

# Assessment Of Occupant Compliance with Landscape Design in Lekki Business School

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*Abstract- Occupant compliance with campus landscapes remains a critical concern in higher education because the long-term performance of designed outdoor spaces depends not only on their physical quality but also on how users understand, respect, and sustain them. This study assessed the extent of occupant compliance with landscape design at Lekki Business School (LBS), Lagos State, with emphasis on desire-line formation, user-group variations, and institutional drivers of non-compliance. A convergent mixed-methods design was adopted using a pre-tested structured questionnaire administered to 265 respondents, systematic direct observation across eight landscaped zones, and semi-structured interviews with five key informants. Data were analysed using descriptive statistics, thematic analysis, and a Compliance Index derived from mean Likert-scale scores. The findings indicate a moderate overall compliance level (mean index = 3.30/5.00), with passive compliance behaviours scoring higher than active stewardship behaviours. Academic staff recorded the highest compliance index, while visitors recorded the lowest, suggesting that institutional familiarity and place attachment influence compliance behaviour. Weak enforcement, inadequate signage, poor pathway alignment, and insufficient environmental orientation emerged as the major drivers of non-compliance. The study concludes that landscape non-compliance at LBS is driven more by institutional and design deficiencies than by deliberate occupant misconduct. It recommends design rectification, stronger communication systems, formal policy enforcement, participatory stewardship, and periodic post-occupancy evaluation. The Compliance Index advanced in this study also offers a practical and replicable tool for similar assessments in Nigerian and West African higher education institutions.*

*Index Terms- Campus design; Environmental behaviour; Landscape compliance; Nigerian universities; Place attachment; post-occupancy evaluation*

## I. INTRODUCTION

Campus landscapes perform ecological, aesthetic, social, and psychological functions that extend beyond visual enhancement. Well-designed outdoor environments improve campus liveability, support wellbeing, strengthen institutional identity, and contribute to broader sustainability goals. In Nigerian higher education settings, however, a recurring gap exists between planned landscape intentions and actual patterns of use and maintenance. This disconnect is often expressed through behaviours such as trampling, littering, informal shortcut creation, and misuse of planted areas.

Lekki Business School (LBS), a private tertiary institution situated along the Lekki-Ajah corridor of Lagos State, presents an important case for investigating this problem. The institution has invested in entrance gardens, tree-lined walkways, courtyards, lawn spaces, parking buffers, and other designed outdoor elements intended to enhance environmental quality and campus image. Yet preliminary observations suggested that several of these spaces were being undermined by daily user practices that conflict with their intended design logic.

Studies on the Nigerian built environment increasingly show that sustainable architectural and landscape outcomes depend on the interaction between design intent, environmental quality, and user behaviour. Ogunnaike, Ahmed, Oketayo, and Ademakinwa (2025) emphasised that sustainability in Nigeria's built environment requires integrated design, maintenance consciousness, and behavioural responsiveness. Similarly, Adeyemi, Ademakinwa, and Adeyemi (2024) demonstrated that the quality of residential and physical environments can shape

students' academic deliverables, while Adeyemi, Adejumo, Iweka, Adeyemi, and Ademakinwa (2024) showed that environmental quality in Lekki residential estates is closely linked to user experience and management effectiveness. In an institutional context, Ademakinwa, Onamade, Adewumi, Adenubi, and Alagbe (2024) also established that accommodation quality significantly affects job performance at Caleb University, reinforcing the broader proposition that environmental conditions influence human behaviour and institutional outcomes.

Despite these contributions, three gaps remain evident. First, there is limited evidence on how occupant compliance with landscape design can be systematically evaluated in private tertiary institutions in Nigeria. Second, existing studies pay greater attention to physical condition and performance than to behavioural conformity with designed outdoor spaces. Third, theoretical perspectives such as place attachment and the Theory of Planned Behaviour remain under-applied in studies of campus landscape compliance in Lagos-based private institutions.

### 1.1 Problem Statement

At LBS, landscaped spaces are intended to support circulation, recreation, ecological enhancement, and institutional image. However, observable behaviours such as shortcutting across lawns, indiscriminate waste disposal, vehicle encroachment on green buffers, and trampling of planted beds suggest that many users do not consistently comply with design intentions. These actions diminish environmental quality, increase maintenance costs, and weaken the functional performance of campus landscapes. In the absence of an evidence-based audit framework, the institution lacks clear empirical guidance for diagnosing the extent, pattern, and causes of non-compliance.

