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Space Management Strategies and Challenges in Nigerian Universities

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Abstract

Space management is crucial in supporting the academic mission of universities. This study assessed strategies and challenges of space management practices in public tertiary educational institutions in Akwa Ibom State, Nigeria. A mixed-methods research design was used. A case study approach was also adopted. Data collection was done by the use of open-ended and unstructured interviews with participants. Thematic analysis was used to analyze the data. Universities in the study area adopted diverse strategies and techniques to manage their space, and various factors influenced space management decisions. However, universities faced significant challenges in meeting the National Universities Commission (NUC) minimum space requirements. The findings contribute to the understanding of space management issues in Nigerian universities and provide valuable insights for developing context-specific solutions to optimize space utilization and support the academic mission and vision of universities.

Keywords: Space standards; space needs; space planning; space allocation; space utilization.

Introduction

Background of the Study

Education is a widely accepted instrument of supplying knowledge and skills needed to promote proleuvian participation in society (Quansah, 2015). Similarly, as identified by the University Grants Commission (2013), education remains an important avenue to achieve most objectives of a nation. According to the Federal Republic of Nigeria (FRN, 2004), higher education or technical

education refers to all forms of learning undertaken beyond secondary school, hence constituting tertiary education. The Organization for Economic Co-operation and Development (OECD, 2020), supports this by clarifying tertiary education as all formal learning undertaken after the completion of upper-secondary education. These universities, colleges of education, polytechnics, monotechnics, and institutions of distance learning form a major part of this. The World Bank defines tertiary education as all structured post-secondary education, but in this case refers to universities, vocational institutions, and trade schools. The sector is according to Amoo and Onuka, (2011) and Jubril (2013), universities, colleges of education and technology and other post-secondary institutions. One of which is that universities in some countries as compared to other tertiary institutions do research activities which Odeyemi (2004) noted. To ensure effective operations of the tertiary institutions, adequate space is required. These include built and open spaces. The effective management and efficient utilization of the space is critical to the performance of such institutions.

Space is one of the most important resource in organizations (private or public). And according to the UK's National Audit Office report (NAO, 1996), space is the second largest cost any typical institution has to bear. This signifies the importance of space efficiency in institutions. Low space efficiency can jeopardize the financial viability of academic activities (Grimley, 2002).

According to Babatope (2010), tertiary education in Nigeria has witnessed exponential increase in students' yearly enrolment. This has led to the establishment of more tertiary institutions. Issues in space and space use is critical due to their significant role in supporting the core business of tertiary education institutions, in academics and research. The increased enrolments naturally lead to increased space needs and demand in these institutions. Abdullah et al. (2015), observed that the increase in space need and demand can be attributed mainly to the increasing number of students and academic activities within these institutions. In my view, researching space management in public tertiary institutions is now crucial, as it enables informed decision-making and effective space utilization by institutional management. As defined by Newcastle University (2007), space management is allocating space to a specific user and /or for a specific use. It is the planning and usage of space effectively, efficiently and productively. However, space management has been applied as far as education, healthcare, and commercial enterprises (Leung et al., 2014; Wiggins, 2014). Nakpodia (2011) further argued that space management is a mechanism used in institutional administration aimed at allocating suitable spaces to appropriate academic departments in the strategic management of space for the overall academic experience of students and staff in the institution. For that reason, it is important to efficiently use space since there is little that can be wasted. As noted by Hammadamin et al. (2024), optimizing spatial layout in higher education campuses can significantly boost efficiency by improving the utilization of classrooms and common areas.

