

INFLUENCE OF SCHOOL ENVIRONMENT ON ACADEMIC PERFORMANCE AMONG BIOLOGY STUDENTS IN SENIOR SECONDARY SCHOOLS IN DUTSIN-MA METROPOLIS

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Abstract

This study investigates the influence of school environment on academic performance among biology students in senior secondary schools within Dutsin-ma metropolis, Katsina State. The study employs Descriptive survey research design based on its nature, objectives include assessing the impact of teaching equipment and class size on students' academic achievement. The population of the Study consists of One Thousand Four Hundred and Fifty Five (1455). A sample of 100 respondents was selected from four senior secondary schools out of the population using simple random sampling techniques. The Instrument used for data collection is influence of school environment on academic performance among biology students questionnaire adopted from GPT. Findings revealed a predominantly female respondent group. Academic performance assessment indicates varied self-assessment levels among students, with a need for targeted interventions to support different performance spectrums. Perceptions of factors influencing academic performance highlight the significance of the classroom environment, teacher-student relationships, study habits, and family support. While respondents generally acknowledge the positive influence of the school environment on biology studies, there are mixed reviews regarding the availability of resources in biology classrooms. It was recommended by the researcher that educational authorities allocate resources towards improving infrastructure in secondary schools within Dutsin-Ma metropolis, Teacher-Student Interaction should be assessed, schools should prioritize creating comfortable classroom environments and implementing flexible seating arrangements that support active engagement and enhance student learning experiences. Also Enhancing Access to Teaching Resources among others.

Keywords: *School Environment , Academic Performance ,Biology students*

Introduction

Learning is enhanced when given in a rich environment, if the classroom environment is conducive and has all necessary learning facilities, that is the more conducive school environment is, the greater opportunity to learn, in other wards, a bare and hostile classroom and school environment offer little stimulation to learning (Anyanwu 2009).

The school environment includes the classrooms, libraries, laboratories, football field, buildings, peers, teaching methods, teachers quarters, technical workshops etc. The environment here includes both physical, psychological and social environment, mutual relationship between the students and the teachers. The environment should be made to suit the purpose of learning. The teacher/ learner is at centre of the teaching and learning process, all energies spent by the teacher in and outside the classroom and in the schools environment are aimed at ensuring positive all round development. Thus, the school is an established institution where the behaviour of a child is shaped to get him equipped for a meaningful living in the society, the school environment should possess features essential for achieving the goal of education. The following areas of the school are recognized to have positive influence on the academic performance of the child the school building, the school infrastructure and

the school personnel.(Izuagba 2009).

Glassman (2000) asserted that comfortable and caring environment among other treatment helps to enhance students' academic performance. The school facilities and infrastructure are essential for the realization of the educational objectives, facilities such as white/black board, projector, notice board, clock, bell, chairs, tables, desk, first aid box, textbooks etc, are necessary for effective administration of schools.

School environment refers to the instructional administrative circulation and therefore school environment remains an important area that should be studied and well managed to enhance students' academic performance (Oluchuwu 2000). The extent to which students learning could be enhanced depends on their interaction within the school premises, the structure of their classroom, availability of instructional facilities and accessories, it is believed that a well-planned school will gear up expected outcome of education that will facilitate good social political and economic emancipation, effective teaching and learning process and academic performance of the students (Ajao, 2000).

Environment is one of the major factor that determine an individual's capacity to learn and also provides basis for success in future achievement, therefore, this calls for concerted efforts on the parts of the parents, educators and government to provide adequate school facilities such as well-equipped laboratories, functional libraries, and sporting facilities to enhance the intellectual and academic performance of the students. poor ventilation, noise, high penetration of carbon dioxide into the classroom, inconsistent temperature makes teaching and learning difficult, poor maintenance and ineffective ventilation system leads to poor health among students as well as teachers which inevitably leads to poor academic performance, these factors can adversely affect students behavior and also lead to rate of frustration among teachers and poor learning attitude among students. (Ostender 2001). Okonkwo (2007) points out that school in rural areas are likely to face the problem of poor academic achievement due to the inequality in provision of human and material resources required for positive educational achievement.

