



Effects of Environment and School Facilities on Senior Secondary School Students' Academic Performance in Agricultural Science, Makarfi Local Government, Kaduna State

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ABSTRACT

The study evaluation the effect of environment and facilities on students' academic performance in senior secondary school agricultural science in Makarfi Local Government, Kaduna State, was guided by three objectives to determine the socio-economic characteristics of the respondent, to determine the impacts of school environment and on academic performance of student in senior secondary school agricultural science. To determine the impacts of availabilities of school facilities (i.e. classroom, library: on the academic performance. The research questions were formulated to guide the study, descriptive survey research designed was used. The instrument used for the data collection were a structured questionnaires made up of (15) questions. A total number of 60 questionnaire were administered and returned from respondents. Data were analysed using simple percentage and standard deviation on four points rating scale. The results in conclusion shows that Schools with poor infrastructure, overcrowded classrooms, and limited instructional resources tends to experience lower academic performance among students. Moreover, the involvement of parents, the quality of home environments, and the overall socio-economic status of families also directly impact students' motivation and ability to learn. A positive learning environment not only fosters better comprehension and retention of knowledge but also enhances students' interest in agriculture as a subject and potential career path. In recommendation, Government and school authorities should invest in improving the physical and academic environment of secondary schools in the study area by providing adequate classrooms, laboratories, instructional materials, and agricultural tools to facilitate effective teaching and learning.

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INTRODUCTION

Education serves as a cornerstone for individual and societal development, shaping the skills, attitudes, and knowledge needed for economic growth and social transformation. In this regard, academic performance in secondary schools has long been an area of interest for educators, policymakers, and researchers. Academic performance is influenced by a wide range of factors, among which the environment

and lack of facilities are pivotal (Raphael, 2020). Agricultural science, as a core subject in secondary schools, plays a crucial role in equipping students with the knowledge and practical skills needed to engage in sustainable agriculture.

Agriculture remains a significant contributor to Nigeria's economy, accounting for a substantial percentage of the nation's gross domestic product (GDP) and providing

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employment opportunities for a large portion of the population Iroko *et al.* (2024). However, academic performance in agricultural science has been a growing concern, as students often encountered challenges that limit their understanding and application of the subject. One critical factor influencing academic performance is the environment in which students learn. According to Babangida and Dalhum (2020) ecological systems theory, the environment consists of various interrelated systems that directly or indirectly impact a child's development.

For example, the family setting, school infrastructure, teacher quality, and peer relationships are environmental components that can either enhance or impede academic performance. In rural areas, environmental factors such as limited access to quality educational resources, poor infrastructure, and socio-economic challenges are prevalent. These issues often exacerbate disparities in students' academic outcomes, particularly in technical and science-based subjects like agricultural science (Jack and Sam, 2020).

The interplay between environment and facilities related factors creates a complex dynamic that affects students' learning experiences and outcomes. For instance, students from low-income families may lack the financial resources to purchase textbooks or attend extra lessons, while female students may encounter additional barriers such as early marriage or lack of encouragement to pursue education. The predominantly rural, is characterized by limited access to modern educational facilities and resources. According to Usman (Onwunali *et al.* 2022), schools in rural areas often face challenges such as inadequate laboratory equipment, poorly trained teachers, and overcrowded classrooms, all of which adversely affects students' academic performance.

Furthermore, cultural practices and traditional gender roles within the community often shapes students' attitudes and participation in academic activities, especially in technical and science-related subjects like agricultural science.

Several studies have examined the impact of environmental and school facilities on academic performance. For example, Adeyemo (2021) found that a conducive learning environment, characterized by adequate resources and positive teacher-student interactions, significantly enhances academic achievement.

STATEMENT OF THE PROBLEMS

The academic performance of students in senior secondary schools, particularly in agricultural science, has been a subject of concerned among educators, policymakers, and parents in Makarfi Local Government Area, Kaduna State. Despite the critical importance of agricultural science in fostering sustainable development and addressing food security challenges, many students show low levels of achievement in this subject. This poor performance is often attributed to environmental factors such as inadequate infrastructure, lack of teaching resources, and socio-economic challenges, which hinders effective learning.

Objectives of the Study

The main objectives of the study are:

1. to determine the socio-economic characteristics of the respondents
2. to determine effects of school environment on academic performance of students in the study area.
3. to determine the impact of the school facilities (i.e. classroom, library: on the academic performance on secondary school student

Research Question

1. What are the effects school environment on academic performance of student in senior secondary school of agricultural science
2. What is the impact of the school facilities (i.e. classroom, library: on the academic performance on secondary school student

METHODOLOGY

Research Design

Research design refers to the outline that were used to collect data that were relevant to the study. A research design is essentially a plan structure and strategies of investigation connived



so as to obtain answers to research problems and research question. The method used for the research work was a survey research method.

