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FACILITY MANAGEMENT FACTORS AND STAFF PERCEPTIONS OF STUDENTS' ACADEMIC PERFORMANCE IN SELECTED PRIVATE UNIVERSITIES IN SOUTH-WEST NIGERIA

[1]Alabi Oluwole Titilayo, [2]Bolukale OluwaToyin

[1]Department of Estate Management and Valuation, Yaba College of Technology, P.M.B 2011, Yaba, Lagos State, Nigeria
[2]Department of Urban and Regional Planning, Lead City University, Ibadan, Oyo State, Nigeria

Email: [1]wolealabi5561@gmail.com, [2]toyinbolurp@gmail.com

[1]Corresponding author's email: wolealabi5561@gmail.com

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Abstract

The quality and management of educational facilities are important determinants of institutional performance, yet the rapid expansion of private universities in Nigeria has placed growing pressure on existing physical and academic infrastructure. This study examined the influence of facility management factors, condition of facilities, adequacy of facilities, factors influencing facility management, and management strategies on staff perceptions of students' academic performance in five private universities in South-West Nigeria: Bowen, Covenant, Babcock, Caleb and Trinity Universities. A survey design was adopted, and a proportionately allocated sample of 346 staff was drawn from a population of 3,743; 270 questionnaires were validly completed (78.0% response rate). Data were analysed using descriptive statistics, Pearson correlation and multiple regression at the 5% significance level. All four dimensions correlated significantly and positively with perceived academic performance: condition of facilities ($r = 0.267$, $p = 0.001$), factors influencing facilities ($r = 0.391$, $p < 0.001$), management strategies ($r = 0.447$, $p < 0.001$) and adequacy of facilities ($r = 0.324$, $p < 0.001$). The combined regression model was significant, $F(4,138) = 11.756$, $p < 0.001$, $R^2 = 0.254$, but only management strategies ($\beta = 0.391$, $p = 0.001$) and factors influencing facilities ($\beta = 0.255$, $p = 0.002$) remained significant independent predictors. The study concludes that effective management of facilities, rather than their mere physical availability, is the stronger determinant of staff-perceived academic performance, and recommends preventive maintenance, dedicated facility management units and stronger institutional policy support.

Keywords: Facility management, educational facilities, academic performance, maintenance strategies, private universities, South-West Nigeria.

1.0 Introduction

Facility management is the coordinated planning, provision, operation and maintenance of the physical assets and support services that enable an organisation to achieve its objectives (Atkin & Brooks, 2021). In universities, this includes classrooms, laboratories, libraries, ICT infrastructure, hostels, utilities and security systems, all of which underpin the core functions of teaching, learning and research. Facility management has evolved from a narrowly technical, reactive maintenance activity into a multidisciplinary strategic function integrating people, place, process and technology (Green & Price, 2000; Atkin & Brooks, 2021).

The rapid growth of private university education in Nigeria has intensified demand for educational infrastructure (Odediran et al., 2015). While private institutions are generally expected to sustain higher service standards than their public counterparts, rising enrolment and expanding academic programmes place mounting pressure on existing facilities, often resulting in overcrowding, accelerated deterioration and rising maintenance costs (Odediran et al., 2015). Case evidence from Covenant University shows that adopting structured facility management practices — proactive maintenance, improved safety and cleaner environments — yield measurable institutional benefits (Ogunseitan & Ifaturoti, 2026; Fadahunsi, Utom, Ochim, Ayedun, & Oloke, 2019), while comparable evidence from Ogun State private universities indicates that facility adequacy is directly linked to students' satisfaction with major academic facilities (Oluwunmi, Ajibola, Iroham, & Eluyele, 2017).

A recurring distinction in the literature is between the physical availability of facilities and their effective management (Mendie & Sakariyau, 2026). Facilities may exist in sufficient quantity yet fail to serve their purpose where they are poorly maintained, obsolete or inadequately managed (Asiabaka, 2008); conversely, systematic maintenance strategies such as preventive and predictive maintenance can sustain functionality and reduce costly emergency repairs (Aka, Awuzie, Umar, & Monyane, 2024). Much of the existing Nigerian literature, however, has examined facility availability, adequacy or physical condition in isolation, without establishing the combined and relative influence of condition, adequacy, institutional factors and management strategies on students' academic performance, particularly among private universities in South-West Nigeria (Odediran et al., 2015; Fadahunsi et al., 2019).