It is expected that universities are able to provide the best facilities in term of space to support the universities' core business. Efficiency in space use is important because limited spatial resources require careful optimization to avoid waste (Allam and Jones, 2022; Mourshed et

al., 2023; Rashdan and El-Sayad, 2024). Burke and Varley (1996) also agreed to this by asserting that universities must provide space, which is an essential element relating to activities that takes place. Many higher education institutions in the world face serious issues with class, research, lab, office, social activity and innovation space (Harris & Holley, 2008; Sturgeon, 2007; Huey & Valdenegro, 2006; Hillier, 2007; Fink, 2002, 2004; Thompson, 2002). However, as Thompson (2002) observed, the space utilization was actually poor and not space less. This shows that there are underlying space issues in tertiary education institutions. NAO (1996), found that space management for higher education institutions is more critical than other organizations. It is based on this that the study seeked to assess space management strategies and challenges in public tertiary educational institutions in Akwa Ibom State.

Research Problem

Public universities are not just places for teaching and learning. They are centers of research activities and innovations. Facilities within the University campus support the core business of the University. Improving space management, therefore, is essential to the efficient functioning and attainment of this core business.

Studies relating to space management in educational institutions have largely dwelt on space utilization and auditing (Beyrouthy et al., 2007; Ibrahim et al., 2012; Rahman et al., 2015; Valks et al., 2021). Additionally, there are a lot of guidelines provided on space planning in tertiary education (Tertiary Education Facilities Management Association, TEFMA, 2009). Although there is a lack of research studies on various aspects of space management in tertiary education institutions, a review of the existing literature on space management in tertiary education institutions shows that the research has been centered on the allocation and utilization of space (TEFMA, 2009). Nevertheless, however, a review of space management strategies, decision making processes and supporting the core business activities of universities is necessary but crucial to support the business activity of universities. With this, a holier approach to space management may be considered. Saaid et al. (2018) studied space management in higher institutions but only considered the challenges encountered in implementing the space management in the higher education institutions. A review of the literature indicated that there is lack of comprehensive studies on the use of space in tertiary institutions, which called for a broader study that fills in this gap.

The study of space management in the public tertiary institutions is imperative because it can provide solutions to alleviate the predicament exactly our public universities are experiencing including utilization of facilities due to appropriate use, good teaching and learning and optimal management of the institutions. Owusu-Ansah et al. (2023), opined that adequate spatial resources, including classrooms and laboratories, are directly tied to the quality of teaching, research and overall institutional performance. Alhassan and Adarkwah (2023) supports this assertion when they showed that ineffective space planning in public universities lead to overcrowded classrooms, underutilized lecture rooms and inefficient allocation of academic facilities. This research filled the gap in the literature regarding the paucity of such

studies on space management in Nigerian universities and opportunities for improvement. It was to investigate and find solutions to the space management practices in public tertiary educational institutions in Akwa Ibom State towards the improvement of the learning environment for students. The noticeable issue regarding space in Nigerian universities has been that of space use and demand. It is not uncommon to notice congested lecture rooms during lecture hours on campus. It is not also uncommon to notice unused lecture rooms during lecture hours on campus, even during the peak period of the semester. This means that either the space available are underutilized or overutilized.

Aim and Objectives

The aim of this study was to conduct an in-depth assessment of the space management issues in public tertiary educational institutions in Akwa Ibom State, in order to identify the challenges, opportunities, and strategies for optimizing space. To achieve this aim, the following objectives were pursued:

i. To assess the space management strategies and techniques adopted by the universities;
ii. To explore the problems of space management in the universities, with a particular focus on the challenges of meeting the National Universities Commission (NUC) space standards;

Research Questions

This study seeked to answer the following questions:

i. What specific space management strategies and techniques are adopted by universities in the study area?
ii. Have the universities met the minimum space requirements of the NUC? If so, what space management problems still exist?

Research Hypotheses

The following hypotheses were adopted for this study:

HO_1: There is no significant difference in the space management strategies and techniques used by universities in the study area.

HO_2: There is no relationship between the problems of space management in universities and the universities' ability to meet the minimum space requirements of the National Universities Commission (NUC).

Review of Empirical Studies

Research on space management in higher education has a long history, yet much of it has centered on how classrooms and lecture halls are used, rather than on broader strategies or regulatory compliance. Early work pointed out the scarcity of systematic research in this area (Abdullah et al., 2012), even though guidelines and utilization studies have existed since the 1970s (Sharma, 1991; TEFMA, 2009). Most of these efforts focused on maximizing teaching space efficiency (TEFMA, 2009), leaving the bigger picture of space management largely unaddressed.