The academic performance of students in Nigeria has been of great concern to the government, teachers, parent and the students themselves, the standard of education does not depend only on the teacher as reflected in the performance of their duties but also in the effective co- ordination of the school environment (Ajao,2000). Beyond the direct effect which these inadequate facilities have on students ability to learn, it's combination with Other facilities such as instructional aid and infrastructure creates uncomfortable frustrating work space for teacher as well as conducive atmosphere for the students which manifests in poor concentration and hyperactivity, thereby creating a stressful set of working condition for teachers (Ajayi, 2003). Therefore stress and job dissatisfaction are common precursors which lowers teachers enthusiasm, hence the above mentioned characteristics of school facilities have effects upon the academic performance of the students, the school cannot operate in isolation of its immediate social, physical environment, this is because what happens in the immediate environment help to determine the curriculum and the quality of teachers available to the school at any point in time. The nature of environment students passes through can either hinder or facilitate his ability at acquiring knowledge (Ajayi 2003)

Frazier (2002), Opined that the psycho- socio- physical Factors that affect learning are;

1. The learning environment
2. The learning
3. The teacher

The physical factor in learning deals with the environment where actual teaching and learning takes

place physical factors are completely outside the learners control, most of the child's teaching and learning normally take place either in the classroom or laboratory, therefore, there is need for productive learning environment which according to Arends (2005), is one where students have positive attitude towards themselves and their classroom that is their fellow students or peers and where they display a high degree of academic performance.

Teacher's decision and action also help to shape the classroom environment the classroom environment must be designed to support intellectual risk taking and foster intrinsic motivation so that students will be creative and self- reliant in their learning. Teachers have to create the right attitude in students towards learning and to gain their leadership function as enabling activities that is establishing the condition and interacting with students in ways that enhance their learning (Miller2010)

To this end, there is need to study the influence of school environment on the academic performance of biology students in Dutsin-Ma metropolis, Dutsin-Ma Local Government Area Katsina State.

Objectives of the Study

To guide the study, the following objectives were formulated:

1. To find out the extent to which school teaching equipment influence student's academic achievement in Biology
2. To identify the influence of class size on the academic performance of students of secondary schools in Biology.

Research Questions

1. To what extent will teaching equipment influence students' academic performance?
2. To what extent will class size influence Biology academic performance of students in secondary school?

Research Hypotheses

The following research hypotheses were formulated for the study;

H₀₁: There is no significant relationship between teaching equipment and academic performance among biology students in senior secondary schools in Dutsin-Ma metropolis

H₀₂: There is no significant relationship between class size and academic performance among biology students in senior secondary schools in Dutsin-Ma metropolis

It is hoped that the study would be beneficial to Teachers, Students, Guidance counselor, school, Parents and Government. The study covered only class size (small and large class size), School location and teaching equipment among only Senior Secondary school students in public secondary school within Dutsin-Ma Metropolis.

Methodology

This research is designed to assess the influence of school environment on academic performance among biology students in senior secondary schools in Dutsin-Ma metropolis.

By its nature, it is a descriptive survey research design, hence it involves the collection of data through questionnaires, observations across the research population.

The target population of this study comprises all public senior secondary school SS2 students currently enrolled in biology classes in senior secondary schools in Dutsin-Ma metropolis, It consists of four public Senior Secondary Schools with a total of One Thousand Four Hundred and Fifty five (1,455) Students. The schools are: Government Science Senior Secondary School Dutsinma, Government Pilot Senior Secondary School Dutsinma, Government Girls Senior Secondary School Dutsin-Ma and Government Girls Arabic Senior Secondary School Dutsinma. The study targets both male and female

students, covering a diverse range of backgrounds and academic abilities within the senior secondary schools in Dutsin-Ma Metropolis. (Zonal Education Quality Assurance Dutsin-Ma 2023/2024). The sample size is one hundred (100) respondents/students selected using a simple random sampling techniques. Twenty five student were selected from each of the four senior secondary schools within Dutsin-ma metropolis. Simple random sampling technique was employed to select participants from the list of senior secondary school students enrolled in biology classes. This is to enhance the likelihood of obtaining a representative sample, as every student has an equal chance of being selected.

The instrument used for collecting data from the respondent was close ended questionnaire, adopted from ChatGPT 3.5 2024. The questionnaire “influence of school environment on academic performance among biology students” contains four sections. Section “1” contain Bio-data of the respondent and section “2” contain questions related to the academic performance, section 3 contains questions related to school environment and section 4 contains the question related to classroom atmosphere. Each item in the questionnaire has an option provided to be responded to, the respondents choose and response by ticking the option which best express their opinions.