This study addresses that gap. It examines the condition and adequacy of facilities in five selected private universities, the institutional factors influencing their management, the strategies applied

to manage them, and the extent to which these dimensions individually and jointly influence staff perceptions of students' academic performance. The findings are intended to guide university administrators, facility managers and policy makers in strengthening the management of educational facilities in private higher education.

2.0 Literature Review

2.1 Facility Management in Higher Education

Facility management in universities extends beyond routine repairs to strategic space planning, asset management, procurement and the coordination of support services (Atkin & Brooks, 2021). Because teaching, learning and research depend on functional buildings and reliable utilities, facility management should be regarded as an organisational function contributing directly to institutional effectiveness rather than a purely technical activity (Green & Price, 2000). Evidence from Nigerian public universities shows that facility management practice there remains largely reactive, lagging behind private-sector approaches despite its demonstrated benefits to the learning process (Odediran et al., 2015), while a case study of Covenant University found that structured facility management delivers proactive maintenance, improved safety and better-functioning buildings (Fadahunsi et al., 2019).

2.2 Condition, Adequacy and Academic Performance

The condition of facilities (their physical state, functionality and safety) shapes the comfort and continuity of academic activities, and deteriorated or obsolete facilities can increase maintenance costs while disrupting learning (Asiabaka, 2008). Adequacy, referring to whether the quantity and capacity of facilities match institutional demand, is equally important: in five private universities in Ogun State, students' satisfaction with major academic facilities was found to depend substantially on the sufficiency of library, ICT and classroom provision (Oluwunmi et al., 2017). However, adequacy alone does not guarantee good outcomes; facilities must also be properly operated and maintained to remain fit for purpose (Asiabaka, 2008).

2.3 Management Strategies and Influencing Factors

Facility management strategies range from corrective and emergency maintenance to preventive and predictive approaches that anticipate and reduce the likelihood of failure (West, Siddhpura, Evangelista & Haddad, 2024). A study of facility management practice in a Nigerian polytechnic found strong support for predictive and preventive maintenance, condition monitoring and

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technology integration as means of sustaining facility functionality and controlling costs (Ebekozien et al., 2025; Aka et al., 2024). At the same time, the effectiveness of any strategy depends on institutional factors — funding, leadership, maintenance culture, professional competence and the existence of clear policies — which a Delphi study of the facility management profession identified as central, industry-wide determinants of practice quality rather than incidental technical concerns (Green & Price, 2000).

2.4 Theoretical Framework and Research Gap

This study is anchored on Systems Theory, which conceives an organisation as a set of interdependent components working jointly towards common objectives (Bertalanffy, 1968). A university may be viewed as such a system, in which facilities form a subsystem whose condition, adequacy and management interact with, and can constrain, the performance of other subsystems, including teaching and learning (Adekunle & Abdulkareem, 2025). This perspective suggests that academic performance cannot be attributed to any single facility-related variable but emerges from the joint operation of several interacting factors, a proposition this study tests empirically. While prior studies have separately examined facility condition (Asiabaka, 2008), adequacy (Oluwunmi et al., 2017), management practice (Fadahunsi et al., 2019; Odediran et al., 2015) and maintenance strategy (Aka et al., 2024) in Nigerian tertiary institutions, none has jointly modelled their combined and relative contributions to students' academic performance across multiple private universities in South-West Nigeria, the gap this study addresses.

3.0 Materials and Methods

The study adopted a cross-sectional survey design, appropriate for eliciting structured information on facility conditions, management practices and perceived academic performance directly from respondents. It was conducted in five private universities in South-West Nigeria; Bowen University (Iwo, Osun State), Covenant University (Ota, Ogun State), Babcock University (Ilishan-Remo, Ogun State), Caleb University (Imota, Lagos State) and Trinity University (Yaba, Lagos State) selected for their geographical spread and variation in institutional size and ownership structure. The study population comprised 3,743 academic and non-academic staff across the five universities. A sample of 346 respondents was proportionately allocated using $n_i = (N_i/N) \times n$, and a structured questionnaire covering facility condition, adequacy, influencing factors, management strategies and perceived academic performance was administered. Instrument reliability, assessed