### 1.2 Research Objectives

The objectives of this study are to:  
analyse occupant compliance with existing landscape design at LBS;  
identify the principal behavioural and institutional drivers of non-compliance; and

develop evidence-based recommendations for improving compliance and landscape stewardship.

## II. LITERATURE REVIEW

### 2.1 Landscape Design in Educational Institutions

Campus landscape design is increasingly understood as a multidimensional system that supports ecological regulation, social interaction, psychological restoration, and institutional identity. In educational institutions, outdoor spaces also shape everyday movement patterns and mediate the quality of users' environmental experience. Evidence from Nigerian higher education further suggests that physical and housing environments can influence student outcomes and institutional performance (Adeyemi et al., 2024).

Within the Nigerian built environment, sustainable design is no longer limited to building form alone; it also includes site planning, landscape integration, and management systems that improve long-term environmental performance. Ogunnaike et al. (2025) argued that the incorporation of green spaces and context-responsive design measures is central to sustainable architecture in Nigeria. In a related context, Adeyemi et al. (2024) found that environmental quality in public residential estates in Lekki significantly affects user experience, reinforcing the importance of functional and well-managed landscapes in high-density urban settings.

These studies suggest that outdoor environments in institutional settings should be evaluated not only in terms of design provision but also in terms of actual user interaction. This is especially relevant for private tertiary institutions, where environmental branding and campus image often form part of institutional competitiveness. The present study therefore treats compliance as an essential dimension of landscape performance.

### 2.2 Conceptual Framework

The conceptual The conceptual framework for this study links three sets of antecedent variables to occupant compliance outcomes. The first set comprises demographic factors such as tenure, occupant category, and level of institutional familiarity. The second includes environmental

design features such as pathway alignment, landscape visibility, maintenance quality, and the provision of signage and waste-disposal infrastructure. The third comprises contextual and institutional variables, including enforcement strength, orientation practices, and stewardship culture. These variables interact through mediating mechanisms such as perceived behavioural control, place attachment, and visible maintenance signalling to produce varying levels of compliance, stewardship behaviour, and landscape performance.

## 2.3 Theoretical Frameworks

### 2.3.1 Theory of Planned Behaviour

The Theory of Planned Behaviour explains behaviour as a product of intention, while intention is shaped by attitude, subjective norms, and perceived behavioural control. In the context of campus landscapes, the theory is useful for explaining why users may avoid obvious destructive acts yet fail to engage in active stewardship. Where occupants perceive compliance actions as easy, socially expected, and meaningful, adherence increases; where rules are unclear or enforcement is weak, active stewardship declines.

This perspective aligns with emerging scholarship on environmental behaviour in institutional settings and supports the argument that communication, orientation, and policy structure influence compliance outcomes. In this study, the theory helps explain why respondents scored relatively high on passive behaviours such as avoiding littering but much lower on active actions such as reporting damage or discouraging peers.

### 2.3.2 Place Attachment Theory

Place Attachment Theory posits that emotional, symbolic, and functional bonds with a setting increase the likelihood of responsible and protective behaviour. Users who spend more time in a place and identify with it are generally more likely to protect its resources and comply with environmental rules. This position is supported by studies showing that attachment mediates pro-environmental behaviour and stewardship tendencies.

In the present study, the theory is relevant to differences among occupant groups. Staff members, especially academic staff, are more likely to have

stronger institutional attachment than visitors and recently admitted students. This provides a plausible explanation for the compliance gradient observed across user categories.

### 2.3.3 Broken Windows Theory

Broken Windows Theory proposes that visible signs of neglect, disorder, and poor maintenance communicate tolerance for deviant behaviour and thereby encourage further non-compliance. Applied to campus landscapes, the theory suggests that degraded lawns, missing plants, litter accumulation, and poorly repaired edges may normalise further misuse of outdoor spaces.

The theory is especially useful in explaining spatial differences in compliance at LBS. More visible and monitored spaces performed better than peripheral or weakly maintained zones, suggesting that visible stewardship can itself function as a behavioural control signal.

## 2.4 Drivers of Non-Compliance

The literature identifies several factors that commonly drive non-compliance in designed outdoor environments. One major factor is pathway misalignment: when formal circulation routes fail to reflect actual pedestrian desire lines, users often create informal shortcuts across grassed areas. Another is inadequate communication, especially where signage is sparse, poorly located, or overly prohibitive rather than instructive.

