences in academic performance of school going students. *Indian Journal of Positive Psychology*, 8(2), 132–137.
- Ringle, C.M. Wenda, S., & Becker, J. M. (2015). Smart PLS 3. Bonnigstedt: Smart PLS. <http://www.smartpls.com>
- Singh, M., & Mahajan, P. (2021). Parental involvement and academic achievement : A study on senior secondary students. *An International Bilingual Peer Reviewed Refereed Research Journal*, 8(29), 122–129.

Parental Influence and Academic Performance of Junior Secondary School Learners in Basic Science

- Takwate, K.T., Sallah, K., Illiya, T., & Godwin, B. A. (2019). Impact of Parental Involvement on Students' Academic Achievement in Senior Secondary Schools in Mubi-North Local Government Area, Adamawa State. *BSUJEM*, 1(2), 132–140.
- Topor, D.R., Keane, S.P., Shelton, T.L. & Calkins, S.D. (2010). Parent involvement and student academic performance: A multiple mediational analysis. *Journal of Prevention and Intervention in the Community*, 38(3), 183–197.
- Vijaya, S. Vijaya, & Rajeshkumar. (2016). Parental involvement and academic achievement among high school students. *Review of Research Journal*, 5(12), 1–4.
- Woolfolk, A. (2007). *Educational psychology (10th ed.)*. Boston: Allyn and Bacon.
- Yamane, T. (1967). *Statistics, an introductory analysis, 2nd ed.* New York: Harper and Row.
- Yunus, A., & Hamza, M. I. (2016). Enhancing Students' Academic Performance in Islamic Studies Via Parental Involvements in North-Central Nigeria. *E-Bangi: Journal of Social Sciences and Humanities*, 11(2), 450–461.