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Influence of Parental Involvement on Students' Academic Achievement amongst Biology Secondary School Students in Kebbi State, Nigeria

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ABSTRACT

The role of parental involvement in students' academic success has attracted considerable attention in educational research, particularly within science education. This study investigated the influence of parental involvement on students' academic achievement in Biology in secondary schools in Kebbi State, Nigeria. The research was guided by a correlational research design aimed at determining the relationship between parental engagement in students' educational activities and their academic performance in Biology. The population of the study consisted of senior secondary school students offering Biology in selected secondary schools across six educational zones in Kebbi State. A sample of 346 respondents was selected using cluster sampling techniques, while 340 properly completed questionnaires were used for the final analysis. Data were collected using a structured instrument titled Socio-Economic Background and Academic Performance of Biology Students Questionnaire. The instrument was validated by experts and demonstrated acceptable reliability using Cronbach's alpha. Pearson Product–Moment Correlation statistics were employed to test the hypothesis at a 0.05 level of significance. The findings revealed a very strong and statistically significant positive relationship between parental involvement and students' academic performance in Biology. The results suggest that students whose parents actively participate in their educational activities demonstrate higher levels of academic achievement in Biology. The study concluded that parental involvement represents a critical factor influencing students' learning outcomes in science subjects. It was therefore recommended that parents should be encouraged to actively participate in their children's academic activities, while schools should strengthen home school collaboration mechanisms to enhance students' performance in Biology.

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Parental involvement, academic achievement, biology education, secondary school students

1. Introduction

Education plays a fundamental role in the social, economic, and technological advancement of nations. In developing countries such as Nigeria, education is regarded as an essential instrument for national development and human capital formation. Secondary education, in particular, serves as a critical stage in preparing students for higher education and future professional careers. At this level, science subjects occupy an important position in the curriculum because they contribute significantly to technological innovation and scientific development. Among the science subjects taught in Nigerian secondary schools, Biology is considered one of the most important disciplines due to its relevance to medicine, agriculture, biotechnology, and environmental sustainability. Biology provides students with an understanding of living organisms and the complex processes that sustain life (Madeira, 2017). Despite the significance of Biology in scientific and technological advancement, students' performance in the subject has remained a major concern in many parts of Nigeria.

Evidence from national examination bodies such as the National Examinations Council (NECO) and the West African Examinations Council (WAEC) indicates fluctuating and sometimes unsatisfactory performance of students in science subjects, including Biology (National Examinations Council, 2023). These trends have raised concerns among educators, policymakers, and researchers regarding the factors that influence students' academic achievement. Students' academic performance is influenced by multiple factors that originate from both school and home environments. School-related factors such as teacher competence, teaching methods, instructional materials, and school infrastructure have traditionally received significant attention in educational research. However, recent studies have emphasized the importance of family-related factors, particularly parental involvement, in shaping students' educational outcomes.

The home environment represents the first social setting in which children acquire attitudes, behaviors, and values related to learning. Parents play a crucial role in shaping students' educational experiences through encouragement, supervision, and provision of learning resources. According to Hill, Witherspoon, and Bartz (2021), parental involvement in children's education significantly contributes to improved academic performance and positive learning behaviors. Parental involvement refers to the active participation of parents in supporting their children's educational activities. Such involvement may include monitoring homework, attending school meetings, communicating with teachers, providing educational resources, and encouraging effective study habits. When parents demonstrate strong interest in their children's education, students are more likely to develop motivation and commitment toward academic tasks (Jeynes, 2021).

Research has consistently shown that parental engagement contributes positively to students' academic achievement across various educational levels. Studies conducted in different countries have reported that students whose parents actively participate in their education tend to perform better academically than those who receive minimal parental support (Mensah &

Kuranchie, 2022; Kim & Hill, 2023). Within the Nigerian educational context, parental involvement has been identified as a significant factor influencing students' academic performance in science subjects. For example, Amoo and Olagunju (2023) reported that parental engagement significantly improved students' achievement in Biology in secondary schools in Ibadan. Similarly, Adewale and Ogunleye (2024) found that parental influence played an important role in shaping Biology achievement among senior secondary school students in Ekiti State.

