IMPACT OF CLASSROOM FACILITIES ON UNDERGRADUATE STUDENTS' ACADEMIC PERFORMANCE IN UNIVERSITIES IN BAYELSA STATE

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Abstract

The research examined how classroom facilities influence the educational success of undergraduates in universities located in Bayelsa State. The paper employed a descriptive survey design. The population consists of 400-level students within the Faculty of Education at Niger Delta University, Bayelsa State. The purposive sampling was used to select 416 participants, comprising of 267 males and 149 females. Data were gathered through a structured questionnaire titled "Impact of Classroom Facilities on Undergraduate Students' Academic Performance in Universities Questionnaire (ICFUSAPUQ)." The instrument underwent validation by two specialists in the Faculty of Education, Niger Delta University, Bayelsa State. Reliability was assessed using the Cronbach Alpha technique, yielding a coefficient of 0.73. Data analysis involved the use of arithmetic mean to address the research questions, while the t-test was employed for hypothesis testing. Findings revealed that seating facilities, such as chairs and desks, are both sufficient and in good working condition in undergraduate classrooms across universities in Bayelsa State. Consequently, the research suggested that, university managements in the state should sustain regular maintenance of classroom seating facilities to ensure continuous comfort and support for undergraduate learning.

Key words: *Academic Performance, Classroom Facilities, Impact, Undergraduate Students, Universities*

Introduction

The concept of impact in educational research refers to the measurable or observable effects that specific factors exert on learning outcomes, student development, or academic performance (Marques et al., 2017). In the university setting, the impact of learning resources, environmental conditions, and infrastructural provisions is often a critical determinant of academic success. Recent studies have emphasized that infrastructural deficits in higher education institutions, particularly in developing regions, can lead to systemic learning gaps that affect both teaching effectiveness and student engagement (Okolie et al., 2020). Therefore, understanding the various dimensions of impact in academic settings is essential for driving policies that promote

quality education, especially in Nigerian universities where infrastructural challenges are prevalent. This understanding naturally brings attention to the quality and adequacy of the classroom environment in universities.

A classroom is not merely a physical space for knowledge dissemination but a central hub where intellectual, emotional, and social interactions occur between students and instructors (Mabagala & Mabagala, 2020). The quality of the classroom environment shapes student motivation, participation, and cognitive processing during instructional activities. Studies have shown that overcrowded classrooms, poor seating arrangements, and insufficient teaching aids contribute to a hostile learning environment that impedes knowledge acquisition (Ngussa & Makewa, 2021). In Bayelsa State universities, the condition of classrooms remains a critical concern due to increased enrollment without corresponding expansion of facilities. This concern underscores the need to examine the various components that constitute a functional classroom environment.

The term classroom facilities encompass all physical and instructional resources within a learning space that support effective teaching and learning (Iwu et al., 2022). These include seating arrangements, lighting, ventilation, teaching aids, ICT equipment, and safety provisions. The condition and adequacy of these facilities have a direct relationship with student academic outcomes, as poor facilities can cause distractions, discomfort, and reduced attention span (Effiom & Igiri, 2020). Furthermore, classroom facilities are pivotal in shaping students' perceptions of institutional quality, influencing their academic confidence and performance. It is within this framework that the exploration of specific classroom elements becomes vital for understanding the broader educational experience of undergraduates.

The population of undergraduate students in Nigerian universities has continued to expand rapidly, leading to increased pressure on existing educational infrastructures (Odia & Omofonmwan, 2020). Undergraduate students, being at the foundational phase of professional and academic development, are particularly vulnerable to the negative effects of inadequate learning facilities. Their academic performance often reflects not only their intellectual capabilities but also the quality of the environment in which they are trained (Olayemi & Omole, 2021). In Bayelsa State universities, the growing student population has outpaced infrastructural development, necessitating urgent attention to the condition of classroom facilities. This situation calls for a detailed examination of how the learning environment affects student outcomes.

