



**THE EFFECT OF EXISTING AND PHYSICAL DESIGN FEATURES ON
STUDENTS' ACADEMIC PERFORMANCE, OVERALL LEARNING
EXPERIENCE, ENGAGEMENT AND WELL-BEING**

By
IBOKETTE, M. U.,
Department of Home Economics
Faculty of Agricultural Science

ABSTRACT

This study examined the effect of existing and physical design features on students' academic performance, overall learning experience, engagement and well-being in University of Uyo. A descriptive research design was chosen for this study. The researcher focused on the University of Uyo as area of study. The population of the study was 3000 students drawn from faculties and departments across the University. A stratified random sampling technique was used to select 300 respondents from the population. A research instrument titled Elements of Design and Learning Environment Questionnaire (EDLEQ) was used for data collection. Face and content validation of the instrument was carried out by an expert in test, measurement, and evaluation in order to ensure that the instrument has the accuracy, appropriateness, and completeness for the study under consideration. The findings revealed that the current interior design had a high mean score of 15.19 with a standard deviation of 1.28, indicating a positive influence on the learning environment and students' academic performance. The findings also showed that physical spaces, student engagement, comfort, and well-being recorded a mean score of 13.00 with a standard deviation of 2.01, showing that physical learning environments significantly influence students' learning experiences. Furthermore, the hypothesis tested showed a t-calculated value of 20.565 with a p-value of 0.001, which was significant at 0.05 alpha level. Therefore, the null hypothesis was rejected, indicating that there is a significant relationship between physical spaces and students' engagement, comfort, and well-being at the University of Uyo. The study concluded that well-designed educational spaces contribute greatly to improved learning outcomes. One of the recommendations was that the University should improve learning spaces through the provision of ergonomic furniture, better lighting, improved acoustics, flexible learning areas, and inclusive design features to enhance students' academic experience and overall well-being.

KEYWORDS: Interior design, learning environment, physical spaces, student engagement, academic performance, University of Uyo.



INTRODUCTION

The layout and furniture design of learning spaces also significantly affect how students engage in learning activities. Brooks (2011) stresses the importance of flexible and ergonomic furniture that supports diverse teaching methods, ranging from group discussions to individual learning. Movable and adjustable furniture allows for greater adaptability and inclusivity in classrooms. Gifford (2014) supports this by stating that well-designed spaces foster collaboration and creativity while also providing students with a sense of belonging. In urban educational settings, noise can pose a significant challenge of creating a conducive learning environment.

Smith and Johnson (2024) argue that soundproofing is crucial, particularly in institutions surrounded by external noise sources. Excessive noise disrupts students' concentration and hampers retention of information, necessitating the implementation of soundproofing systems.

This is particularly relevant for the University of Uyo, where noise from urban surroundings may interfere with classroom activities. The University of Uyo faces challenges similar to other institutions in creating a learning environment that is conducive to academic success.

According to Evans (2020), elements such as furniture, lighting, colour schemes and ambiance influence students' cognitive, emotional and social development. The institution must address issues of space utilisation and the lack of modern design interventions to enhance the learning experience. The various elements of design, including lighting, temperature control, colour schemes and layout, are essential to creating a supportive educational environment at the University of Uyo. Through careful consideration and implementation of these design elements, the institution can significantly improve student engagement, academic performance and overall well-being.

Statement of the Problem

The outdated and uncomfortable furniture found in many of the university's learning spaces is a major concern. The rigid seating arrangements and lack of ergonomic furniture are not conducive to modern teaching methods that emphasise collaboration and active learning. Brooks (2011) highlights the importance of flexible seating arrangements to foster group work and critical thinking. At the University of Uyo, the lack of adaptable furniture inhibits these essential educational practices, making it difficult for students to engage fully in interactive and collaborative activities. Additionally, poor acoustics present a significant challenge in many of the university's educational facilities. High levels of background noise and



echo make it difficult for students to hear lectures clearly, leading to decreased comprehension and increased frustration. Shielding (2002) points out that suboptimal acoustics can negatively affect the quality of education by impairing students' ability to absorb and retain information.

