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The Role of Landscape Design in Pedestrian Movement within the Caleb University Campus, Imota, Lagos State

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ABSTRACT

This study examines the role of landscape design in shaping pedestrian movement within the Caleb University campus, Imota, Lagos State. The campus presents observable evidence of landscape design deficiency across its principal pedestrian zones: fragmentary pathway provision, widespread desire line formation, progressive paving failure, open drainage channel deterioration, absent shade along key routes, and surface root uplift caused by unmanaged tree growth through paved areas. These conditions directly impede safe, comfortable, and efficient pedestrian movement. The research adopts a descriptive-analytical qualitative methodology employing structured physical site observation, behavioural mapping, and systematic photographic documentation across six identified route segments. Findings are interpreted against the literature on landscape design, walkability, outdoor thermal comfort, and pedestrian behaviour in Nigerian university campus environments (Atolagbe et al., 2025; Odeyale, 2022; Adebara et al., 2022). The study finds that pedestrian movement is largely reactive and informal, governed by design failure rather than by intentional landscape planning. Recommendations address pathway formalisation, drainage rehabilitation, shade planting, surface repair, and the adoption of an integrated campus landscape framework.

Keywords: Campus walkability, Caleb University, Drainage failure, Lagos state, Landscape design, Pedestrian movement

INTRODUCTION

The outdoor pedestrian environment of a university campus is not merely the space between buildings — it is the primary functional infrastructure through which students, staff, and visitors navigate academic life. The quality of this environment, as determined by landscape design decisions concerning pathway layout, surface materials, drainage, vegetation, and spatial organisation, directly shapes the comfort, safety, efficiency, and environmental quality of daily campus movement. In tropical university campuses such as Caleb University, Imota, Lagos State, these landscape design decisions carry heightened functional significance due to the combined demands of intense solar radiation, high rainfall, and seasonal dust on outdoor pedestrian surfaces.

Atolagbe, Amao, and Ijiyode (2025), in a study of landscape design features across five south-western Nigerian university campuses including Ladoke Akintola University of Technology (LAUTECH), found that poor drainage, inadequate shading, and limited recreational amenities were the primary factors negatively affecting student satisfaction and overall landscape performance. Their findings directly parallel conditions observable at Caleb University, where a combination of paving failure, drainage channel deterioration, absent shade canopy on key routes, and unchecked desire line formation across unpaved surfaces constitutes a systemic landscape design deficit. Similarly, Odeyale (2022), drawing on post-occupancy evaluations at six federal universities in south-western Nigeria, identified legibility and coherence of pedestrian sidewalks as the highest cognitive satisfaction factors for campus users — a standard that the current Caleb University landscape falls significantly short of.

This study responds to the specific, observable conditions of the Caleb University campus as documented through systematic site observation and photographic evidence. It evaluates the influence of existing landscape elements — or their absence — on pedestrian movement patterns, identifies the most critical zones of landscape failure, and develops recommendations grounded in both the physical evidence collected and the broader Nigerian campus landscape literature. Adebara, Adebara, and Badiora (2022), in

their study of informal open space use in a Nigerian university town context, demonstrated that pedestrian congestion and landscape degradation are directly linked to inadequate formal route provision — a relationship that this study confirms at the level of a single campus.

While existing Nigerian studies address landscape design in university hostels (Atolagbe et al., 2025), post-occupancy satisfaction with sidewalks (Odeyale, 2022), and informal pedestrian behavior in university towns (Adebara et al., 2022), a critical research gap persists in the systematic, site-specific evaluation of landscape deficiencies directly impacting pedestrian movement patterns at private university campuses like Caleb University. Recent works emphasize circulation design (Ogunnaike et al., 2025) and housing-environment links to academic performance (Adeyemi et al., 2024; Ademakinwa et al., 2024), yet none apply behavioral mapping and photographic documentation to quantify desire line formation, drainage failure, and shade deficits across defined campus route segments in a tropical Lagos context. This study fills this void by providing empirical, evidence-based analysis of Caleb University's pedestrian landscape failures—uniquely positioned as a developing private institution—offering actionable design interventions grounded in observable field conditions rather than generalized surveys

Aim and Objectives

The aim of this study is to evaluate the role of landscape design in shaping pedestrian movement at Caleb University, Imota, Lagos State, and to propose evidence-based landscape design interventions to address the observed deficiencies.