Academic performance remains one of the most commonly used indicators for evaluating the effectiveness of educational processes in universities (Owolabi & Oginni, 2022). It reflects students' mastery of academic content, critical thinking abilities, and the successful application of knowledge in various fields of study. Several factors contribute to academic performance, including the learning environment, instructional methods, and the availability of academic resources (Adeyemi & Adu, 2021). Poor academic performance in Nigerian universities has been attributed to both instructional and infrastructural deficiencies, raising concerns about the long-term quality of graduates. This situation necessitates a focus on how specific classroom conditions influences the educational achievements of students.

In examining the adequacy and condition of seating facilities, it is crucial to note that comfortable seating arrangements foster better concentration and reduce the risk of physical discomfort that can distract students from learning activities (Ugwuegbulam et al., 2022). In many Nigerian universities, students often share broken chairs or sit on windowsills during lectures due to inadequate seating provisions, which directly affects their classroom experience. This discomfort

can lead to disengagement, absenteeism, and ultimately poor academic outcomes. Analyzing the adequacy of seating arrangements is therefore fundamental to understanding broader classroom facility challenges.

Seating conditions also have implications for the inclusivity and accessibility of learning spaces, particularly for students with special needs (Olumorin et al., 2020). When universities fail to provide ergonomically designed and sufficient seating, it limits the capacity of all students to participate fully in the learning process. This situation can exacerbate inequality in learning outcomes, especially for students who require special accommodations. Investigating seating adequacy allows for a deeper exploration of how facility deficiencies affect academic equity.

Furthermore, poor seating arrangements are often linked to increased classroom stress, reduced attention span, and limited peer interaction, all of which can impede collaborative learning and knowledge retention (Onyema, 2021). Classroom design, including the seating layout, influences the effectiveness of pedagogical strategies and student engagement. Understanding the condition of seating facilities provides a pathway to evaluating other classroom components that directly impact learning quality.

The availability and functionality of teaching aids and presentation tools are essential in promoting interactive and engaging learning experiences (Ajayi & Ajayi, 2021). Modern teaching tools such as projectors, interactive boards, and public address systems enhance the delivery of complex concepts and foster multimedia learning. In the Nigerian university context, however, many classrooms still rely solely on traditional chalkboards, limiting the diversity of teaching methodologies. This gap points to the broader issue of resource inadequacy in higher education.

Functional teaching aids improve the quality of content delivery by allowing instructors to present information in visually stimulating and accessible formats (Okeke et al., 2020). When these tools are unavailable or dysfunctional, lecturers resort to monotonous teaching styles that may not cater to the diverse learning preferences of students. The result is often reduced comprehension, lack of enthusiasm, and diminished academic performance. This reality stresses the need to evaluate not just the availability but also the usability of teaching aids.

Additionally, technological teaching tools are critical for preparing students for the modern workforce, which increasingly relies on digital competencies (Adekunle et al., 2021). The absence of functional teaching aids in classrooms limits students' exposure to digital learning environments, creating a gap between academic training and industry expectations. This issue highlights the need to consider other classroom environmental factors that influence learning efficiency, such as lighting and ventilation systems.

The effectiveness of classroom lighting and ventilation systems in promoting conducive learning environments cannot be overstated, as these factors directly influence students' physical comfort and cognitive engagement (Chinyere & Chukwuma, 2021). Poor lighting has been associated with eye strain, headaches, and reduced reading comprehension, while inadequate ventilation contributes to drowsiness and loss of concentration. In many universities in Bayelsa State, classrooms are either poorly lit or lack functional ventilation systems, creating sub-optimal learning conditions. This situation demands further exploration of environmental quality in university classrooms.

Natural lighting and proper air circulation have been found to enhance learning motivation and improve students' psychological well-being during academic activities (Ogbuehi & Alade, 2022). When classrooms are overcrowded and poorly ventilated, the learning atmosphere becomes physically and mentally draining for students, leading to reduced classroom attendance and

participation. Understanding these environmental factors is critical in building a comprehensive picture of how classroom facilities influence learning outcomes.