with Cronbach's alpha, ranged from 0.663 to 0.924 across constructs, indicating acceptable to very high internal consistency. Because objective, institution-verified records of student academic performance (e.g., cumulative grade point averages) were not accessible across the five universities, academic performance was operationalised as staff perceptions of students' academic performance, captured through structured questionnaire items completed by academic and non-academic staff rather than by students themselves or by independently verified performance records; this proxy measure is revisited in the Limitations section. Table 1 shows the population, sample allocation and valid responses obtained per university; 270 questionnaires were validly completed, an overall response rate of 78.0%. The correlation and regression analyses reported in Section 4.2 were, however, conducted on the subsample of respondents with complete, non-missing data across all study constructs (n = 143); 127 of the 270 valid returns contained missing values on one or more constructs and were excluded listwise. Descriptive statistics summarised respondents' perceptions of facility condition, adequacy, management strategies and influencing factors. Pearson correlation tested the bivariate relationship between each facility management dimension and academic performance, while simple and multiple linear regression, estimated at the 5% significance level, tested their individual and combined predictive contributions.

Table 1: Population, Sample Allocation and Valid Responses by University

University	Staff Population	Sample Allocated
Bowen University	826	76
Covenant University	739	68
Babcock University	1,022	95
Caleb University	923	85
Trinity University	233	22
Total	**3,743**	**346**

Field Survey, 2026

4.0 Results and Discussion

4.1 Respondent Profile and Descriptive Findings

Table: Demographic Profile of Respondents (n = 143)

Characteristic	Category
Gender	Male
	Female
Staff category	Academic staff
	Non-academic staff

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Age (years)	[insert bands, e.g. <30 / 30–39 / 40–49 / 50+]
Years of service	[insert bands]
University	Bowen / Covenant / Babcock / Caleb / Trinity

Field Survey, 2026

Respondents; academic and non-academic staff reporting their perceptions of students' experience, rather than students reporting on themselves indicated a broadly positive perception of the facility–performance relationship: 80.3% agreed that classrooms were well maintained and conducive to learning, 81.2% agreed that good facility management positively affected students' academic performance, and 78.4% agreed that poor facilities impaired students' ability to study and concentrate. On management strategy specifically, 78.0% agreed that predictive and preventive maintenance was used to forestall equipment breakdown, and 78.7% agreed that regular maintenance extended the useful life of facilities — findings consistent with evidence that proactive maintenance is a defining feature of well-functioning facility management systems (Aka et al., 2024).

4.2 Individual and Combined Effects on Academic Performance

Table 2 summarises the bivariate correlation and simple regression results for each facility management dimension. All four dimensions were significantly and positively associated with academic performance, with management strategies showing the strongest individual explanatory power ($R^2 = 0.200$) and condition of facilities the weakest ($R^2 = 0.072$).

Table 2: Individual Relationships between Facility Management Dimensions and Academic Performance

Predictor Variable	r	R^2	β	t	F (df)	p
Condition of facilities	0.267	0.072	0.267	3.296	10.865 (1,141)	0.001
Factors influencing facilities	0.391	0.153	0.391	5.047	25.472 (1,141)	<0.001
Management strategies	0.447	0.200	0.447	5.931	35.180 (1,141)	<0.001
Adequacy of facilities	0.324	0.105	0.324	4.067	16.544 (1,141)	<0.001

The combined multiple regression model (Table 3) was statistically significant, $F(4,138) = 11.756$, $p < 0.001$, explaining 25.4% of the variance in academic performance (adjusted $R^2 = 0.233$). However, only management strategies ($\beta = 0.391$, $p = 0.001$) and factors influencing facilities ($\beta = 0.255$, $p = 0.002$) remained significant independent predictors once all four variables were considered jointly; condition and adequacy of facilities lost statistical significance in the combined model.

Table 3: Combined Regression Model of Facility Management Dimensions on Academic Performance

Variable	B	β	t	p
Constant	28.251	—	—	—
Condition of facilities	0.021	0.023	0.24	0.812
Adequacy of facilities	−0.082	−0.082	−0.67	0.505
Management strategies	0.500	0.391	3.36	0.001
Factors influencing facilities	0.268	0.255	3.15	0.002

Note. t-values for the predictor variables were derived from the reported p-values and residual degrees of freedom (df = 138) and should be cross-checked against the original SPSS output before final submission.

Given the moderate-to-strong intercorrelations among the four facility management dimensions (Section 4.2) and the sign reversal observed for adequacy of facilities in the combined model, multicollinearity diagnostics were examined for the regression model.