Some studies have emphasized structured approaches. Hassanain and Moied (2010), for example, proposed a corporate-style process for aligning space use with organizational goals, an idea that, while developed for businesses, has clear applications in universities and even healthcare settings. Similarly, Andersson et al. (2011) showed how usability factors; such as layout, interaction, and support can shape how effectively spaces function. In Nigeria, Nakpodia (2011) underscored the need for central oversight and reliable record-keeping to strengthen university space allocation.

Other research has looked closely at actual space utilization. At a Malaysian university, Ibrahim et al. (2012) tested a "space charging model" designed to curb the culture of treating space as a free good, encouraging more responsible use. At Delft University, Valks et al. (2012) found that lecture halls were booked often but rarely filled to capacity, pointing to inefficiencies in occupancy. Abdullah et al. (2015) likewise argued that universities should look beyond frequency rates and consider occupancy when judging efficiency. Case studies from Sunyani Polytechnic (Quansah, 2015) revealed similar patterns: while classrooms were used regularly, issues such as inadequate capacity, fragmented timetabling, and poor facilities limited effectiveness.

Alongside these practical studies, some scholars have developed broader models. Rahman et al. (2015) proposed a conceptual framework for academic space utilization, while Li et al. (2017) identified key space management goals through a systematic review of institutional care facilities. More recent work in Malaysia (Hamid et al., 2018) highlighted the importance of space audits and long-term planning, while Saaid et al. (2018) and Saidin et al. (2020) pointed to persistent challenges such as limited space and only moderate satisfaction with current systems.

Despite this growing body of work, two critical gaps remain. First, we know little about the actual strategies universities adopt to manage their spaces in practice. Second, there is little evidence on how well these practices address regulatory standards, such as Nigeria's NUC minimum space requirements. Most existing studies focus on usage statistics and efficiency, but stop short of examining whether institutional approaches align with formal benchmarks or with universities' strategic goals. Addressing these gaps is essential for developing a more holistic understanding of space management in higher education.

Conceptual Framework

The conceptual framework for this study was underpinned by three important space management concepts: space planning, space allocation and space utilization.

Conceptual Framework for Space Management in Tertiary Education Institutions

The conceptual underpinning of the study was based in the concept of space planning, space allocation and space utilization, which are related to one another. The base for an effective tertiary institution space management is constituted by these three concepts.

Space planning is the strategic process of space allocation for the institutions to meet the needs. Involving in the assessing of space requirements for different stakeholders like students,

faculty, as well as staff and then having a plan to design space more efficiently. Space planning, should be effective, is important to determine that space is properly allocated, which in turn determines the utilization of space.

Space allocation refers to the assignment of specific spaces to different users or activities. This is about deciding to whom there are to be given what spaces and when. Space planning takes importance in space allocation, as the allocation of space also takes the overall plan into consideration.

Space utilization, on the other hand, refers to the actual use of space by users. In other words, it is a practice meant to watch as space is used and improve on it. Both space planning and space allocation are factors on space utilization since space utilization is composed of a good plan and an effective space allocation.

The interdependencies between these spaces as well as the need for a holistic approach towards space management in tertiary education institution is what this conceptual framework is geared towards taking into account. The research aimed to produce a space management framework for practical use, by determining the relationships between these concepts.

This study assessed the ability of the universities to meet up with the National Universities Commission (NUC) minimum space requirements. The NUC recommends that universities meet certain minimum physical space requirements. The allocation of university space should be geared towards meeting these minimum space requirements. Scholars are of the opinion that for any educational system to meet its expectations in input, process and output, the institution must meet the laid down Minimum Academic Standard (MAS), which includes physical facilities, library and information facilities. The NUC is a federal government agency in charge of regulating the activities of Nigerian universities and has recommended the following space requirements for universities:

The NUC Space Requirements for Universities

Space	Square meter
Professor's office	18.50
Head of Department's office	18.50
Tutorial/Teaching staff's office	13.50
Other teaching staff space	7.00
Secretarial space	7.00
Seminar space per student	1.85
Laboratory space	7.50

Table 1: The NUC Space Requirements for Universities

Source: Core Curriculum and Minimum Academic Standards (CCMAS) for Nigerian Universities (2023).