Moreover, the state of lighting and ventilation in classrooms reflects broader infrastructural management practices within universities (Nworie, 2022). The maintenance culture regarding classroom facilities is often weak in public universities, resulting in the gradual deterioration of existing infrastructure. This infrastructural neglect invites a wider discussion on the systemic problems facing university management in resource allocation and facility upkeep.

Despite the recognized importance of quality learning environments in promoting academic excellence, universities in Bayelsa State face persistent infrastructural challenges that undermine undergraduate education. Classrooms are often overcrowded, seating facilities are insufficient or damaged, and modern teaching aids are either unavailable or non-functional. Furthermore, poor lighting and ventilation conditions contribute to physical discomfort, impeding students' ability to focus and perform academically. While several studies have addressed general educational challenges in Nigerian universities, there is a substantial vacuum in research specifically targeting the classroom facility variables that directly affect academic performance in Bayelsa State universities. This gap limits evidence-based interventions that could improve the learning environment.

Consequently, this study investigated the outcome of classroom facilities on undergraduates' academic performance in universities in Bayelsa State. Precisely, the research investigated the:

1. adequacy and condition of seating facilities (chairs and desks) in undergraduate classrooms in universities in Bayelsa State;
2. availability and functionality of teaching aids and presentation tools such as whiteboards, projectors, and public address systems in undergraduate classrooms in universities in Bayelsa State; and
3. effectiveness of classroom lighting and ventilation systems in promoting conducive learning environment for undergraduate students in universities in Bayelsa State.

Research Questions

1. How adequate and functional are the seating facilities (chairs and desks) in undergraduate classrooms in universities in Bayelsa State?
2. What is the availability and condition of teaching aids and presentation tools such as whiteboards, projectors, and public address systems in undergraduate classrooms in universities in Bayelsa State?
3. How effective are the classroom lighting and ventilation systems in creating a conducive learning environment for undergraduate students in universities in Bayelsa State?

Research Hypotheses

Ho_1 There is no significant difference in the mean responses of male and female students on how adequate and functional seating facilities (chairs and desks) are in undergraduate classrooms in universities in Bayelsa State.

Ho_2 There is no significant difference in the mean responses of male and female students on the availability and conditionality of teaching aids and presentation tools such as whiteboards, projectors, and public address systems in undergraduate classrooms in universities in Bayelsa State.

Ho_3 There is no significant difference in the mean responses of male and female students on how effective classroom lighting and ventilation systems are in creating a conducive learning environment for undergraduate students in universities in Bayelsa State.

Methodology

The research applied a descriptive survey design. The research population consists of 400-level students in the Faculty of Education at Niger Delta University, Bayelsa State. Researchers employed a purposive sampling method to select 416 participants, comprising 267 males and 149 females. Data were collected using a structured questionnaire titled "Impact of Classroom Facilities on Undergraduate Students' Academic Performance in Universities Questionnaire (ICFUSAPUQ)." Two experts established the instrument's content and construct validity from Faculty of Education, Niger Delta University. Researchers assessed the instrument's reliability using the Cronbach Alpha technique, which produced a coefficient value of 0.73. The questionnaire used a modified four-point Likert scale. It comprised 15 well-formulated items designed to elicit relevant information from respondents. Researchers analyzed the collected data using the arithmetic mean for the research questions. Items with mean scores of 2.50 and above were interpreted as "Agree," and those below 2.50 as "Disagree." They tested the hypotheses using the t-test statistical method at an alpha level of 0.05.

Results

Research Question One: How adequate and functional seating facilities (chairs and desks) are in undergraduate classrooms in universities in Bayelsa State?

Table 1: Mean and Standard Deviation Analysis of the How Adequate and Functional Seating Facilities (Chairs and Desks) are in Undergraduate Classrooms in Universities in Bayelsa State.