4.3 Discussion

These results indicate that the effectiveness of facility management, rather than the physical availability of facilities alone, is the stronger determinant of staff-perceived students' academic performance — a pattern consistent with evidence that reactive, poorly managed facility systems in Nigerian public universities underperform relative to more proactive private-sector approaches (Odediran et al., 2015). That condition and adequacy remained significant individually but not in the combined model suggests that well-provisioned or well-built facilities do not, by themselves, sustain academic benefit unless matched by sound institutional management, echoing case evidence from Covenant University that structured facility management practice, not infrastructure alone, generates measurable institutional benefit (Fadahunsi et al., 2019).

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The sign reversal of adequacy of facilities in the combined model warrants particular comment. At the bivariate level, adequacy was a positive and significant predictor of academic performance ($r = 0.324$, $p < 0.001$); once entered alongside management strategies and factors influencing facilities, however, its coefficient turned negative and lost significance ($B = -0.082$, $p = 0.505$). This pattern is characteristic of a suppression effect: adequacy of facilities shares substantial common variance with management strategies and institutional factors, so that once those variables are controlled for, the residual (unique) association of adequacy with performance is weak and imprecisely estimated rather than genuinely negative. The finding should not be read as evidence that facility adequacy harms academic performance; rather, it indicates that adequacy operates on performance largely through, or in conjunction with, effective management, and that its apparent bivariate effect is substantially attenuated once management-related variables are accounted for. This interpretation is consistent with the study's overall conclusion that effective management, rather than mere physical sufficiency, is the more proximate determinant of outcomes, and it reinforces the case for reporting collinearity diagnostics (see the note on multicollinearity below) so that the extent of shared variance among predictors can be quantified rather than inferred.

The dominance of management strategies and institutional factors is consistent with the Systems Theory framework adopted for this study: academic performance emerges from the interaction of several interdependent components; facilities, funding, leadership, policy and maintenance culture rather than from any single resource in isolation (Bertalanffy, 1968). This reinforces the argument that Nigerian private universities should treat facility management as a strategic institutional function, in line with international best practice (Atkin & Brooks, 2021), rather than as an incidental maintenance activity.

5.0 Conclusion and Recommendations

This study examined the influence of facility condition, adequacy, management strategies and influencing factors on staff perceptions of students' academic performance in five private universities in South-West Nigeria. All four dimensions were significant individual predictors, but only management strategies and institutional factors influencing facilities retained significant independent effects once considered jointly. The study concludes that the effective management and maintenance of educational facilities, more than their mere physical provision, is central to sustaining students' academic performance as perceived by staff, and recommends the following:

Private university management should prioritise preventive and predictive maintenance, regular inspection and condition monitoring over reactive, breakdown-driven maintenance

Universities should strengthen the institutional factors shaping facility management — dedicated funding, clear policies and a stronger maintenance culture identified as decisive to facility management outcomes

Dedicated, professionally staffed facility management units should be established or strengthened to coordinate maintenance, space and asset management, following practice already demonstrated to be beneficial at Covenant University.

Continuous renewal of existing facilities should be prioritised alongside new infrastructure development, since facility adequacy alone does not guarantee improved academic outcomes

Technology-supported maintenance records and digital asset registers should be adopted to improve monitoring and decision-making in facility management.

6.0 Limitations of the Study

This study is subject to several limitations. First, the cross-sectional design captures relationships at a single point in time and does not support causal inference; the observed associations between facility management dimensions and academic performance should be interpreted as correlational. Second, academic performance was operationalised as staff perceptions rather than as objective, independently verified performance indicators (e.g., cumulative grade point averages or graduation outcomes); staff perceptions, however well-informed, may not fully correspond to students' actual academic outcomes, and this proxy measure should be borne in mind when interpreting the findings. Third, the study surveyed academic and non-academic staff only; students themselves, who directly experience both the facilities and their own academic performance, were not sampled, and their perspective may differ from that of staff. Fourth, all constructs were measured via self-report on a single instrument, raising the possibility of common method variance/bias. Fifth, the analytic sample for the correlation and regression analyses (n = 143) was smaller than the total valid returns (n = 270) owing to listwise deletion of cases with missing data; although this is a standard procedure, it reduces statistical power and, if missingness is not random, could bias the estimated relationships. Finally, the study was confined to five private universities in South-West Nigeria, so the findings may not generalise to public universities, to private universities in other regions, or to institutions of different size and resource profiles.

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