Population of the study

A research population means the number of individuals, object researcher wants to study. According to Daramola (2017) population deals with small or large number of teachers, students, market women, parents, mosquitoes, goats, school, textbooks, and laboratory equipment among others. The population of this study was made up of all staff and senior secondary school students in Makarfi Local Government Area of Kaduna State

Sample and Sampling Techniques

A sample refers to a representative group from the entire population being investigated. Sampling is the process of selecting few (a part) from a population or bigger group to become the basis for estimating or predicting the prevalence of an unknown information, situation or outcome regarding the population or bigger group (Kumar, 2019). In research when you choose some number from the population of the study area to represent the entire population is refers to as sample. Sample size is a reasonable number of selected traits, events, subjects or members taken from the population as representatives of the entire population used for investigation or study Glenn (2015). In this research, a simple random sampling was used and selected 20 staff and 40 senior secondary school students out of the general population.

Instrument for Data Collection

The instruments for data collection consist of 60 questionnaires and interview. The questionnaires contained both questions that were answered by the lecturers and those to be answered by the students. The instruments provided answered the research questions. The instrument has four (4) responses scale as follows: Strongly Agreed (SA), Agreed (A), Strongly Disagreed (SD), Disagreed (D) Questions. The questionnaires were made up of fifteen (15) items designed for the students and the staff

Procedure for Data Collection

The researcher distributed the questionnaires to the respondents by himself and the assistants of some staffs in those schools. The researcher read out the structured of the questions to the hearing of the respondents for more clarity and then allowed them to fill their relevant responses respectively.

Procedure for Data analysis

There are various procedures used in analysing the data. For the purpose of this research, simple percentages were used to analyse information obtained from the respondents in tabular form. Data were presented on frequency distribution tables and analysed using simple descriptive statistic of mean and standard deviation using confrontation index by Onwunali *et al.* 2024.

RESULTS

Research Question 1:

What is the socioeconomic of the respondents (Bio-data)?

Table 4.1: The socio-economic of the respondent are

S/No	Variable	Frequency	Percentage
1	Gender:		
	Male	24	40.00
	Female	36	60.00
2	Age (staff /students)		
	16-20 years	13	38.34
	21-25 years	18	30.00

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3	26-30 years	14	23.33
	31- years	5	8.34
	Marital status (staff/student)		
	Married	21	35.00
	Single	39	65.00

Source: Field Survey 2025

Table 4.1 shows that the respondents with frequency of 24 and the percentage of 40%, were male and the frequency for female which is 36 with a percentage of 60%. The table shows that the frequency of the respondents age, 16-20 years were 23 with the percentage of 38.34%, 21-25 years, were 18 respondents with the percentage of 30%: 26-30 years were 14 respondents with the percentage of 23.33%. 31 and above were 5 respondents with the percentage of 8.34%. The

table shows that the frequency of the respondents married were 21 with 35%, while the frequency of those who are single were 39 and the percentage is 65%

Research Question 2:

What are the Effects School Environment and Gender Differences on Academic Performance of Student in Senior Secondary School of Agricultural Science in the Study area?

Table 2: The effects of school environment and gender differences on academic performance of student in senior secondary school of agricultural science in the study area

S/no	Variable	Mean	SD	Decision
1	A well-equipped school environment with modern laboratories, libraries, and agricultural tools enhances students' academic performance	3.36	5.20	Agreed
2	Schools with supportive teachers who engage both male and female students equally tend to have better academic outcomes	3.92	6.59	Agreed
3	Cultural beliefs may discourage female students from pursuing Agricultural Science, affecting their confidence and participation in practical activities.	3.95	6.84	Agreed
4	A positive school environment that fosters collaboration between male and female students encourages better academic performance.	3.92	6.59	Agreed
5	Schools with a conducive learning atmosphere, including good ventilation, lighting improve students' concentration and retention of knowledge.	3.5	4.83	Agreed

Source: Field Survey 2025

A well-equipped school environment with modern laboratories, libraries, and agricultural tools enhances students' academic performance has a mean 3.6 with a decision as agreed. School with supportive teachers who engages both male and female students equally tend to have better academic outcomes with a mean 3.92 and a decision as agreed. Cultural beliefs may discourage female students from pursuing agricultural science affecting their

confidence and participation in practical activities with a mean 3.95 and a decision as agreed.

A passive school environment that faster's collaboration between male and female students encourage better academic performance with a mean 3.92 and a decision as agreed. School with a conducive learning atmosphere, including ventilation, and lightening improves students' concentration and retention of knowledge with a mean 3.5 and a decision as agreed.

