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

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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 usedin
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 instudent 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 (Enbyele, 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 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 presents the demographic information of the respondents by gender.

<table>
<thead>
<tr>
<th>Class</th>
<th>Boys N</th>
<th>%</th>
<th>Girls N</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSS 1</td>
<td>10</td>
<td>70.7</td>
<td>4</td>
<td>29.3</td>
<td>14</td>
</tr>
<tr>
<td>JSS 2</td>
<td>8</td>
<td>71.0</td>
<td>3</td>
<td>29.0</td>
<td>12</td>
</tr>
<tr>
<td>JSS 3</td>
<td>7</td>
<td>70.8</td>
<td>3</td>
<td>29.2</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>70.8</td>
<td>11</td>
<td>29.2</td>
<td>37</td>
</tr>
</tbody>
</table>

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 in the tables. It is shown in Table 2 that only 49.6% of the independent variables (level of
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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

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>R Change</th>
<th>df</th>
<th>F Change</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.704</td>
<td>.496</td>
<td>.491</td>
<td>1.491</td>
<td>1.81</td>
<td>6</td>
<td>122.139</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), level of education, occupation, social class
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

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Tolerance</th>
<th>VIF</th>
<th>I</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(Constant) - .234</td>
<td>-.234</td>
<td>-2.391</td>
<td>.017</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Level of education .215</td>
<td>.215</td>
<td>1.127</td>
<td>.029</td>
<td>.95</td>
<td>1.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Occupation .047</td>
<td>.047</td>
<td>.853</td>
<td>.173</td>
<td>.99</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social class .087</td>
<td>.087</td>
<td>1.247</td>
<td>.051</td>
<td>.95</td>
<td>1.04</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 = .49, \( t (373) = 3.946, p < .05 \)). 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:

\[ \text{Performance} = \text{level of education} \times 0.215 + \text{social class} \times 0.097 + \text{occupation} \times 0.047 - 0.234. \]

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>
<thead>
<tr>
<th>Class</th>
<th>Variables</th>
<th>N</th>
<th>X</th>
<th>S</th>
<th>t</th>
<th>d</th>
<th>f</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSS 1</td>
<td>Males</td>
<td>10</td>
<td>4.9</td>
<td>0.28</td>
<td>-1.75</td>
<td>1</td>
<td>4</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>4</td>
<td>3.9</td>
<td>0.28</td>
<td>1.52</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JSS 2</td>
<td>Males</td>
<td>8</td>
<td>4.9</td>
<td>0.27</td>
<td>-1.28</td>
<td>1</td>
<td>2</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>3</td>
<td>4.9</td>
<td>0.27</td>
<td>1.67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JSS 3</td>
<td>Males</td>
<td>7</td>
<td>5.9</td>
<td>0.27</td>
<td>-0.27</td>
<td>1</td>
<td>0</td>
<td>0.78</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>3</td>
<td>4.9</td>
<td>0.25</td>
<td>2.50</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 JSS 1, 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
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 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, Vijay & 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 etc.
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References


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