Institutional factors are equally important. Weak enforcement, absence of induction-based environmental orientation, poor waste-disposal infrastructure, and limited opportunities for participatory stewardship can all reduce compliance. The broader Nigerian literature also suggests that the quality of institutional and residential environments affects user behaviour and productivity outcomes (Ademakinwa et al. (2024)). Accordingly, this study examines non-compliance not as a purely moral issue but as an outcome shaped by design responsiveness, management structure, and user-place relationships.

### III. METHODOLOGY

#### 3.1 Research Design

The study adopted a convergent mixed-methods design combining quantitative and qualitative techniques. Structured questionnaires provided measurable data on awareness and self-reported compliance behaviour, while direct observation and semi-structured interviews generated contextual evidence on actual practices and institutional drivers. This approach is suitable for post-occupancy evaluation because it enables triangulation between what users say, what researchers observe, and how institutional actors interpret landscape-related behaviour.

#### 3.2 Study Area

Lekki Business School is a private tertiary institution located within the Lekki corridor of Lagos State. The campus landscape includes entrance ornamental gardens, shaded walkways, recreational lawns, planted courtyards, perimeter planting, parking buffers, seating areas, and limited signage infrastructure. The location is characterised by intensive urban development and high demand for well-managed institutional outdoor environments.

#### 3.3 Sampling

The regular campus population was estimated at about 850 persons. Using Yamane's formula with a 5 percent margin of error, a sample size of approximately 265 was derived. Stratified random sampling was used to ensure representation across students, academic staff, non-academic staff, and regular visitors.

Table 1: Stratified Sample Distribution

Occupant Category	Estimated Population	Sample Allocated
Students	600	192
Academic Staff	120	38
Non-academic Staff	60	20

Regular Visitors	70	22
Total	850	272

#### 3.4 Data Collection

Three instruments were employed. First, a validated self-administered questionnaire captured demographic information, awareness of landscape rules, and self-reported compliance behaviours using a 5-point Likert format. Second, a systematic observation checklist documented the physical condition of landscape elements and the occurrence of non-compliant behaviours across eight zones over three consecutive weekdays during working hours. Third, semi-structured interviews were conducted with five key informants comprising the facilities manager, landscape maintenance staff, and senior occupants.

Two academic supervisors and one practising landscape professional reviewed the instruments for content validity. A pilot test involving 20 participants produced a Cronbach's alpha of 0.83, indicating acceptable internal consistency.

#### 3.5 Data Analysis

Quantitative data were analysed using frequencies, percentages, means, and standard deviations. A Compliance Index was computed as the mean of relevant item scores for each user category and landscape zone. Qualitative data from interviews and observations were coded thematically and interpreted in relation to the theoretical framework and research objectives.

#### 3.6 Ethical Considerations

Participation was voluntary and informed consent was obtained from all questionnaire and interview respondents. No personally identifiable data were collected. Institutional approval was obtained for the observation component, and all data were used strictly for academic purposes.

IV. RESULTS

4.1 Response Rate and Demographics

Of the 272 questionnaires distributed, 265 were returned in usable form, giving a response rate of 97.4 percent. Students constituted 70.2 percent of respondents, academic staff 14.3 percent, non-academic staff 10.2 percent, and visitors 5.3 percent. About 57 percent of respondents had been associated with the institution for less than two years, a pattern that is analytically relevant in view of the role of institutional familiarity in shaping place attachment.

4.2 Landscape Condition Assessment

The condition assessment of eight landscape features shows a clear spatial pattern. Enclosed and monitored zones performed better than high-traffic peripheral areas, while signage was markedly inadequate.

For clarity, compliance classifications were interpreted as follows: 4.50–5.00 = Very Good; 3.50–4.49 = Good; 2.50–3.49 = Moderate; 1.50–2.49 = Poor; and 1.00–1.49 = Very Poor.

