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EVALUATION OF BUILDING FACILITIES MAINTENANCE PRACTICES IN PUBLIC TERTIARY INSTITUTIONS IN ABIA STATE, NIGERIA

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ABSTRACT

This study evaluates the state of building facilities maintenance in public tertiary institutions in Abia State, Nigeria, with emphasis on identifying current practices, user satisfaction, challenges, and strategies for improvement. A cross-sectional survey design was adopted, and data were collected from 1,101 respondents across Abia State University, Michael Okpara University of Agriculture Umudike, and Abia State Polytechnic Aba. Structured questionnaires, interviews, and observations were used, and results were analyzed using descriptive statistics, correlation analysis, and t-tests. Findings revealed that most facilities were either averagely maintained or in poor condition, with 71.9% of students expressing dissatisfaction and 81.5% reporting insufficiency of available facilities. Insufficient funding (83.1%), use of substandard materials (55.6%), and poor government attitude (41.9%) emerged as the most critical challenges. Preventive and corrective maintenance methods were perceived as the most effective approaches to sustaining academic performance. The study concludes that sustainable maintenance requires adequate funding, skilled personnel, application of standard materials, and consistent maintenance policies. It recommends that government and institutional authorities prioritize preventive strategies, allocate dedicated budgets, and adopt user-focused maintenance frameworks to improve the learning environment and enhance educational outcomes.

Keywords: Building maintenance; Facilities management; Tertiary institutions; Preventive maintenance; User satisfaction; Abia State.

1.0 INTRODUCTION

Facilities maintenance is an essential aspect of effective facility management, especially in tertiary institutions where the physical environment significantly influences the achievement of educational objectives. The buildings and their associated infrastructures are crucial for supporting teaching, research, and learning activities. Consequently, their deterioration negatively impacts academic performance and compromises the quality of education (Lateef, Khamidi, & Idrus, 2010; Olaleye, 2011). In Nigeria, most public buildings, including those in universities and polytechnics, encounter ongoing maintenance issues such as poor design, insufficient funding, and neglect (Oluwole, 2018; Olusola et al., 2016).

Public tertiary institutions in Abia State are not immune to this issue. Despite considerable government investment in infrastructure, numerous facilities continue to deteriorate without a structured maintenance plan. This neglect has led to overcrowded lecture halls, inadequate hostels, and failing utilities, which negatively impact students' motivation and learning outcomes. Maintenance decisions are frequently approached as emergency measures rather than proactive strategies, resulting in temporary solutions that fail to resolve fundamental issues (Olatubara and Adegboke, 2007).

The consequences of inadequate maintenance go beyond mere aesthetics, affecting safety, comfort, and energy efficiency (Chanter and Swallow, 2007). Numerous studies indicate a strong link between the condition of educational facilities and student performance (Nahimah, 2008; Akinsola et al., 2012). However, maintenance has historically been overlooked by stakeholders in Nigeria's higher education sector, with funding limitations, corruption, and a poor maintenance culture often cited as significant obstacles (Adejimi, 2005; Olanrewaju and Awodele, 2020).

In response to these challenges, this study assesses the maintenance practices of building facilities in public tertiary institutions located in Abia State. It specifically investigates the existing maintenance practices, the degree of user satisfaction, the obstacles that impede effective maintenance, and the strategies for enhancing facility conditions to bolster academic performance. The anticipated findings aim to offer valuable insights for policymakers, institutional managers, and facility managers regarding the enhancement of building maintenance in Nigerian tertiary institutions.

2.0 LITERATURE REVIEW

2.1 Concept of Building Facilities Maintenance

Building facilities maintenance encompasses all actions intended to preserve or restore facilities to a functional state that satisfies user requirements. The British Standards Institution (1993) characterizes it as the technical and administrative actions necessary to ensure that assets operate as intended. Researchers differentiate between preventive, corrective, and emergency maintenance, with preventive measures aimed at minimizing the likelihood of failure and corrective strategies focused on addressing breakdowns (Bella-Omuagbe et al., 2010; Warren, 2020). In tertiary institutions, effective maintenance includes regular inspections, repairs, and enhancements to guarantee that facilities remain suitable for learning and research (Hassanain and Mudhei, 2006).

2.2 Importance of Facilities Maintenance

The physical condition of educational facilities significantly influences the quality of teaching and learning. Adequate maintenance preserves structural integrity, supports safety, and sustains investment value (Emiedafe, 2016). Regular maintenance is also cost-effective, preventing minor issues from escalating into major repairs (Interplay Learning, 2019). For institutions, well-maintained facilities enhance student satisfaction, foster productivity, and project a positive institutional image (Shafie, Yusoff, and Pawi, 2012). Conversely, poorly maintained buildings reduce efficiency, create safety hazards, and undermine educational outcomes.