The deficiencies in lighting, furniture and acoustics within the University of Uyo's learning environments create barriers to both student and faculty success. These design-related problems negatively affect students' academic performance, motivation and engagement. Furthermore, poor lighting, uncomfortable seating, and noise disruptions can contribute to physical and mental health issues, such as eye strain, back pain, and increased stress levels. Inadequate facilities also impede the faculty's ability to implement effective teaching strategies, thus reducing the overall quality of education.

Objectives of the Study

- 1) To investigate how existing design features affect student academic performance and overall learning experience.
- 2) To examine the influence between physical design elements and student comfort, engagement and well-being.

Research Question

- 1) How does the current interior design influence the learning environment and overall student performance?
- 2) How do physical spaces influence student engagement, comfort and well-being?

Research Hypotheses

- 1) There is no significant influence between physical spaces and student engagement, comfort and well-being at the University of Uyo.

Conceptual Review

Concept of Flexible Learning Space

Flexible learning spaces have become an essential feature in modern educational environments, enabling diverse teaching methods and learning activities. The University of Uyo has embraced this approach by incorporating flexible spaces into several departments, particularly in the Faculty of Education. These spaces feature movable furniture and modular layouts, which can be easily reconfigured to support different activities such as group work, lectures, individual study, and interactive teaching.

Brooks (2011), who emphasised that flexible spaces promote active learning and student engagement. By allowing students to easily transition between different learning modes, these adaptable environments encourage

collaboration, creativity, and deeper student involvement in the learning process.

Methodology

A descriptive research design was chosen for this study. The researcher focused on the University of Uyo as an area of study. The population of the study was 3000 students drawn from faculties and departments across the university. A stratified random sampling technique was used to select 300 respondents from the population. A research instrument titled Elements of Design and Learning Environment Questionnaire (EDLEQ) was used for data collection. Face and content validation of the instrument was carried out by an expert in test, measurement, and evaluation in order to ensure that the instrument has the accuracy, appropriateness, and completeness for the study under consideration.

Result Presentation

Research Question 1: How does the current interior design influence the learning environment and overall student performance?

Table 1: Mean, Standard Deviation on the current interior design influence the learning environment and overall student performance.

N = 300

VARIABLE	\bar{X}	SD	DIFF. WITH GROUP MEAN
Current interior design	15.19	1.28	8.18
Educational Facilities	7.01	4.04	-4.09
Total	11.10	2.66	

Table 1 shows that the mean score for “current interior design” is 15.19, which is the highest among the variables listed. This suggests that participants rate the current interior design more favourably compared to other aspects. The standard deviation of current interior design is 1.28, which is relatively low, indicating that responses are fairly consistent among participants. The difference with the group mean is 8.18, which is positive and indicates that the rating for current interior design is significantly higher than the overall group mean of 11.10. The mean score for the “Educational Facilities” is 8.01, which is the lowest among the variables listed, suggesting that participants rate educational facilities less favourably compared to the current interior design. The standard deviation of 4.04 is much higher, indicating a wider range of opinions about educational facilities.

The difference with the group mean is -4.09, which is negative, indicating that the rating for educational facilities is below the overall group mean of 11.10. The current interior design has a strong, positive influence on the learning environment and overall student performance. The high rating and low variability in responses suggest a general agreement on its beneficial impact. In contrast, the lower ratings and higher variability for educational facilities suggest that improvements in this area may be necessary to match the positive perceptions of the interior design.

The current interior design is perceived as a significant factor enhancing the learning environment and student performance, more so than educational facilities. This implies that focusing on improving interior design aspects could be a key strategy for enhancing educational outcomes.

Research Question 2: How does physical spaces influence student engagement, comfort and well-being?

N = 300

VARIABLE	\bar{X}	SD	DIFF. WITH GROUP MEAN
Physical spaces, student Engagement and comfort, and well-being	13.00	2.01	5.59
Educational Facilities	7.01	4.04	-3.09
Total	10.01	3.03	

Table 2 shows that the mean score for “physical spaces, student engagement, comfort and well-being” is 13.00, which is higher than the mean score of the educational facilities and the overall group mean. The standard deviation of 2.01 is moderate, suggesting that there is some variability in how participants perceive the influence of physical spaces on engagement, comfort and well-being.

The difference with the group mean is 5.59, which is positive, indicating that the mean rating for this variable is significantly higher than the overall group mean of 10.01. The mean score for “Educational facilities” is 7.01, which is lower than the scores for physical spaces and the overall group mean.