Table 2: Landscape Elements—Design Intent versus Observed Condition

Landscape Element	Design Intent	Observed Condition	Compliance Level
Entrance ornamental garden	Decorative display; institutional identity	Partially degraded, with some missing plants	Moderate
Tree-lined walkways	Shaded pedestrian circulation	Generally maintained; intermittent litter	Good
Recreational lawn areas	Relaxation and social interaction	Heavily worn; visible desire lines	Poor
Planted	Aesthetic	Trampling,	Poor

courtyards	and ecological function	dumping, soil disturbance	
Perimeter boundary planting	Security, privacy, aesthetics	Irregular maintenance; patchy condition	Moderate
Parking landscape buffers	Visual screening; ecological transition	Significant vehicle encroachment	Poor
Seating and recreational zones	Designated social and rest spaces	Generally used appropriately	Good
Landscape signage	Occupant guidance	Critically insufficient across campus	Very Poor

4.3 Occupant Awareness

Occupant awareness of landscape rules and procedures was generally low. The weakest area was induction-based orientation, indicating that many users join the institution without formal guidance on expected landscape behaviour.

Table 3: Awareness Indicators (Mean Scores, 1–5 Scale)

Awareness Indicator	Mean Score	Interpretation
General awareness of landscape rules	2.97	Low
Clarity and adequacy of signage	2.55	Low
Landscape orientation received at induction	2.33	Very Low
Perceived ease of	3.15	Moderate

understanding rules		
Knowledge of consequences of non-compliance	2.41	Low

#### 4.4 Self-Reported Compliance Behaviour

The overall mean compliance score was 3.18/5.00, indicating moderate compliance. A strong passive-active split was evident: occupants more readily refrained from damaging landscapes than they engaged in active stewardship or peer correction.

Table 4: Self-Reported Compliance Behaviour (Mean Scores, 1–5 Scale)

Compliance Behaviour	Mean Score
Use designated pathways rather than shortcuts	3.48
Dispose of waste in designated outdoor bins	3.61
Avoid damaging or removing ornamental plants	3.93
Report observed landscape damage to authorities	2.38
Park vehicles only in designated areas	3.75
Avoid littering in green spaces	3.85
Actively care for or water plants	2.13
Discourage non-compliant behaviour by peers	2.30
Overall Mean Compliance Score	3.18

#### 4.5 Observed Non-Compliant Behaviours

Observed behaviours confirmed that desire-line formation was the most frequent form of non-compliance. Littering, waste dumping, and parking on planted buffers also occurred repeatedly,

indicating that several problems were embedded in everyday campus routines rather than isolated incidents.

Table 5: Observed Non-Compliant Behaviours—Frequency and Severity

Non-Compliant Behaviour	Location	Observed Frequency	Severity Rating
Desire line formation (shortcutting)	Recreational lawns	Very High	Moderate
Littering in planted areas	Walkways; courtyards	High	Moderate
Vehicle parking on planted buffer zones	Parking landscape buffers	Moderate–High	High
Informal waste dumping in planted beds	Planted courtyards	Moderate	High
Trampling of planted courtyard beds	Planted courtyards	Moderate	Moderate

#### 4.6 Drivers of Non-Compliance

The ranking of perceived drivers indicates that weak enforcement and insufficient signage were the two strongest explanations for non-compliance. Inadequate waste-disposal facilities and poorly aligned pathways also ranked highly, supporting the view that institutional and design issues matter more than deliberate occupant hostility to landscape rules.

Table 6: Perceived Drivers of Non-Compliance  
 (Mean Scores, 1–5 Scale)

Driver	Mean Score	Rank
Weak institutional enforcement of landscape rules	3.93	1st
Insufficient and poorly positioned signage	3.89	2nd
Inadequate waste disposal infrastructure	3.87	3rd
Poorly located pathways/inconvenient routing	3.82	4th
Low general environmental compliance culture	3.79	5th
Lack of awareness of specific landscape rules	3.75	6th
Insufficient sense of campus ownership	3.64	7th
Absence of landscape orientation at induction	3.58	8th

#### 4.7 Compliance Index by Occupant Category

The compliance gradient across user groups was pronounced. Academic staff recorded the highest compliance level, followed by non-academic staff, students, and visitors, reinforcing the argument that attachment, familiarity, and institutional exposure affect behavioural conformity.