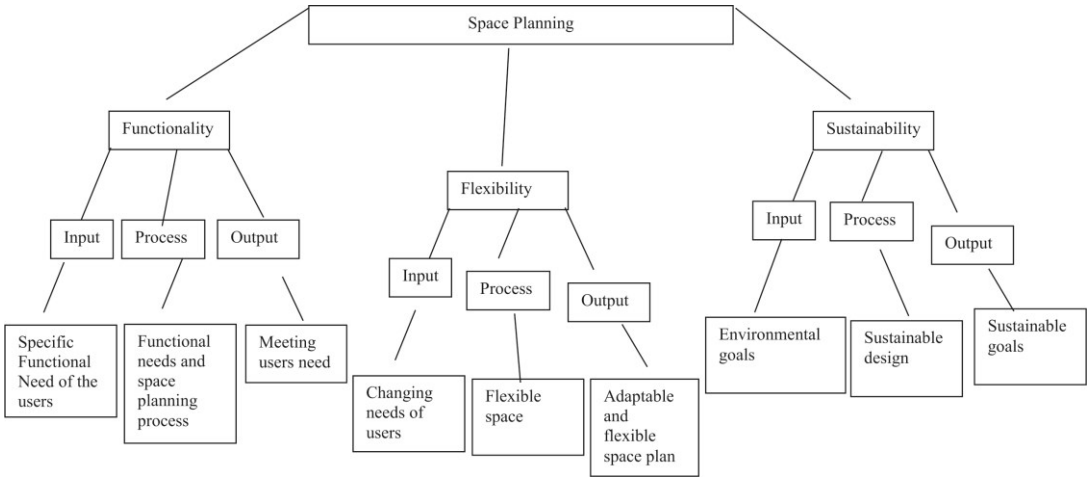


Fig 1: Framework for University Space Planning
Source: Researchers' conceptual view (2025).

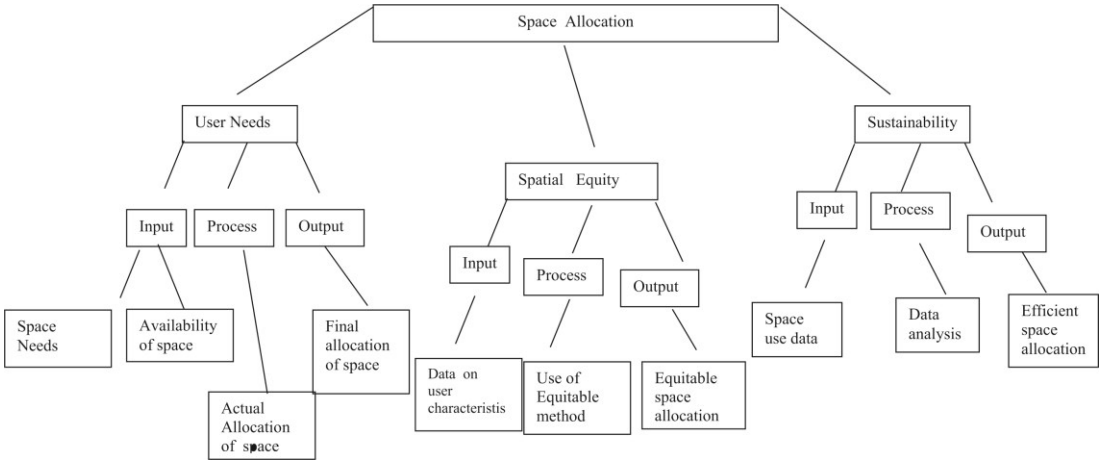


Fig 2: Framework for University Space Allocation
Source: Researchers' conceptual view (2025).