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Research Question 3:

What are the Impacts of the School Facilities (That is Classroom Libraries: on the Academic

Performance on Secondary School Students in the Study Area

Table 3: The impact of the school facilities (i.e. classroom, library: on the academic performance of students in secondary school

S/No	Variable	Mean	SD	Decision
1	Well-equipped classrooms improve comfort, focus, and student engagement.	3.93	6.72	Agreed
2	Functional libraries provide resources and quiet spaces, boosting exam and assignment success.	3.92	6.59	Agreed
3	Modern facilities encourage attendance, participation, and reduce dropout rates.	3.6	5.15	Agreed
4	Spacious classrooms enhance discussions and understanding.	3.7	5.27	Agreed
5	Libraries foster literacy, research skills, and critical thinking.	3.6	4.94	Agreed

Source: Field Survey 2025

Table 4.3 show that well equipped classroom improves comfort, focus and students' engagement has a mean 3.93 and a decision as agreed. Functional libraries provide resources and quite spaces, boosting exam and assignment success has a mean 3.92, and a decision as agreed. Modern facilities encourage attendance, participation and reduce dropout rate has a mean 3.6, and a decision as agreed spacious classroom

enhance discussion and understanding has a mean 3.7 and a decision as agreed. Libraries foster literacy research skill and critical thinking with a mean 3.6 and a decision as agreed

Research Question 4:

What is the Extent to which School Environment affect the Academic Performance of Students in the Study Area.

Table 4: The Table Shows the Extent to which School Environment affect the Academic Performance of Students in the Study Area

S/No	Variable	Mean	SD	Decision
1	Quality classrooms, libraries, and labs enhance learning, while poor infrastructure hinders academic performance.	3.65	5.08	Agreed
2	Well-trained and sufficient teachers improve student outcomes, while a lack of qualified educators negatively affects learning.	3.83	6.01	Agreed
3	Factors like class size, lighting, and ventilation impact students' focus and learning effectiveness.	3.41	4.93	Agreed
4	A positive and disciplined environment fosters motivation and supports academic success.	3.4	5.18	Agreed
5	Sports, clubs, and activities contribute to cognitive development and better academic performance.	3.6	5.04	Agreed

Source: Field Survey 2025

The table 4.4 shows that quality classrooms, libraries and labs enhance learning, while poor infrastructure hinders academic performance. With the mean 3.65 and a decision as Agreed. Well trained sufficient teachers improve students' outcomes, while, a lack of

qualified educators negatively affects learning with a mean 3.38 and a decision as agreed. Factors like class size, lightening and ventilation impact students' focus and learning effectiveness. Which 3.41 with a decision as agreed. A positive and disciplined environment fosters motivation and

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supports academic success. With a mean 3.4 and a decision is as agreed

Sports, clubs, and activities contributing to cognitive development and better academic performance. With a mean 3.6 and a decision as agreed

DISCUSSION OF THE FINDINGS

The study on the perception of teachers on the effect of environment and gender differences on students' academic performance in senior secondary school agricultural science in Makarfi Local Government Area of Kaduna State has revealed that the learning environment, which includes school infrastructure, availability of instructional materials, teacher competence, and socio-economic background, plays a pivotal role in either enhancing or impeding students' academic performance, similar to the report of Meadows *et al.* (2016), Carson (2018), Cohen *et al.*, (2019) and Fredricks (2022) who reported that the environment plays a crucial role in supporting life, as it provides essential resources like oxygen, food, and water while also offering habitats for various species. According to Carson (2018), the interdependence between humans and the natural environment is vital for survival, and any disruption can lead to far-reaching ecological consequences. The sustainability of the environment, therefore, relies on maintaining a balance between human activities and natural ecosystems. Additionally, the environment serves as a reflection of societal development and cultural practices, shaping how communities interact with their surroundings.

Cohen *et al.*, (2019) reported that factors such as access to adequate learning materials, a conducive physical setting, were found to significantly influence how well students perform in agricultural science. Schools with poor infrastructure, overcrowded classrooms, and limited instructional resources tend to experience lower academic performance among students. Moreover, the involvement of parents, the quality of home environments, and the overall socio-economic status of families also directly impact students' motivation and ability to learn. . Moel, (2022) also reported similarly that a positive learning environment not only fosters better

comprehension and retention of knowledge but also enhances students' interest in agriculture as a subject and potential career path. (Maxwell, 2018, Godday, 2018, Lewis, 2020 and Fredricks, 2022) and also Similar to the reports of (Judith, 2020, UNESCO, 2021, Ako, 2021, Lonsdale, 2021, and Moffat, 2020)

CONCLUSION

The impact of environment and school facilities, including classrooms and libraries, on the academic performance of secondary school students is a critical area of study in educational research. School facilities encompass the physical, technological, and educational resources available within a school environment, which are essential for creating conducive learning conditions. Classroom, as the primary space for interaction between students and teachers, along with the library, which supports independent learning and research, play vital roles in shaping the learning experiences and outcomes of students.

RECOMMENDATIONS

Based on the findings of the study and the discussions, the following are the recommendation

1. Government and school authorities should invest in improving the physical and academic environment of secondary schools in the study area by providing adequate classrooms, laboratories, instructional materials, and agricultural tools to facilitate effective teaching
2. Government should must invest in adequate teaching materials, such as laboratory equipment and chemical, farm tools to support practical learning experiences as well as prioritize the renovation and equipping of libraries and classrooms.

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