2.3 Factors Affecting Maintenance in Tertiary Institutions

Several factors hinder effective building maintenance in Nigeria. These include lack of preventive maintenance planning, use of substandard materials, insufficient funding, faulty workmanship, shortage of skilled professionals, and weak institutional policies (Emiedafe, 2021). Additionally, users' attitudes and occupants' behaviour contribute to neglect, while government indifference and corruption further exacerbate the situation (Olatubara and Adegboke, 2007; Olanrewaju and Awodele, 2020). Collectively, these factors create a cycle of deterioration in which facilities are abandoned or subjected to ad hoc interventions.

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2.4 Empirical Reviews

Lavy and Bilbo (2009) found poor maintenance management practices in large public schools in Texas, emphasizing the importance of structured maintenance guidelines. Similarly, Hopland and Nyhus (2015) reported a significant relationship between student satisfaction with facilities and exam results in Norway. In Nigeria, Oladoku and Ajayi (2019) revealed that staff and students were generally dissatisfied with facility management services, particularly beyond cleaning and security. Ogunmakinde, Akinola, and Siyanbola (2013) highlighted that maintenance in government estates is typically reactive, with limited budgetary allocation. Osazuwa, Iroham, and Oluwumi (2021) identified poor response time as a major challenge in postgraduate hostels of highly ranked Nigerian universities, recommending professional facility management units for efficiency.

2.5 Gap in Literature

Although substantial research has been conducted on building maintenance in Nigerian tertiary institutions and elsewhere, most studies have focused on regions such as the South-West or on specific facility types like hostels and laboratories. To date, limited attention has been paid to public tertiary institutions in Abia State, despite evident deterioration of their facilities. This study addresses this gap by evaluating current practices, user satisfaction, and challenges in Abia State's universities and polytechnics, providing a contextual contribution to facility management discourse in Nigeria.

3.0 RESEARCH METHODOLOGY

3.1 Research Design

The study adopted a cross-sectional survey design to assess building facilities maintenance practices in public tertiary institutions in Abia State. This approach was appropriate as it enabled the collection of data from a large population at a single point in time.

3.2 Study Area

The research was conducted in three public tertiary institutions in Abia State, Nigeria: Abia State University (ABSU), Michael Okpara University of Agriculture Umudike (MOUAU), and Abia State Polytechnic Aba. These institutions were selected because they represent the major public providers of higher education in the state.

3.3 Population and Sample Size

The target population comprised students and senior staff from the works and maintenance departments of the institutions. The total student population across the three institutions exceeded 74,000, while the staff sample included 21 maintenance personnel (seven from each institution). Using Taro Yamane's formula with a 5% margin of error, the sample size was determined to be **1,176 students**. Thus, the final sample consisted of **1,197 respondents** (1,176 students and 21 staff).

3.4 Sampling Technique

Simple random sampling was employed to select student participants, ensuring equitable representation. On the other hand, staff participants were chosen through purposive sampling due to their limited numbers and direct relevance to the research.

3.5 Instruments for Data Collection

Data collection was carried out using structured questionnaires, supplemented by interviews and personal observations. The questionnaire included sections on maintenance practices, user satisfaction, challenges, and possible solutions. A five-point Likert scale was used for questions related to attitudes and perceptions.

3.6 Validity and Reliability

The instruments underwent review by experts. The feedback received was instrumental in enhancing clarity, consistency, and logical progression. Reliability was established through a pilot survey, which minimized ambiguities and ensured reliable responses.

3.7 Method of Data Analysis

Data analysis was performed using descriptive statistics (including tables, frequencies, and percentages) to summarize the responses. Additionally, inferential techniques such as correlation analysis and one-sample t-tests were applied to evaluate the research hypotheses. The analysis was conducted using SPSS software, with results interpreted at a significance level of 0.05.

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4.0 RESULTS AND DISCUSSION

4.1 Response Rate and Demographics

Out of 1,197 distributed questionnaires, 1,101 were returned, representing a 92% response rate. Students accounted for 98.3% of respondents, while staff made up 1.7%. Representation across the three institutions was fairly balanced: ABSU (33.9%), Abia Polytechnic (33.3%), and MOUAU (32.8%). The majority (45.4%) of respondents were aged 20-29 years, reflecting the dominant student demographic.

4.2 Research Questions

Table 4.1: Regularity of Maintenance Inspections in the Study Area

Response	Frequency	Percentage
Yes	820	74.4
No	281	25.6
Total	1101	100.0

Table 4.1 shows that 74.4% of respondents affirmed that maintenance inspections are carried out in their institutions, while 25.6% disagreed. Although inspections are done, responses revealed that actual interventions are irregular and often delayed. This reflects a dominance of corrective or reactive maintenance practices rather than preventive ones.