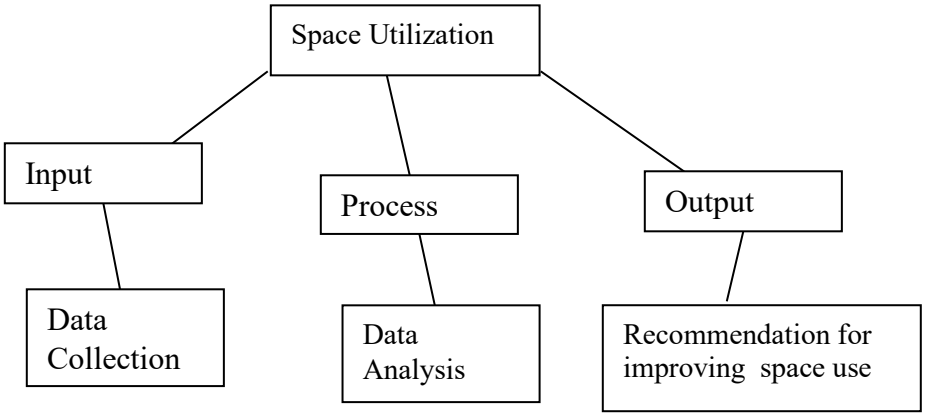


Fig 3: Framework for University Space Utilization
Source: Researchers' conceptual view (2025).

The figures above illustrate the key variables and relationships in university space planning, allocation and utilization. This article will explain the main purposes and connections of each of the maps in summary.

The result of the space planning concept map spells out the institutional goals, facility planning, and space requirements to develop a comprehensive space plan. The input for the functionality will therefore be the specific functional needs of users as they relate for the space planning. The application of those functional needs to the space planning process will be the way in which to approach the process for the functionality. It will be an output of the space plan that provides for the functional needs of the user. Change in the need of the users with time will give the input for flexibility. The flexibility of space planning will be achieved through a flexible space plan which can be interpreted to meet the different demands from users with the changing needs. The output will be a space plan which is flexible and adaptable. The environmental goals of the institution will be the input to the sustainability. The applied principle will be a sustainable design process to the space plan. This output could be having a space plan that matches the organization's sustainability goals.

Space allocation concept map shows how the user needs, space availability and allocation policies influence decisions to assign space. The user's need is an input to the space allocation and the available space an input of the space allocation. Actual piecemeal allocation of space to users or functions will be the process. The final allocation of space will be the output. For the spatial equity, the data used for input will be on user characteristics. It will be the way to use equitable methods for space distribution. It will include a set of procedures so that everyone may have access to space, no matter what they are made of. As a result, the output will be a fair and impartial space allocation which ensures the equitable space allocation. The data used for efficiency will be space utilization data of the institution. In this process the data will be analyzed to determine which inefficiencies exist within the current allocation of space. However, the output of the scheduler will be an allocation that uses space more effectively than before.

Research Design

The research design for this study was a mixed methods study based on the fact that mixed methods at Research incorporate several different research methods towards answering research questions in an all pervasive and systematic manner (Bryman, 2012; Cresswell, 2015). Since the research interest is indeed in exploring a phenomenon in real time, this approach was considered most applicable. The rationale for the selection of this mixed methods design was to make a richer and detailed analysis of the research issue through the inclusion of both types of data.

The case study method was also applied by the study which focused a focused examination of the problems under study. Referring to social phenomena that he/she is to attempt to explain using their research questions, Yin (2009) has highlighted that the case study approach is particularly appropriate when those questions ask 'how' or 'why' the social phenomenon

occurs. Case studies help researchers to know the rationale behind the decision, how the decision was implemented and the associated outcomes (Yin, 2009). This method is an exhaustive and limited to time exploration of a specific event, activity, process, phenomenon, or group of individuals aiming to reach a sophisticated and contextualized view of the same (Yin, 2009; Cresswell, 2007).