A total of one hundred (100) questionnaires were distributed to four senior secondary schools. The instrument was validated by three lecturers in Isa Kaita College of Education Dutsin-Ma who made suitable correction that determined the suitability and coverage of the instrument. This gave the instrument content validity. Pilot test was conducted to test reliability of the Instrument. The pilot test was conducted at Demonstration Senior Secondary school Isa Kaita College of Education Dutsin-Ma. Split half reliability was conducted, the reliability of the instrument was determined using results obtained from the pilot test result which was analyzed using Cronbach Alpha statistic and a reliability coefficient of 0.62 was obtained.

The questionnaire was administered by the researchers by visiting the secondary schools in Dutsin-Ma metropolis. This was done systematically. Adequate time to supply the required information was given to the respondents, after which the completed questionnaires were retrieved from them for analysis.

Results

The presentation and discussion of the result were based on the research questions raised in this study. Descriptive statistics was used to analyze the data.

Presentation of Data

Demographic Information (Section 'A'):

Table 1: Distribution of respondents by Gender

Response	Frequency	Percentage
Male	42	42%
Female	58	58%
Total	100	100%

Table 1 shows gender distribution data, which illustrates a significant majority of female respondents, comprising 58% of the sample, while male respondents constitute a smaller proportion at 42%, indicating a gender imbalance within the surveyed population.

Table 2: Distribution of respondents by Age

Response	Frequency	Percentage
15-20	100	100
21-25	0	0
26-30	0	0
Total	100	100%

Table 2 shows age distribution data, which indicates that the highest frequency and percentage of respondents fall within the age groups of 15-20 representing 100%. Reflecting a predominantly younger population in the sample.

Table 3: How would you rate your overall academic performance in biology?

Response	Frequency	Percentage (%)
Excellent	73	73
Very Good	20	20
Good	1	1
Average	6	6
Total	100	100%

Table 3 indicates that 73% of the respondents rated their academic performance in biology as "Excellent," reflecting a high level of achievement and proficiency in the subject. A slightly lower percentage of respondents, 20%, rated their performance as "Very Good." The least percentage of respondents, 1%, rated their academic performance in biology as "Good." A substantial portion of respondents, 6%, rated their performance as "Average."

Table 4: What is your score in biology for the last academic term?

Response	Frequency	Percentage (%)
1-40	26	26
41-60	17	17
61-80	22	22
81-100	35	35
Total	100	100

Table 4 shows the analysis of each response and its corresponding percentage in the table suggests that a significant portion of respondents scored between 41-60 (17%), followed closely by those scoring between 1-40 (26%), with percentages achieving scores within the ranges of 61-80 (22%) and 81-100 (35%).

Table 5: What factors do you believe most influence your academic performance?

Response	Frequency	Percentage (%)
Classroom environment	32	32
Study habits	15	15
Teacher- student relationship	46	46
Family support	7	7
Total	100	100%

Table 5 shows analysis of responses and their corresponding percentages in factors perceived to most

influence academic performance to be the classroom environment and teacher-student relationship, each accounting for 32% and 46% of responses respectively, followed by study habits (15%) and family support (7%).

Table 6: Do you feel that the school environment positively influences your academic performance in biology?

Response	Frequency	Percentage %
Strongly Agree	48	48
Agree	43	43
Disagree	6	6
Strongly Disagree	3	3
Total	100	100%

In Table 6, the analysis of responses indicates that the majority of respondents either strongly agree (48%) or agree (43%) that the school environment positively influences their academic performance in biology, while a notable portion disagrees (6%) or strongly disagrees (3%).

Table 7: Rate the availability of resources in your biology class:

Response	Frequency	Percentage (%)
Excellent	49	49
Good	28	28
Satisfactory	3	3
Poor	20	20
Total	100	100%

In Table.7, the analysis of responses indicates that the availability of resources in biology class is perceived differently by respondents, with 20% rating it as poor, followed by 3% rating it as satisfactory, 28% as good, and 49% as excellent.

Table 8: To what extent do you think the school environment motivates you to engage actively in biology studies?

Response	Frequency	Percentage %
To a very high extent	60	60
To a high extent	22	22
To a moderate extent	18	18
Total	100	100%

In Table 8, the analysis of responses suggests that the school environment motivates respondents to engage actively in biology studies to a high extent, with 22% indicating a moderate extent, followed by 18% to a high extent, and 60% to a very high extent.