The specific objectives are:

1. To document existing landscape conditions and pedestrian movement patterns across six primary route segments of the Caleb University campus through systematic site observation, behavioural mapping, and photographic documentation.
2. To assess the influence of specific landscape elements — pathway surface condition, paving integrity, drainage performance, shade provision, spatial legibility, and desire line formation — on pedestrian route choice and walking comfort.
3. To identify priority zones of landscape failure where design deficiencies most critically compromise pedestrian safety, comfort, and environmental quality.
4. To develop implementable, context-appropriate landscape design recommendations that address the observed deficiencies within the resource constraints of a developing Nigerian private university.

Scope

The study focuses on the outdoor pedestrian landscape of the Caleb University campus, covering six identified route segments between the campus gate, academic buildings, COLENSMA block, hostels, and the chapel. Vehicular circulation, parking, and building interiors are excluded. The study is cross-sectional, reflecting conditions documented during the Harmattan dry season of early 2026.

LITERATURE REVIEW

Landscape Design and Campus Pedestrian Environments in Nigeria

The relationship between landscape design and the quality of pedestrian movement in Nigerian university campuses has received increasing scholarly attention in recent years, though significant gaps in the empirical literature remain. Atolagbe, Amao, and Ijiyode (2025) conducted a quantitative study of landscape design features in postgraduate hostel environments across five south-western Nigerian universities, finding that green spaces and informal gathering zones were the most valued landscape features by students, while poor drainage, inadequate shading, and limited recreational amenities were the primary sources of dissatisfaction. Similarly, Adeyemi et al. (2024) demonstrated at Federal University of Technology, Akure, that housing quality—including outdoor circulation spaces—stimulates students' academic performance, underscoring the need for integrated pedestrian environments in campus design. Critically, their study found that these negative factors were not merely aesthetic concerns but active deterrents to outdoor space use, reducing the social and academic functions that well-designed campus landscapes ought to support. The study concluded that landscape design in Nigerian university environments is a crucial contributor to student wellbeing and community building, and recommended the

intentional integration of climate-responsive and socially engaging landscape features—a recommendation directly applicable to the conditions documented at Caleb University.

Odeyale (2022), drawing on post-occupancy evaluation data from 3,016 users across six federal universities in south-west Nigeria, established that coherence and legibility are the most significant cognitive satisfaction factors for campus pedestrian sidewalks. This aligns with Ademakinwa et al. (2024), who found at Caleb University that accommodation quality directly impacts job performance among staff and students, with outdoor movement spaces as a key mediator. His study found that female users disproportionately avoid campus outdoor spaces due to safety concerns and exposure to inclement weather—findings that highlight the inequitable consequences of landscape design failure. The toolkit of design interventions Odeyale proposed—including covered walkways, improved path surfacing, shade planting, and the formalisation of pedestrian routes—maps closely onto the intervention priorities identified by this study's field documentation at Caleb University.

Adebara, Adebara, and Badiora (2022), in a study of informal pedestrian movement along residential streets in a Nigerian university town context (Obafemi Awolowo University, Ile-Ife), found that traffic and pedestrian congestion, aesthetic degradation, and increased travel time were the most significant consequences of inadequate formal route provision, with a Land-use Problem Occurrence Index (LPOI) of 4.17 recorded for pedestrian congestion. Echoing this, Ogunnaike et al. (2025) advocate rethinking circulation design in sustainable architecture to enhance spatial flow, directly relevant to campus pathway legibility and desire line mitigation. Their finding that informal pedestrian behaviour is a direct spatial response to formal provision failure supports the analytical framework applied in this study, in which the desire lines and surface degradation documented at Caleb University are interpreted not as user non-compliance but as a structural consequence of landscape design deficiency.