Table 4.2: Students' Satisfaction with Facilities in the Study Area

Response	Frequency	Percentage
Yes	310	28.1
No	791	71.9

Total	1101	100.0

As presented in Table 4.2, 71.9% of students expressed dissatisfaction with the facilities in their institutions, while only 28.1% reported satisfaction. This indicates that facilities are not meeting user expectations.

Table 4.3: Challenges of Building Maintenance in the Study Area

Challenges	Frequency	Percentage
Insufficient funding	915	83.1
Use of substandard materials	612	55.6
Lack of preventive maintenance	510	46.3
Poor government attitude	461	41.9
Faulty workmanship	409	37.1
Shortage of skilled professionals	359	32.6
Total	1101	100.0

Table 4.3 indicates that insufficient funding (83.1%) was the most critical challenge, followed by use of substandard materials (55.6%), and lack of preventive maintenance (46.3%). These findings highlight structural and managerial barriers to effective maintenance, consistent with Olanrewaju and Awodele (2020), who emphasized chronic underfunding and poor governance as major constraints in Nigeria.

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Table 4.4: Effective Maintenance Strategies in the Study Area

Strategies	SA F (%)	A F (%)	N F (%)	DA F (%)	SDA F (%)	Mean	Remark
Preventive maintenance	533 (48.4)	395 (35.9)	73 (6.6)	61 (5.5)	39 (3.5)	4.02	Accepted
Adequate funding	456 (41.4)	396 (36.0)	102 (9.3)	81 (7.4)	66 (6.0)	3.85	Accepted
Use of standard materials	448 (40.7)	356 (32.3)	119 (10.8)	107 (9.7)	71 (6.5)	3.81	Accepted
Employment of skilled staff	501 (45.5)	379 (34.4)	86 (7.8)	85 (7.7)	50 (4.5)	4.02	Accepted
Effective building policies	471 (42.8)	359 (32.6)	117 (10.6)	91 (8.3)	63 (5.7)	3.85	Accepted
Positive govt. attitude	441 (40.1)	359 (32.6)	132 (12.0)	96 (8.7)	73 (6.6)	3.81	Accepted
Good occupants' behaviour	511 (46.4)	366 (33.2)	84 (7.6)	84 (7.6)	56 (5.1)	4.02	Accepted

Table 4.4 reveals that preventive maintenance, employment of skilled staff, and good occupants' behaviour received the highest ratings (Mean = 4.02). Adequate funding and effective policies were also highly rated. These findings suggest that both institutional reforms and user behaviour are central to improving facilities maintenance.

4.3 Hypotheses Testing

Table 4.5: One-Sample t-Test Results

Hypotheses	Test Value = 3	t	df	Sig. (2-tailed)	Mean Difference
Users are satisfied with facilities maintenance	–25.71	1100	0.000	–0.724	Rejected
No challenges exist in maintenance practices	18.46	1100	0.000	1.074	Rejected

The hypothesis tests confirm the descriptive findings: users are not satisfied with maintenance practices, and significant challenges hinder effective facility upkeep in public tertiary institutions in Abia State.

4.4 Discussion of Findings

The findings reveal a maintenance gap in Abia State's public tertiary institutions, consistent with broader Nigerian studies (Ogunmakinde et al., 2013; Oladoku and Ajayi, 2019). The overwhelming dissatisfaction of users highlights the urgent need for reforms. Preventive maintenance, adequate funding, and professionalized facility management emerged as the most viable solutions. Without these, institutions risk worsening deterioration, compromised safety, and reduced educational quality.

5.0 CONCLUSION AND RECOMMENDATIONS

This study evaluated building facilities maintenance practices in public tertiary institutions in Abia State, Nigeria. The findings revealed that facilities are largely in poor condition, with the majority of users dissatisfied and reporting inadequacy of available infrastructure. The major challenges identified include insufficient funding, use of substandard materials, lack of preventive maintenance, and poor government or management attitude. Despite periodic inspections and maintenance activities, response times remain slow, and interventions are often reactive rather than preventive.

To improve the situation, the study recommends the following:

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a. Institutions should adopt planned preventive maintenance schedules to reduce breakdowns and prolong facility lifespan.
b. Dedicated budgetary allocations for facility maintenance should be established and disbursed consistently.
c. Recruitment and training of qualified facility managers and technicians are necessary to improve technical efficiency.
d. Maintenance works should employ quality materials that ensure durability and reduce recurrent costs.
e. Both management and facility users should cultivate positive attitudes towards maintaining infrastructure to prevent neglect.

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