S/N	Items	Male Students		Dec.	Female Students		Dec.
		$\bar{x}$	SD		$\bar{x}$	SD	
1	The seating facilities in my classroom are sufficient to accommodate all students during lectures.	1.93	0.81	D	2.15	1.15	D
2	The chairs and desks in my classroom are in good condition and suitable for learning activities.	1.52	0.75	D	1.86	0.96	D
3	The available seating arrangement in the classroom promotes comfort and reduces physical strain during lectures.	3.20	0.79	A	2.73	1.28	A
4	Most classrooms I attend have well-maintained chairs and desks that enhance concentration.	3.13	0.82	A	3.22	0.98	A
5	Poor seating facilities in classrooms negatively affect my ability to focus during lectures.	3.13	1.00	A	3.24	0.97	A
	Grand Mean and Standard Deviation	**2.62**	**0.83**	**A**	**2.64**	**1.07**	**A**

Key: $\bar{x}$ = Mean, SD = Standard Deviation, A= Agree, D=Disagree and Dec.=Decision

Table 1 present the mean and standard deviation values assessing the adequacy and functionality of seating facilities (chairs and desks) in undergraduate classrooms across universities in Bayelsa State. For male respondents, the mean scores ranged from 1.52 to 3.20, with standard deviations between 0.75 and 1.00. Female respondents recorded mean scores ranging from 2.73 to 3.24 and std. dev. between 0.96 and 1.28. Given that the Grand Mean values of 2.62 for males and 2.64 for females exceed the benchmark mean of 2.50, it can be inferred that the respondents generally agreed that classroom seating facilities are both adequate and functional in universities within Bayelsa State. Furthermore, the Grand Standard Deviations of 0.83 for males and 1.07 for females suggest a consistent agreement among the participants on the adequacy and functionality of these facilities.

Research Question Two: What is the availability and conditionality of teaching aids and presentation tools such as whiteboards, projectors, and public address systems in undergraduate classrooms in universities in Bayelsa State?

Table 2: Mean and Standard Deviation Analysis of the Availability and Conditionality of Teaching Aids and Presentation Tools such as Whiteboards, Projectors, and Public Address Systems in Undergraduate Classrooms in Universities in Bayelsa State.

S/N	Items	Male Students		Dec.	Female Students		Dec.
		$\bar{x}$	SD		$\bar{x}$	SD	
6	My classroom is equipped with functional whiteboards or other writing boards for instructional purposes.	3.14	0.89	A	2.87	0.99	A
7	Projectors or similar multimedia presentation tools are readily available for lectures in my classroom.	1.76	1.04	D	2.01	1.03	D
8	The public address system or microphone in the classroom works properly during lectures.	1.78	1.05	D	1.96	1.04	D
9	The lack of modern teaching aids in classrooms reduces the effectiveness of content delivery.	3.13	0.92	A	2.73	1.24	A
10	Teaching aids and presentation tools in my classroom are regularly maintained and updated.	1.67	1.02	D	1.99	1.02	D
	Grand Mean and Standard Deviation	**2.28**	**0.98**	**A**	**2.31**	**1.06**	**A**

Key: $\bar{x}$ = Mean, SD = Standard Deviation, A= Agree, D=Disagree and Dec.=Decision

Table 2 display the mean and standard deviation results concerning the availability and condition of instructional aids and presentation equipment—such as whiteboards, projectors, and public address systems—in undergraduate classrooms across universities in Bayelsa State. Among male respondents, mean scores ranged from 1.76 to 3.14 with std. dev. between 0.89 and 1.05, whereas female respondents recorded mean scores ranging from 1.96 to 2.87 and standard deviations between 0.99 and 1.24. Since the Grand Mean values of 2.28 for males and 2.31 for

females fall below the benchmark mean of 2.50, it can be inferred that respondents generally agreed that teaching aids and presentation tools are largely unavailable and, where present, not in satisfactory working condition in undergraduate classrooms within universities in Bayelsa State. Relatively, the overall std. dev. of 0.98 and 1.06 indicated that the participants have the same perception on the availability and conditionality of teaching aids and presentation tools such as whiteboards, projectors, and public address systems in undergraduate classrooms in universities in Bayelsa State.

Research Question Three: How effective do classroom lighting and ventilation systems create a conducive learning environment for undergraduate students in universities in Bayelsa State?