Research Population

The target population for this study included administrators in both institutions responsible for the management of space. The study ensured that respondents represented the population of the universities in their diversity.

Sample Size

Strategic personnel within the population made up the sample size. This included specific administrators involved in the space management process on campus who are well versed in the knowledge about space issues. They included the head of the physical planning departments of the universities, the dean of the students' affairs or any other key personnel as may be recommended. Key personnel from the library unit were purposively selected and three heads of department (HOD) each, who were randomly selected from each of the three campuses of the University of Uyo, and two campuses of the Akwa Ibom State University. In studies when the objective is to comprehend the essence of experience, Morse (1994) recommended that qualitative researchers employ a minimum of six individuals. This study was largely based on qualitative data.

Sampling Design

As per Kothari (2004) , Sampling design is the way (method) through which the researcher decides in favor of some sampling units in order to draw generalizations for the entire population. In this study, it was a multi stage purposeful random sampling. The approach highlighted in this paper is based on the sample selection in several steps, in which a random selection is performed in the first step and then purposive sampling in other stages (Omona 2013). This aided in randomly selecting the heads of departments required for this study and also in purposively selecting the space administrators on campus who have the knowledge of space issues required for the study.

Data Requirements and Sources (Research Variables)

Data required for this study was set out based on the study objectives. Thus:

1. Data requirements for the space management strategies and techniques adopted by the universities in the study area included information about the specific strategies and techniques used for space management. Data sources included interviews with space administrators and space management plans.
2. Information about the problems encountered in space management process in the universities coupled with their causes and effects were data requirements for space

management problems of the universities and if the universities meet the NUC minimum space requirements. Information on the NUC standards for minimum space and its ability to be met by the universities. Administrators were interviewed, records of complaints or disputes, and NUC minimum requirements for space were used as data sources.

Sources of Data

Data for this study was collected from two sources. These are the primary and secondary sources.

(a) Primary Source: Primary data for this study was obtained through interviews with space administrators in the universities and through observations. Personnel from the physical planning department, students' affairs, library units and selected heads of departments in the case study areas were interviewed. The interview questions were open-ended and unstructured. Mission statements, policy documents and NUC minimum space requirements were reviewed.

(b) Secondary Source: Secondary data refers to data not originally collected by the researcher. It includes data obtained from journals, textbooks, maps, encyclopedias, internet and seminar papers. It aids the researcher in gathering already made information for the literature review and background of the research. For this study, secondary data was collected through academic journals, technical reports, textbooks, research articles, conference proceedings and other relevant secondary sources of data collection.

Techniques of Data Analysis

Data collected for this study was analyzed using both qualitative and quantitative data analysis techniques. Thematic analysis was used to analyze the data by identifying themes and patterns in the responses and coding the data appropriately. Quantitative techniques like frequency and percentage tables were used to aid in the data presentation and analysis. Thematic analysis is widely used in social science research, and it allows for the identification of patterns and themes in the data. According to Alhojailan (2012), thematic analysis is a type of qualitative analysis that is used to analyse classifications and present themes (patterns) that relate to the data. It illustrates the data in great detail and deals with diverse subjects via interpretations (Boyatzis, 1998). Thematic analysis allows the researcher to determine precisely the relationships between concepts and compare them with the replicated data. This will aid in detecting and identifying variables that influence any issue generated by the respondents.

Ethical Issues

Ethical issues arise primarily in qualitative research due to the closer relationship between the researcher and the research subject (Blaxter *et al*., 2001). Data collection for this study was carried out in line with academic research ethics. Data obtained through interviews were done with the full consent of the respondents and without any form of pressure or bias. Considering data protection, participants in this study remained anonymous. All variables were not related to a single individual. Thus, participants felt free to respond to interview questions. The data

collected was used only for academic purposes. To maintain confidentiality, participating universities were referred to as Case Study A and Case Study, with Case Study A having three campuses under study and Case Study B having two campuses under study. Reference was made to individual participants with their functional titles, which may vary based on the University.