Despite growing evidence on the importance of parental involvement, many students in developing regions still experience limited parental support in their academic activities. Socio-economic conditions, educational background of parents, and lack of awareness about the importance of educational participation often limit the extent to which parents can engage in their children's learning process. In Kebbi State, where socio-economic conditions vary widely among families, students may experience different levels of parental support in their academic pursuits. Such variations may contribute to disparities in academic performance among students, particularly in science subjects that require sustained intellectual engagement.

Although several studies have examined the relationship between parental socio-economic status and students' academic performance, limited attention has been given to the specific role of parental involvement in students' achievement in Biology within Kebbi State. Understanding this relationship is essential for designing effective educational strategies that promote improved academic outcomes. This study therefore investigated the influence of parental involvement on students' academic achievement in Biology in secondary schools in Kebbi State, Nigeria.

2. Theoretical Framework

This study is anchored on Epstein's Theory of Parental Involvement, which emphasizes the importance of collaboration between families, schools, and communities in promoting students' academic success. The theory was developed by Joyce L. Epstein and explains how different forms of parental participation in children's education influence learning outcomes and academic achievement. Epstein's framework proposes that effective education occurs when three major spheres of influence family, school, and community work collaboratively to support students' learning and development (Epstein, 2011). According to the theory, students achieve better academic outcomes when parents actively participate in their children's educational experiences both at home and within the school environment. This involvement strengthens the relationship between students, teachers, and parents, thereby creating a supportive learning atmosphere that enhances academic success.

Epstein further identified six major types of parental involvement that contribute to students' academic development. These include parenting, communicating, volunteering, learning at home, decision-making, and collaborating with the community. Parenting involves providing a supportive home environment that promotes children's learning and development. Communicating refers to effective exchange of information between parents and schools concerning students' academic progress and school activities. Volunteering involves parents participating in school-

related activities and programs that support students' learning. Learning at home focuses on parents assisting their children with homework and academic tasks outside the school environment. The fifth type of involvement, decision-making, refers to parents participating in school governance and educational decision processes that affect students' learning. The final component, collaborating with the community, involves establishing partnerships between schools, families, and community organizations to support educational development. These six dimensions collectively create a framework through which parents can contribute meaningfully to their children's academic success.

In relation to this study, parental involvement in students' educational activities such as monitoring homework, encouraging effective study habits, and maintaining communication with teachers can significantly influence students' academic performance in Biology. When parents demonstrate interest in their children's education, students tend to develop stronger motivation, improved study habits, and positive attitudes toward learning. Such support can be particularly important in science subjects like Biology, which often require consistent practice, independent study, and conceptual understanding. Epstein's theory therefore provides a suitable theoretical foundation for examining the relationship between parental involvement and students' academic achievement. By emphasizing the collaborative roles of parents and schools in supporting students' learning, the theory explains how increased parental engagement can lead to improved academic performance among secondary school students.

Research Objective

The main objective of this study is to examine the influence of parental involvement on students' academic performance in Biology in secondary schools in Kebbi State, Nigeria.

Research Hypothesis

The following null hypothesis was tested:

H_0: There is no significant relationship between parental involvement and students' academic performance in Biology amongst secondary schools in Kebbi State.

3. Methodology

The study used a correlational research design to examine the relationship between parental involvement and students' academic achievement in Biology. The population comprised Senior Secondary II students studying Biology across six educational zones in Kebbi State. A sample of 346 students was selected via cluster sampling. Data were collected using a validated questionnaire on parental involvement and academic performance, which demonstrated satisfactory reliability with a Cronbach's Alpha coefficient of 0.82. Out of 346 questionnaires, 340 were completed and analyzed. Data analysis was conducted using Pearson Product Moment Correlation with SPSS at a 0.05 significance level.