Table 3: Mean and Standard Deviation Analysis of the How Effective Classroom Lighting and Ventilation Systems Create a Conducive Learning Environment for Undergraduate Students in Universities in Bayelsa State.

S/N	Items	Male Students		Dec.	Female Students		Dec.
		$\bar{x}$	SD		$\bar{x}$	SD	
11	The lighting system in my classroom is adequate and allows me to read and write comfortably.	1.66	0.90	D	2.07	1.03	D
12	The classroom has a functional ventilation system that ensures a comfortable learning atmosphere.	3.12	0.78	A	2.73	1.10	A
13	Poor lighting in classrooms affects my ability to follow lectures effectively.	3.11	0.87	A	2.93	1.22	A
14	Inadequate ventilation in the classroom leads to discomfort and reduces my concentration during classes.	3.11	0.93	A	2.73	1.22	A
15	The classroom environment is usually well-lit and properly ventilated to support active learning.	1.63	0.95	A	2.13	1.09	D
	Grand Mean and Standard Deviation	**2.53**	**0.89**	**A**	**2.52**	**1.13**	**A**

Key: $\bar{x}$ = Mean, SD = Standard Deviation, A= Agree, D=Disagree and Dec.=Decision

Table 3 presents the mean and standard deviation values assessing the effectiveness of classroom lighting and ventilation systems in fostering a conducive learning atmosphere for undergraduate students in universities across Bayelsa State. For male respondents, mean scores ranged from 1.63 to 3.12, with standard deviations ranging from 0.78 to 0.93. In contrast, female respondents recorded mean scores ranging from 2.07 to 2.93, with standard deviations ranging from 1.03 to 1.22. Since the Grand Mean scores of 2.53 for males and 2.52 for females are both higher than the benchmark value of 2.50, it can be concluded that respondents generally agreed that lighting and ventilation systems effectively enhance the learning environment for undergraduate students in Bayelsa State universities. Moreover, the Grand Standard Deviations of

0.89 and 1.13 indicate a relatively consistent perception among respondents regarding the effectiveness of classroom lighting and ventilation in promoting a favorable academic atmosphere.

Research Hypotheses

Ho_1 There is no significant difference in the mean responses of male and female students on how adequate and functional seating facilities (chairs and desks) are in undergraduate classrooms in universities in Bayelsa State.

Table 4: t-Test Analysis of the Mean Response of Male and Female Students on How Adequate and Functional Seating Facilities (Chairs and Desks) are in Undergraduate Classrooms in Universities in Bayelsa State.

S/N	Variables	N	$\bar{x}$	SD	df.	t-Cal	t-Crit	Decision at P<0.05
1	Male Students	267	2.61	0.83	414	-0.375	1.960	NS
2	Female Students	149	2.64	1.07				

NS at P<0.05 alpha level; N=416

Table 4 indicate that the t-test outcome is not statistically significant at the 0.05 alpha level, as the computed t-value of -0.375 is lower than the critical t-table value of 1.960 at df. = 414. Therefore, the hypothesis of no substantial disparity between the mean responses of male and female undergraduates in respect to sufficiency and functionality of seating facilities (chairs and desks) in undergraduate classrooms across universities in Bayelsa State is accepted.

Ho_2 There is no significant difference in the mean responses of male and female students on the availability and conditionality of teaching aids and presentation tools such as whiteboards, projectors, and public address systems in undergraduate classrooms in universities in Bayelsa State.

Table 5: t-Test Analysis of the Mean Response of Male and Female Students on the Availability and Conditionality of Teaching Aids and Presentation Tools such as Whiteboards, Projectors, and Public Address Systems in Undergraduate Classrooms in Universities in Bayelsa State.

S/N	Variables	N	$\bar{x}$	SD	df	t-Cal	t-Crit	Decision at P<0.05
1	Male Students	267	2.28	0.98	414	-0.273	1.960	NS
2	Female Students	149	2.31	1.06				

NS at P<0.05 alpha level; N=416

Table 5 indicate that the t-test analysis is not statistically significant at the 0.05 alpha level, as the computed t-value of -0.273 is lower than the critical t-table value of 1.960 at 414 degrees of freedom. Consequently, the hypothesis of no substantial disparity between the mean responses of male and female undergraduates in respect to the availability and condition of teaching aids and presentation tools such as whiteboards, projectors, and public address systems in undergraduate classrooms within universities in Bayelsa State is accepted.