Discussion of Results

Results of study on space management issues in university have been discussed in this section. The approach was integrated, so that the findings and their implications could be explored in a comprehensive way.

Research Question 1: What specific space management strategies and techniques are adopted by the universities in the study area?

Both universities adopted a range of space management strategies, including compliance with NUC space standards, adherence to the strategic space plans and master plans, space budgeting system, and space programming. However, Case Study B adopted an additional strategy of space benchmarking which was not adopted in Case Study A. This suggested that there were some differences in the approach to space management between these two universities. While there were differences in the strategies adopted by the two universities, the techniques used were largely similar. Both universities employed space charging for specific spaces, such as retail spaces, business-related spaces, auditoriums, and residential spaces (residential spaces were not available in Case Study B). However, the charges were imposed on external users in both case studies. While charges were also imposed on students in Case Study A for the use of residential spaces. Class scheduling/timetabling and space inventory were used by both universities. Space auditing was not adopted by both case studies. The lack of space auditing aligned with the study of Hamdan (2022) which posited that most public universities seldom conduct space audit assessments.

Although the difference in space benchmarking may seem minor, its implementation by Case Study B but not Case Study A suggested that the former places greater emphasis on measuring its performance against external standards. This indicated different strategic priorities and approaches to space management in the two universities. While previous studies such as those by APPA (2012); Rymarzak (2014); ARCHIBUS (2016) had provided insight into space strategies, this study offered a more in-depth analysis of space management strategies at the level of individual universities. Similarities and differences in the strategies adopted by Case Study A and Case Study B have been explored, highlighting the range of strategies and techniques adopted by universities to manage their space. Findings provided new insights into the variation in space management strategies across universities.

Hypothesis 1: There is no significant difference in the space management strategies and techniques adopted by universities in the study area.

Case Study A and Case Study B also took some similar space management strategies and techniques, however, some difference could be noticed. In particular, Case Study B applied the strategy of space benchmarking, whereas Case Study A did not. Given the context, the

difference of space benchmarking may look small, but it is important to look beyond the difference and see that even small difference in the approaches can make a difference in how much effective the case of space management can be. In addition, the use of space benchmarking suggested a different strategic focus in Case Study B to achieve broader implications to their space management approach. That is why the hypothesis that there exists no significant difference between the space management strategies and techniques adopted by the two universities is rejected. The study findings revealed that the space management approaches adopted by the universities included similarities but also a variation. Hypothesis 2 rejection also pointed out that space management practices need to be treated in the light of dominating institutional environments and priorities. The outcome of this study showed the space management strategies and techniques being adopted by universities in the study area to be different, and can be attributed to their difference in mission and vision statements. The findings highlight the necessity of a more sensitive approach to space management in the public tertiary education, that takes into account of the different institutional priorities and objectives.

Research Question 2: Have the universities met the minimum space requirements of the NUC? If so, what space management problems still exist?

Both Case Study A and Case Study B faced series of space management problems. Analysis also indicated that both universities have struggled to meet the NUC minimum space requirements. This suggested that even when universities employed various space management strategies, they may still struggle to meet the minimum space requirements set by the NUC. While the findings provided valuable insights into the problems of space management faced by the universities, it is acknowledged that the study might not have exhaustively covered all possible problems of space management.

The detailed findings painted a compelling picture of the issues plaguing space management in the two case study universities. The major problems in both universities were inadequate space, in both cases, and increased students population, as well as lack of funding, and from the findings, it is clear that they were most pervasive. Interestingly enough, Case Study A witnessed some other problems that were different from Case Study B. For instance respondents in Case Study B did not mention competing priorities or managing diverse and changing user base. The variations suggested that the problems could be somewhat unique to each university, based on the different environments of each university. This is reflected in Abban (2011), who identified lack of information, lack of innovative space strategies, mismatch of supply of space with need for space, inappropriate communication and perception of space management, inappropriate use of space management techniques, changes in teaching format and mismatch within educational management as space problems in University of Education, Winneba. Burke et al. (2000) cited the reorganization and optimization of current allocation as key space allocation problem within UK universities. The study also noted that the problems though highly constrained, varied greatly among different institutions. Saaid *et al*. (2018) identified limited space, under-utilization, as space management problems in higher education. Lack of information about space utilization, lack of expertise in space management

and lack of top management support. Limited space meanwhile ranked as highest amongst the space problems in the study.