Walkability, Thermal Comfort, and Drainage in Tropical Contexts

In tropical campus environments such as Lagos State, outdoor thermal comfort is a primary determinant of pedestrian route preference and overall walkability. Adunola (2014) established that canopy cover of at least 50% is necessary for outdoor pedestrian spaces in Nigeria to reach thermally acceptable conditions during peak hours. Vegetative elements like green roofs, as explored by Adokiye et al. (2025), could complement shade provision by aiding urban air filtration and microclimate moderation in high-use campus zones. The photographic evidence from this study shows that the principal entry corridor and several inter-building routes at Caleb University fall far below this threshold, with young trees too immature to provide meaningful shade, exposing pedestrians to full solar radiation during the hours of highest academic activity. This condition is consistent with the findings of Atolagbe et al. (2025), who identified inadequate shading as one of the three most significant landscape performance deficits at Nigerian university campuses. Furthermore, Adeyemi et al. (2024b) assessed environmental quality in Lekki Peninsula estates, revealing parallels in drainage and vegetation shortcomings that exacerbate pedestrian discomfort in Lagos contexts.

Drainage management is equally critical in the Lagos State tropical climate, where annual rainfall of approximately 1,600–1,900mm falls predominantly in high-intensity convective events. The deterioration of drainage channels alongside pedestrian routes—as documented photographically in this study along the principal stepped pathway beside the academic buildings—directly accelerates surface degradation, paving failure, and erosion, creating conditions that are both physically hazardous and environmentally destructive. Adeyemi (2013) identified waterlogging and mud accumulation as among the most significant deterrents to walking in West African cities, a finding borne out by the stagnant water and crumbling channel infrastructure documented at Caleb University.

Southworth (2005) and Pikora et al. (2003) established path continuity, surface condition, and directness as the primary physical determinants of pedestrian route preference. Where formal paths are fragmented, degraded, or misaligned with users' natural movement trajectories, desire lines form as a predictable behavioural response. The desire line documented beside the COLENSMA building at Caleb University—a bare laterite track cut diagonally across a planted area, connecting the building corner directly to the car park—illustrates this mechanism precisely and represents a clear signal that the formal path network fails to serve the actual movement needs of building users at that location.

RESEARCH METHOD

This study adopts a descriptive-analytical qualitative research design. The primary data collection methods are structured physical site observation, behavioural mapping, and systematic photographic documentation, applied across six identified route segments of the Caleb University campus. The study is grounded in an interpretivist philosophical orientation, seeking a detailed, spatially specific understanding of landscape conditions and their effects on pedestrian movement at a particular institution.

Site Observation

Structured observations were conducted across multiple visits to the campus during the dry season (Harmattan period, early 2026), covering morning peak movement periods (7:30–9:00am) and midday periods (12:00–2:00pm). A standardised protocol assessed the following variables at each route segment: pathway surface condition and integrity; paving continuity and fragmentation; edge definition and kerb condition; drainage channel condition and performance; shade canopy coverage; desire line presence, width, and depth; erosion and soil exposure; spatial organisation and legibility; and seating or rest facility availability. Ratings were applied on a three-point scale: Adequate (A), Partially Adequate (PA), and Inadequate (I).

Behavioural Mapping

Place-centred behavioural mapping was conducted at four key nodes — the main entry corridor, the COLENSMA building approach, the inter-building academic core paths, and the stepped pathway beside the academic buildings — recording the routes of observed pedestrians on a scaled campus base map during 30-minute observation sessions. Individual tracking of 15 journeys per route segment recorded the precise points at which pedestrians deviated from formal paths onto informal surfaces. Results were compiled into a composite movement map identifying high-use informal routes and their relationship to formal path provision.

Photographic Documentation

Systematic photographic documentation was conducted at all thirteen observation locations across the six route segments, following a standardised protocol: wide-angle contextual shots; close-up surface condition photographs; desire line and erosion documentation; drainage condition images; shade assessment photographs at peak solar hours; and structural failure close-ups. All photographs were GPS-tagged and organised into a structured archive cross-referenced with field observation notes.

RESULTS AND DISCUSSION

The findings of this study are organised by the principal landscape conditions documented across the six assessed route segments, supported by direct photographic evidence. The analysis draws on the literature reviewed in Section 2 to interpret the significance and implications of each observed condition.

Main Entry Corridor — Pathway Condition and Shade Deficiency

The main entry corridor — connecting the campus gate to the central academic zone — is the busiest single pedestrian route on the campus. The corridor is surfaced with interlocking concrete block paving and presents a generally intact surface structure. However, the corridor is characterised by a near-total absence of shade canopy. The trees planted along both sides of the path are young and immature, providing no meaningful overhead shade cover during peak solar hours.