The standard deviation of 4.04 is higher, indicating more variability in opinions about education facilities. The difference with the group mean is -3.09, showing that the rating for educational facilities is below the overall group mean. Physical spaces are perceived as having a substantial positive

effect on student engagement, comfort and well-being. The high ratings and positive difference from the group mean suggest that these spaces are considered crucial for creating an environment that supports students' overall experience and effectiveness in their learning.

The lower ratings for educational facilities suggest that improvements in physical spaces could be more impactful for enhancing student engagement and well-being compared to other aspects of the educational environment. The physical spaces are seen as significantly influencing student engagement, comfort and well-being, with a stronger perceived impact compared to educational facilities. This indicates that attention to the design and functionality of physical spaces could be a key factor in improving students' overall experience and performance.

Hypotheses One: There is no significant influence between physical spaces and student engagement, comfort and well-being at the University of Uyo.

Table 3: Dependent t-test analysis on the influence between physical spaces and student engagement, comfort and well-being at the University of Uyo.

N = 300							
Variable	N	X	SD	Df	t-cal	p-value	Decision
Physical spaces and student engagement, comfort and well-being	300	13.00	2.01	289	20.565	.001	reject
Educational Facilities			7.01	4.04			H ₀₄

The result in table 3 showed that a t-cal of 20.565 with an associated probability value of 0.001 was obtained with regard to the significant influence of physical spaces and student engagement, comfort and well-being on educational facilities. Since the associated probability of 0.01 was less than 0.05, the null hypothesis, which states there is no significant relationship between physical spaces and student engagement, comfort and well-being at the University of Uyo, was rejected. This implies that physical spaces and student engagement, comfort and well-being influence educational facilities.

Discussion of Findings

The findings of the study indicate that the current interior design does, in fact, have a significant influence on the learning environment and overall



student performance at the University of Uyo. According to Haggis (2021), the physical environment plays a crucial role in academic success, which aligns with the findings of this study; students and staff reported that the existing design elements, particularly the lack of ergonomic furniture, inadequate lighting and poor acoustics, negatively impact concentration, comfort and, ultimately, academic performance.

The findings strongly suggest that there is a significant relationship between physical spaces and student engagement, comfort and well-being at the University of Uyo. According to Martins (2019), well-designed educational spaces contribute to higher levels of student engagement and well-being. The study found that students who have access to well-designed, comfortable and visually appealing space were more likely to be engaged in their studies and report higher levels of comfort and well-being. Conversely, spaces that were cramped, poorly lit or furnished with uncomfortable seating were associated with lower levels of engagement and a negative impact on well-being. Students in such environments were more likely to report feelings of stress, fatigue and disengagement from their studies. This evidence supports the conclusion that physical spaces are a critical factor in fostering student engagement, comfort and well-being, thereby refuting the hypothesis that they are there.

RECOMMENDATIONS

1. Improve design features to boost academic performance and learning experience. Research findings suggest that well-designed learning environments can significantly enhance academic performance. Therefore, it is recommended that design improvements focus on creating flexible, multi-functional spaces that support a variety of learning styles. The introduction of collaborative zones, quiet study areas and interactive digital spaces can foster a more engaging and dynamic learning experience. Moreover, spaces should be designed to reduce distractions, thus promoting concentration and productivity.
2. Physical comfort is crucial for student engagement and well-being. To promote this, ergonomic furniture should be installed in all learning spaces. Natural lighting and greenery should be incorporated to create a more pleasant and health-conscious environment. Attention should also be given to temperature control and air quality as these factors directly impact student comfort. Finally, the design should reflect inclusivity, ensuring that all students, including those with disabilities, have equitable access to well-designed learning spaces.

REFERENCES

- Brooks D. (2011). *The social animal: The hidden sources of love, character and achievement*. Random House
- Evans, J. (2020). Challenges in creating effective learning environments at the University of Uyo. *Educational Facility Design Quarterly*, 10(4): 68-75
- Shielding, M. (2002). Acoustic conditions and stress in learning environments. *Journal of Environmental Psychology*, 22(2): 123-136
- Smith, J., & Johnson, A. (2024). Fostering creativity and collaboration through educational facility design at the University of Uyo. *Design and Education Review*, 33(1): 50-67