Table 9: How comfortable are you in your biology classroom?

Response	Frequency	Percentage %
Very Comfortable	74	74
Comfortable	11	11
Uncomfortable	15	15
Total	100	100%

In Table 9, the analysis of responses reveals that respondents' comfort levels in their biology classroom vary, with 11% feeling comfortable, 15% feeling uncomfortable, and 74% feeling very comfortable.

Table 10: Do you think the seating arrangement in the biology class affects your concentration and learning experience?

Response	Frequency	Percentage
Yes	70	70
No	30	30
Total	100	100%

In Table 10, the analysis of responses indicates that a majority of respondents (70%) believe that the seating arrangement in the biology class does affect their concentration and learning experience, while 30% think it does not.

Table 11: Rate the level of teacher-student interaction in your biology class

Response	Frequency	Percentage %
Excellent	82	82
Good	16	16
Satisfactory	0	0
Poor	2	2
Total	100	100%

In Table 11, the analysis of responses suggests that the level of teacher-student interaction in the biology class varies, with the 82 respondents rating it as excellent (82%), followed by 16% rating it as good and 2% rating it as poor and 0% as satisfactory.

Summary of Findings

The findings of this study shed light on various factors influencing the academic performance of biology students in senior secondary schools within the Dutsin-Ma metropolis of Katsina State, Nigeria. The data collected through questionnaires and descriptive analysis revealed insights into demographic characteristics, academic performance ratings, and perceptions regarding the school environment and its impact on learning outcomes. Notably, the majority of respondents rated their academic performance as either good or average, indicating a diverse range of achievement levels among the student population. Additionally, factors such as the classroom environment, teacher-student relationships, and the availability of resources were identified to have significant influencers on academic performance, underscoring the importance of supportive learning environments in facilitating student success.

Moreover, the study highlights areas of concern, such as the perceived inadequacy of teaching equipment and resources, as well as discomfort in the classroom environment, which may impede

effective teaching and learning experiences. These findings underscore the need for targeted interventions and improvements in school infrastructure and resources to enhance the quality of biology education and promote positive learning outcomes among students.

Conclusion

The insights gained from this study provided valuable insights for educators, policymakers, and stakeholders in addressing the challenges and enhancing the educational experiences of biology students in secondary schools within the study area which is Dutsin-Ma Metropolis, ultimately contributing to improved academic performance and student success.

In conclusion, while the findings from the data analysis point towards several positive aspects of biology education, such as high academic performance and positive perceptions of the school environment, there are also areas for improvement. Addressing gender imbalances, ensuring equitable access to resources, and enhancing teacher-student interaction are among the areas that warrant attention to further enhance the quality and effectiveness of biology education for all students.

Recommendations

Based on the findings of this study, the researcher recommends:

- 1. Improvement of School Facilities:** Given the perceived inadequacies in resources such as libraries, classrooms, teaching equipment, and laboratories, it is recommended that educational authorities allocate resources towards improving infrastructure in secondary schools within Dutsin-Ma metropolis
- 2. Addressing Teacher-Student Interaction:** Recognizing the importance of teacher-student interaction in academic performance, efforts should be made to facilitate a conducive environment for effective interaction between teachers and students.
- 3. Optimizing Classroom Environment:** The findings suggest that factors such as comfort levels and seating arrangements in the classroom can impact students' concentration and learning experience. Hence, it is recommended that schools prioritize creating comfortable classroom environments and implementing flexible seating arrangements that support active engagement and enhance student learning experiences.
- 4. Enhancing Access to Teaching Resources:** To improve academic performance, it is crucial to ensure adequate access to teaching resources such as textbooks, instructional materials, and technology. School administrators should allocate resources to procure and maintain these resources, catering to the diverse learning needs of biology students.
- 5. Monitoring and Evaluation:** Regular monitoring and evaluation of school environments, including facilities, teaching methodologies, and student engagement, should be conducted to identify areas for improvement continuously.
- 6. Community Engagement and Support:** Collaboration between schools, local communities, and relevant stakeholders is essential to address challenges comprehensively and sustainably. Engaging parents, community leaders, and local authorities in discussions and initiatives aimed at improving educational outcomes can foster a supportive environment for students' academic success.

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