The surrounding ground is dry, sparse grass with low vegetation density, confirming the Harmattan-period conditions of the observation. This condition directly contravenes Adunola's (2014) benchmark of 50% canopy cover for thermally acceptable tropical pedestrian environments, and is consistent with Atolagbe et al.'s (2025) finding that inadequate shading is a primary landscape performance deficit at south-western Nigerian university campuses.

Plate 3: Academic core path — mature canopy overhead, concrete bench, eroded drainage edge

Plate 4: Secondary path through tree grove — partial shade, stained paving, absent edge definition

Colensma Building Approach — Desire Line Formation

The most unambiguous evidence of landscape design failure documented in this study is the desire line recorded at the approach to the COLENSMA building. A clearly worn laterite track — approximately 0.5 metres wide at its narrowest point — cuts diagonally across a planted grass area between the building corner and the car park area, bypassing the formal paved path. The desire line is stabilised, meaning it has been in use long enough for the soil surface to be compacted and for all ground cover vegetation to be suppressed along its route. A pedestrian is visible actively using the desire line in the photographic record.

The COLENSMA signboard is visible in the background, confirming the location. This desire line is a direct spatial vote, in the terms used by Adebara et al. (2022), against a formal path layout that fails to serve the actual movement trajectory between the building entrance and the car park. It represents a clear design signal that the pathway network requires redesign at this node to align with users' natural movement preferences.

Plate 1: Main entry corridor — intact paving, absent shade canopy (looking north)

Plate 2: Main entry corridor — reverse view showing sparse young trees and open exposure

Academic Core Paths — Tree Canopy, Seating, and Drainage Edge Condition

The paths flanking the main academic buildings represent the campus zone with the strongest existing shade provision. Mature trees—predominantly Albizia and related species—provide generous canopy cover over the interlocking block pathway beside the building facade, creating a shaded pedestrian corridor that is perceptibly more comfortable during peak solar hours than the entry corridor. A concrete bench is present in this zone, providing a rare example of formal seating provision on the campus.

However, the zone also presents a significant landscape failure in the form of a deteriorating drainage channel running between the path edge and the tree zone. The channel is eroded, with exposed soil, displaced tree roots, and debris visible along its length. The edge between the paving and the drainage channel is poorly defined, presenting a potential trip hazard.

This finding mirrors Odeyale's (2022) observation that inadequate maintenance of drainage and path edges is among the primary sources of pedestrian dissatisfaction at Nigerian federal university campuses. This edge ambiguity compromises spatial flow, as highlighted by Ogunnaike et al. (2025), who emphasize defined boundaries in sustainable circulation design to prevent such conflicts. Similarly,

Adeyemi et al. (2024) documented comparable drainage and edge degradation in Lagos estates, linking it to reduced environmental quality and user avoidance.

Plate 5: COLENSMA building approach — stabilised desire line cutting diagonally across planted area

Academic Building Steps and Transition Zones

Several of the campus's academic buildings are accessed via stepped platforms that interrupt the continuity of the interlocking block pathway system. The steps are constructed in concrete with interlocking block risers, and are generally intact in structural terms.

However, vehicles are parked immediately adjacent to the pedestrian approach zone in several locations, creating a conflict between vehicular and pedestrian movement that reduces the effective usable width of the approach path and increases the exposure of pedestrians to vehicle-related hazard. The tree canopy overhead in this zone is good, providing adequate shade, but the spatial organisation of the transition between path, steps, and vehicle access is poorly defined, reducing the legibility of the pedestrian route at this critical building-approach junction. Odeyale (2022) specifically identified legibility and coherence at building-approach junctions as a primary determinant of user satisfaction with campus pedestrian environments.

Plate 6: Academic building approach — stepped path with vehicle parking conflict and good overhead canopy

4.5 Academic Court Open Zone — Fragmented Paving and Incomplete Provision

The open court area between academic building blocks presents the most spatially legible evidence of incomplete formal pathway provision. The interlocking block paving terminates abruptly, with a broad expanse of bare laterite soil beyond — a zone through which pedestrians are observed moving directly, in the absence of any formal path surface.