4. Results

The results of the analysis indicated a strong and statistically significant positive relationship between parental involvement and students' academic performance in Biology. The correlation coefficient revealed that increased parental engagement in students' educational activities was associated with improved academic achievement in Biology. The findings further indicated that students who reported higher levels of parental participation in their academic activities tended to achieve better performance in Biology examinations. This relationship remained statistically significant at the 0.05 level of significance, leading to the rejection of the null hypothesis. Table 1 presents the correlation between parental involvement and students' academic performance in Biology.

Table1: Relationship between Parents Involvement and students' Academic Performance

Variables	N	Mean	SD	r-Cal	P-Value	Decision
Involvement	340	25.11	4.87			
				.877	.000	**Ho**
Academic Performance	340	10.85	3.49			**Rejected**

Source: Field work (2026)

Table 1 presents the Pearson product moment correlation analysis examining the relationship between parents' involvement in their child's education and students' academic performance in Biology among secondary school students in Kebbi State. The analysis was based on responses from 340 participants. The result reveals a very strong positive and statistically significant relationship between parents' involvement and students' academic performance in Biology, $r (338) = .88$, $p < .000$. This indicates that higher levels of parental involvement are strongly associated with improved academic performance of students in Biology. The magnitude of the correlation coefficient suggests that parents' involvement is a substantial factor influencing students' academic outcomes. The mean score for parents' involvement was 25.11 (SD = 4.87), while students' academic performance in Biology had a mean of 10.85 (SD = 3.49). This suggests that higher parental involvement may contribute to better academic outcomes in Biology, highlighting the importance of engaging parents in their children's education.

The null hypothesis (H_{04}), which states that there is no significant relationship between parents' involvement in their child's education and students' academic performance in Biology in Kebbi State secondary schools, was tested at the .05 level of significance. Since the obtained p-value (.000) is less than .05, the null hypothesis is rejected. Therefore, it is concluded that there is a statistically significant relationship between parents' involvement and students' academic performance in Biology in Kebbi State secondary schools.

5. Discussion

The findings of this study revealed a strong and significant relationship between parental involvement and students' academic achievement in Biology. This suggests that students whose parents actively participate in their educational activities tend to perform better academically than those whose parents show limited involvement. The findings corroborate earlier research which emphasized the positive influence of parental engagement on students' learning outcomes. Hill et al. (2021) reported that parental involvement enhances students' motivation, improves learning behavior, and contributes significantly to better academic achievement. Similarly, Jeynes (2021) observed that parental participation in educational activities plays a crucial role in improving students' academic outcomes by fostering positive attitudes toward learning and academic responsibility. The results are also consistent with the findings of Amoo and Olagunju (2023), who found that parental involvement significantly improved Biology achievement among secondary school students in Ibadan. Adewale and Ogunleye (2024) also reported that parental influence positively affected Biology performance among senior secondary school students in Ekiti State. One explanation for these findings is that parental involvement provides emotional encouragement and academic guidance that enhance students' motivation to learn. When parents monitor their children's academic progress and provide learning resources, students are more likely to develop effective study habits and positive attitudes toward academic work. Furthermore, parental involvement strengthens the relationship between home and school, creating a supportive learning environment that promotes academic success.

6. Conclusion

This study examined the influence of parental involvement on students' academic achievement in Biology in secondary schools in Kebbi State. The findings revealed that parental involvement has a significant positive relationship with students' academic performance in Biology. The study concluded that students whose parents actively participate in their academic activities tend to achieve better academic outcomes. Therefore, parental involvement remains a critical factor in improving students' performance in science subjects.

7. Recommendations

Based on the findings of the study, the following recommendations are made:

1. Parents should actively monitor and support their children's academic activities.
2. Schools should strengthen communication and collaboration with parents.
3. Teachers should encourage parents to participate in school academic programs.
4. Government and educational stakeholders should promote policies that encourage parental participation in education.

5. Community awareness programs should be organized to educate parents on the importance of supporting their children's education.

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