Table 7: Compliance Index by Occupant Category

Occupant Category	Mean Compliance Index	Classification	Primary Driver
Academic Staff	3.84	Good	Strong place attachment ; longer

			tenure
Non-academic Staff	3.71	Good	Institutional familiarity; daily presence
Students	3.18	Moderate	Moderate attachment ; awareness gaps
Visitors	2.89	Moderate	Weak attachment ; no rule exposure
Campus Overall	3.30	Moderate	—

## V. DISCUSSION

The findings indicate that landscape non-compliance at LBS is best understood as a product of interaction between user behaviour, institutional systems, and physical design. The moderate overall Compliance Index, together with the strong passive-active split, supports the argument of the Theory of Planned Behaviour that users are more likely to perform actions they perceive as simple and socially expected than those requiring initiative, reporting, or social intervention. In this case, occupants generally avoided obvious damage but showed limited willingness to engage in stewardship-oriented conduct.

The compliance gradient across occupant categories also lends support to Place Attachment Theory. Academic and non-academic staff, who have greater daily presence and stronger institutional familiarity, recorded higher compliance levels than students and visitors. This pattern resonates with wider Nigerian evidence showing that the quality of institutional and residential environments affects occupants' performance, attachment, and behavioural outcomes

(Ademakinwa et al., 2024; Adeyemi et al., 2024). The high proportion of short-tenure respondents further helps explain why overall compliance remained moderate rather than high.

The landscape condition assessment additionally reflects the relevance of Broken Windows Theory. Spaces that were visible, monitored, and apparently cared for performed better than peripheral or weakly maintained spaces. The prevalence of desire lines also suggests that some acts of non-compliance are adaptive responses to inconvenient design rather than pure indiscipline. This aligns with the broader sustainable design position that user-responsive planning and management are central to environmental performance in Nigeria's built environment (Ogunnaike et al., 2025).

These findings have practical implications beyond LBS. They suggest that universities should not frame all landscape misuse as moral failure on the part of occupants. Instead, institutions should understand compliance as a performance issue shaped by communication quality, environmental infrastructure, maintenance visibility, and the degree to which users identify with campus spaces.

#### 5.1 Limitations of the Study

The study was limited to one private tertiary institution, which constrains broad generalisation. The observation exercise was conducted over three consecutive weekdays and therefore may not fully capture weekend patterns or seasonal variation in landscape use. In addition, self-reported behavioural data may be affected by social desirability bias.

### VI. CONCLUSION

this study provided an evidence-based assessment of occupant compliance with landscape design at Lekki Business School. The results show that overall compliance is moderate and that institutional shortcomings in communication, orientation, enforcement, and design responsiveness are more influential than deliberate user misconduct. The study also demonstrates that compliance varies by occupant category, with stronger institutional attachment corresponding to better behavioural outcomes.

Beyond its contribution to the LBS context, the study extends discourse on landscape performance in Nigerian higher education by linking sustainable design, environmental quality, and user behaviour within a post-occupancy evaluation framework. The Compliance Index developed here offers a practical instrument that can be adapted by other institutions seeking to evaluate and improve campus landscape stewardship.

### VII. RECOMMENDATIONS

#### 7.1 Design Interventions

Formalise persistent desire lines into legitimate walkways where repeated movement patterns clearly indicate routing mismatch.

Increase the number and strategic placement of outdoor waste bins in high-traffic areas.

Protect vulnerable planted areas with low barriers, edging, hedges, or other unobtrusive defensive measures.

Reinforce parking landscape buffers with bollards and robust planting to reduce vehicular encroachment.

#### 7.2 Signage and Communication

Implement a coordinated campus-wide landscape signage system with clear, explanatory, and behaviour-guiding messages.

Introduce compulsory landscape orientation during induction for all newly admitted students, staff, and frequent service users.

Use periodic awareness campaigns to communicate the ecological and institutional value of campus landscapes.

#### 7.3 Policy and Enforcement

Develop a formal Campus Landscape Use Policy specifying acceptable practices, sanctions for deliberate damage, and enforcement responsibilities.

Create a student-based landscape ambassador scheme to model compliance and influence peers.

Prioritise rapid and visible maintenance responses to damaged landscape elements in order to signal institutional care and discourage further misuse.

#### 7.4 Community Building

Organise periodic stewardship activities such as campus planting days, environmental clean-up exercises, and landscape appreciation programmes.

Establish a Campus Environment Committee with representation from management, staff, and students.

Promote participatory management practices that help users develop a stronger sense of ownership over outdoor spaces.

#### 6.5 Monitoring and Evaluation

Institutionalise annual post-occupancy evaluation of campus landscapes using the Compliance Index developed in this study.

Introduce a monthly Landscape Condition Index to support maintenance prioritisation.

Use periodic behavioural audits to monitor whether interventions improve compliance over time.

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