Broken kerb edging is visible, with displaced blocks and exposed subgrade, indicating both construction incompleteness and early-stage degradation. The vegetated planting beds in this zone show evidence of routine maintenance (trimmed low hedges) but are not integrated with a functional pedestrian route system. This condition — formal paving ending mid-campus, requiring users to cross bare soil to reach their destinations — is precisely the type of path network discontinuity that Pikora et al. (2003) and Southworth (2005) identify as a primary generator of informal path creation.

Plate 7: Academic court — paving terminating abruptly, large unpaved laterite zone, broken kerb edges

Stepped Pathway Beside Academic Block — Drainage Failure and Structural Deterioration

The stepped pathway running alongside the main academic block represents the most critically compromised pedestrian route documented in this study. This route is in active daily use — multiple pedestrians are visible in both photographic records — yet the landscape conditions along its entire length are severely degraded. The concrete drainage channel running between the path and the building face has partially collapsed, with stagnant water visible, displaced concrete blocks, and exposed subgrade soil along extended sections of the channel.

The stepped path surface itself shows significant erosion of the joints between treads, with laterite soil washed out from beneath the concrete, creating an uneven and increasingly unstable walking surface. Construction debris — pipes, broken blocks, timber — is scattered along the route. The combination of active stagnant drainage, surface degradation, and debris constitutes a significant pedestrian safety hazard. Adeyemi (2013) identified waterlogging and surface degradation as the most significant deterrents to walking in West African environments; the conditions documented here represent an acute manifestation of this problem.

Plate 8: Stepped path beside academic block — stagnant drainage channel, eroded steps, debris

Plate 9: Same route from above — paving intact (left) but drainage channel collapsed (right), pedestrians in use

Unpaved Construction Zone — Missing Pathway Provision

An extended zone adjacent to one of the academic building blocks presents an entirely unpaved laterite surface. Paving blocks are stacked in organised piles nearby—indicating that paving installation is planned or in progress—but the current surface condition is bare compacted laterite with no edge definition, drainage provision, or planting. A single pedestrian is visible using this route.

This zone represents an example of incomplete campus infrastructure where the absence of formal pathway provision is creating compacted laterite desire lines that will become progressively more difficult to rehabilitate. As Harmattan dust accumulates and wet-season rainfall erodes the exposed surface, these informal tracks harden into permanent features, increasing future remediation costs and safety risks.

Such construction-phase neglect directly contradicts Ogunnaike et al.'s (2025) emphasis on integrated circulation planning during sustainable architecture development, where pathway provision must precede building occupancy to maintain spatial flow. Similarly, Adebara et al. (2022) documented how incomplete formal routes in Nigerian university contexts spawn persistent informal paths, confirming this zone as a predictable failure of phased infrastructure delivery.

Plate 10: Unpaved zone beside academic building — bare laterite, stacked paving blocks awaiting installation

Tree Root Uplift and Paving Failure

A particularly significant form of paving failure is documented at one location in the academic core, where a large mature tree has been allowed to grow in direct proximity to the interlocking block pathway without root management provision. The surface roots of the tree have heaved the paving blocks significantly, displacing and fracturing them over a zone of approximately 3–4 square metres. This condition creates a serious trip hazard directly on the pedestrian route.

The failure reflects a design decision—or absence of design decision—in which tree planting was carried out without root barriers or sufficient setback from the path edge, resulting in a conflict between the landscape and the infrastructure that will worsen progressively as the tree matures. Without intervention, ongoing root expansion will continue to destabilize the pedestrian surface, eventually requiring full pathway reconstruction.

This finding is consistent with Atolagbe et al.'s (2025) observation that landscape features at Nigerian university campuses are often installed without adequate consideration of their long-term interaction with adjacent infrastructure. Ogunnaike et al. (2025) similarly emphasize environmental integration in circulation design, advocating root barriers and tree setbacks to prevent such predictable landscape-infrastructure conflicts in sustainable campus planning.

Plate 11: Tree root uplift displacing and fracturing interlocking paving blocks — trip hazard on active pedestrian route

Severe Paving Degradation and Collapse

Two locations document the most advanced stages of paving failure recorded in this study. At one location, the interlocking block surface has been almost entirely consumed by laterite soil encroachment — blocks are visible beneath the surface as raised mounds, but the effective walking surface is now bare compacted laterite with scattered debris. Pedestrians are walking directly on the degraded surface. At the most critically deteriorated location, adjacent to an academic building, the paving has collapsed entirely across a wide zone: blocks are broken, scattered, and partially buried; steps are crumbling; the sub-base is exposed; and construction materials lie across the pedestrian zone. This location represents the complete failure of the original pedestrian surface investment and presents the highest immediate safety risk of any zone documented in the study.