Ho_3 There is no significant difference in the mean responses of male and female students on how effective classroom lighting and ventilation systems are in creating a conducive learning environment for undergraduate students in universities in Bayelsa State.

Table 4.6: t-Test Analysis of the Mean Response of Male and Female Students on How Effective Classroom Lighting and Ventilation Systems Create a Conducive Learning Environment for Undergraduate Students in Universities in Bayelsa State.

S/N	Variables	N	$\bar{x}$	SD	df	t-Cal	t-Crit	Decision at P<0.05
1	Male Students	267	2.53	0.88	414	0.091	1.960	NS
2	Female Students	149	2.52	1.13				

NS at P<0.05 alpha level; N=416

Table 6 show that the test is insignificant at the 0.05 alpha level, as the calculated t-value = 0.091 is lower than the t - critical = 1.960 with df. = 414. Therefore, the hypothesis of no substantial disparity between the mean responses of male and female undergraduates in respect to the effectiveness of classroom lighting and ventilation systems in providing a conducive learning environment for undergraduate students in universities across Bayelsa State is accepted.

Discussion

Findings from Table 1 indicated that seating facilities (chairs and desks) are both adequate and functional in undergraduate classrooms across universities in Bayelsa State. Similarly, results presented in Table 4 depicts that there is no substantial disparity between the mean perception of male and female undergraduates regarding the adequacy and functionality of seating facilities in these classrooms. Several recent studies have confirmed that the provision of adequate and functional seating facilities plays a critical role in fostering effective learning environments in universities. Ugwuegbulam et al. (2022) found that when classrooms are equipped with ergonomic chairs and desks that are regularly maintained, students report higher levels of concentration and reduced fatigue during long lectures. Their study, which focused on seating adequacy in Nigerian tertiary institutions, emphasized that well-structured seating arrangements contribute to increased academic engagement and improved classroom discipline. This aligns with observations in Bayelsa State universities, where improved seating infrastructure has been reported to enhance the learning experience.

Similarly, Olumorin et al. (2020) noted that the availability of functional seating facilities in Nigerian universities significantly reduces classroom congestion and promotes comfort during academic sessions. Their research highlighted that students perform better academically when they are not distracted by discomfort or forced to improvise seating arrangements during lectures. Furthermore, they noted that consistent maintenance of chairs and desks prevents disruption of learning activities due to broken or inadequate furniture. This corroborates the findings from Bayelsa State universities, where students have affirmed the adequacy and functionality of classroom seating.

Additionally, Onyema (2021) reported that the quality of physical infrastructure, particularly seating, directly influences students' psychological readiness to learn. His study identified that comfortable and spacious seating facilities reduce classroom stress and encourage active participation in lectures. Onyema's findings also indicated that proper seating arrangements facilitate better peer interactions and collaborative learning, which are crucial for undergraduate academic development. This evidence further supports the claim that seating facilities in Bayelsa State universities are meeting functional and ergonomic standards conducive to learning.

Secondly, in Tables 2 and 5, it was found that teaching aids and presentation tools such as whiteboards, projectors, and public address systems are neither available nor in good conditions in

undergraduate classrooms in universities in Bayelsa State.; and that there is no substantial disparity in the mean perception of male and female undergraduates on the availability and conditionality of teaching aids and presentation tools such as whiteboards, projectors, and public address systems in undergraduate classrooms in universities in Bayelsa State. The scarcity and poor condition of modern teaching aids in Nigerian universities have been consistently highlighted in educational infrastructure research. Okeke et al. (2020) found that many tertiary institutions in Nigeria still rely heavily on traditional chalkboards, with little or no integration of modern instructional technologies such as projectors and smartboards. Their study emphasized that even when multimedia tools are provided, they are often obsolete or non-functional due to lack of maintenance. This situation is reflective of the conditions in Bayelsa State universities, where reports indicate that undergraduate classrooms lack adequate teaching aids and functional presentation tools.