Indeed, both universities acknowledged that they have not met the NUC minimum space requirements. The challenges they highlighted in meeting these requirements, such as retrofitting existing buildings and user growth-indicated that even when universities recognize the importance of meeting the NUC's standards, doing so can be a difficult and costly endeavour. This highlighted the importance of long-term strategic planning and investment in space management for universities in the study area. Without adequate funding and planning, universities may struggle to maintain high standards set by the NUC, potentially hampering their ability to effectively support the goals, vision and mission of these institutions.

Hypothesis 2: There is no relationship between the problems of space management in the universities and the universities' ability to meet the NUC minimum space requirements.

Findings suggested that the problems of space management in both universities were directly related to their ability to meet the NUC minimum space requirements. Both universities reported challenges in meeting these requirements, such as cost of construction. This indicated that there is indeed a relationship between the problems of space management and the universities' ability to meet the NUC's standards. As such, hypothesis 4 is rejected.

Conclusion

The space management issues in public tertiary educational institutions of Akwa Ibom State has been investigated with a view to bringing a critical link between effective space management and the core business activities of teaching, learning, research and community engagement. The finding of this research has wider implications beyond the immediate context and adds to the body of knowledge on management of the space in the tertiary education.

The results indicated that universities should incorporate some important elements, especially space utilization study, regular evaluation, stakeholder engagement, space planning to realize well managed space and to help facilitate the educational and administrative function.

Universities that wish to improve their space management techniques will find the study useful. By having these identified elements incorporated in their space management process and applying the designed framework on university space management, universities can develop appropriate strategies and techniques which can better help the university run the space in the right way that supports the university core business activities and according to the standards of the NUC.

Supporting long term sustainability and competitiveness of universities is effective space management with more focus on combined benefits such that universities that are also able to meet the needs of their students, staff and wider community. Therefore, the study is important to university policymakers and stakeholders since they could need to consider the importance of space management in solving the space challenges in universities.

Recommendations

This study provides the following recommendations:

(i) Issues of space is a strategic issue concerning universities, hence, should be treated as such. As identified in the study, one of the key problems in space management is funding. This study recommends that universities should explore various funding options including alumni funding to aid in financing the space management process on campus.

(ii) Universities should adopt an all-inclusive and comprehensive approach to space management as proposed by the developed framework.

(iii) Stakeholders should be constantly engaged in the decision-making process. This will ensure that the needs and perspectives of all groups are considered.

(iv) Universities should develop a documented space management policies and guidelines that are aligned with the changing needs and priorities of users and with their strategic space plans.

(v) There is a need for expertise in the space management process in universities. Universities should ensure proper staff training and recruitment of experts specialized in space management.

(vi) There is need for the adoption of technology and technological tools in the space management process. Universities should ensure a rapid and gradual phasing out of traditional methods of space management on campus.

(vii) This study further recommends equity in space design and creation. Especially capturing the need of diverse groups such as marginalized groups and people living with disabilities. It is important to note that there are various forms of disabilities. These should be considered in space design. Creation of inclusive spaces should be highly supported and encouraged. This is essential to support interactions within the University community and between the University and the surrounding communities. This will enhance the social impact of universities and provide positive social change in local communities.

(viii) This study recommends an effective space management that helps optimize the use of resources. This will further ensure increased efficiency and cost savings for the universities.

(ix) Finally, to avoid space wasting, ownership of space by departments should be discouraged. Universities should promote shared space resources to ensure efficiency in the space use.

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