Similarly, Adekunle et al. (2021) identified that the unavailability of projectors, functional whiteboards, and public address systems in Nigerian higher education institutions has led to a predominance of teacher-centered instruction. According to their findings, many lecturers are compelled to use only verbal explanations and handwritten notes on worn-out boards, limiting students' exposure to interactive and multimedia learning. This absence of modern teaching aids directly affects students' comprehension of complex concepts, especially in large classrooms where visibility and audibility are crucial. The situation in Bayelsa State universities mirrors this national challenge, where students report minimal access to effective instructional technologies.

Ajayi and Ajayi (2021) also corroborated these observations by documenting that public universities in Nigeria often face budgetary constraints that hinder the acquisition and maintenance of teaching aids. Their research revealed that classrooms frequently lack basic audio-visual equipment, and where such tools exist, they are in poor working condition due to neglect. The researchers pointed out that this technological deficit contributes to students' disengagement and reduces the overall quality of classroom instruction. These findings align with reports from Bayelsa State, where students have confirmed the absence or dilapidation of essential teaching aids.

Finally, in Tables 3 and 6, it found that classroom lighting and ventilation systems effectively create a conducive learning environment for undergraduate students in universities in Bayelsa State; and that there is no substantial disparity in the mean responses of male and female students on how effective classroom lighting and ventilation systems are in creating a conducive learning environment for undergraduate students in universities in Bayelsa State. Classroom environmental quality, particularly lighting and ventilation, has been identified as a critical factor influencing student learning comfort and academic engagement. Ogbuehi and Alade (2022) found that when university classrooms are properly ventilated and adequately lit, students report improved concentration levels, reduced fatigue, and enhanced academic performance. Their study demonstrated that optimal classroom conditions significantly affect cognitive functioning, promoting better retention and comprehension of lecture materials. This aligns with the current situation in Bayelsa State universities, where students have noted that the lighting and ventilation systems contribute positively to their learning experiences.

Further reinforcing this position, Chinyere and Chukwuma (2021) observed that good classroom lighting and ventilation play a significant role in creating learning environments that support sustained attention and participation. Their research revealed that classrooms with adequate natural and artificial lighting, coupled with effective airflow, reduce health-related distractions such as headaches and drowsiness among students. These findings are relevant to the

context of Bayelsa State universities, where effective classroom ventilation and lighting have been reported to create an atmosphere that enhances student focus and academic engagement.

Moreover, Nworie (2022) emphasized that maintaining quality classroom infrastructure, including lighting and ventilation systems, is crucial for improving teaching and learning outcomes in Nigerian higher education institutions. His study highlighted that proper lighting conditions minimize visual strain, while adequate ventilation ensures thermal comfort, both of which foster a positive learning environment. This corroborates the findings from universities in Bayelsa State, where the consistent functionality of lighting and ventilation systems has been identified as a contributing factor to conducive academic settings.

RECOMMENDATIONS AND CONCLUSIONS

Conclusions

From the results, the study concludes that;

1. Seating facilities (chairs and desks) are adequate and functional in undergraduate classrooms in universities in Bayelsa State.
2. Teaching aids and presentation tools such as whiteboards, projectors, and public address systems are neither available nor in good conditions in undergraduate classrooms in universities in Bayelsa State.
3. Classroom lighting and ventilation systems effectively create a conducive learning environment for undergraduate students in universities in Bayelsa State.

Recommendations

From the conclusions reached, the study suggested that;

1. University managements in the state should sustain regular maintenance of classroom seating facilities to ensure continuous comfort and support for undergraduate learning.
2. Relevant authorities should prioritize the provision, upgrade, and consistent maintenance of modern teaching aids such as projectors, interactive whiteboards, and public address systems to enhance instructional delivery.
3. Facilities management units in universities in the state should maintain the current standard of classroom lighting and ventilation systems while exploring innovative improvements to further promote a conducive learning environment.

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