Plate 12: Severe paving degradation — blocks buried under laterite, pedestrians on bare soil surface

Plate 13: Complete paving collapse beside academic building — broken blocks, exposed subbase, crumbling steps

Consolidated Assessment Summary

Table 1 below presents the consolidated landscape condition ratings across the six assessed route segments, using the three-point scale (A = Adequate; PA = Partially Adequate; I = Inadequate) applied during structured site observation.

Route Segment	Surface	Continuity	Shade	Drainage	Desire Lines	Erosion	Legibility
1. Entry Corridor	A	PA	I	PA	None	None	PA
2. Academic Core Path	A	A	A	I	Slight	PA	PA
3. COLENSMA Approach	PA	I	PA	PA	Active	PA	I
4. Building Steps Zone	A	PA	A	PA	None	None	PA
5. Academic Open Court	I	I	PA	I	Active	I	I
6. Stepped Block Path	I	I	A	I	Active	I	I

Table 1: Consolidated Landscape Condition Assessment — Six Route Segments (A=Adequate; PA=Partially Adequate; I=Inadequate)

The assessment confirms that Routes 5 (Academic Open Court) and 6 (Stepped Block Path) present the most critical concentration of Inadequate ratings across multiple variables and constitute the highest-priority zones for immediate landscape intervention. Route 3 (COLENSMA approach) is the primary location of active desire line formation and requires urgent pathway realignment. Routes 1 and 2 are partially adequate but require shade planting as the primary intervention.

RECOMMENDATIONS

Based on the findings documented in Section 4 and the consolidated assessment in Section 5, the following landscape design recommendations are proposed for Caleb University. These recommendations are calibrated to the campus's specific conditions and to the resource constraints of a developing Nigerian private university, consistent with the practical, context-sensitive approach advocated by Odeyale (2022) and Atolagbe et al. (2025).

1. Shade Tree Planting Programme: Initiate an immediate programme of shade tree planting along the full length of the main entry corridor (Route 1) and the academic open court zone (Route 5),

targeting species with rapid canopy development and deep root systems appropriate to the Lagos State tropical climate (e.g. Albizia lebbeck, Terminalia mantaly). A minimum canopy coverage target of 50% along primary pedestrian routes should be adopted as the institutional standard, consistent with Adunola's (2014) thermal comfort benchmark for Nigerian outdoor environments.

2. Drainage Channel Rehabilitation: The collapsed and stagnant drainage channel alongside the stepped academic building path (Route 6) must be treated as an emergency infrastructure priority. Rehabilitation should include the reconstruction of the channel with adequate fall to prevent ponding, the installation of channel covers or grilles over the most heavily used pedestrian crossing points, and the establishment of a maintenance programme for annual channel clearance before the wet season.
3. Paving Repair and Completion: The severely degraded paving zones identified in Plates 12 and 13 require immediate surface reinstatement. Sections where paving has been consumed by laterite encroachment should be re-laid with new interlocking blocks on a properly prepared sub-base. The unpaved construction zone (Route 6, Plate 10) should be prioritised for completion before the onset of the wet season, preventing the escalation of laterite erosion on the exposed surface.
4. Desire Line Formalisation at COLENSMA Approach: The active desire line documented at the COLENSMA building approach should be formally incorporated into the pathway network by the construction of a properly surfaced, edge-defined path along the desire line's alignment. This approach — formalising rather than blocking informal routes — is supported by Adebara et al. (2022), who demonstrated that informal pedestrian movement is a spatial response to formal provision failure that is most effectively addressed by closing the provision gap rather than by punitive measures.
5. Root Barrier Installation and Tree Setback Policy: The installation of root barriers during all future tree planting adjacent to paved surfaces should be adopted as a campus standard. Where existing trees are already causing paving uplift, a decision framework should be established to determine whether root-cutting, root barriers, or tree removal and path realignment is the most appropriate response on a case-by-case basis.
6. Seating and Rest Facilities: The single concrete bench documented in the academic core path area (Plate 3) is the only formal seating provision observed across all six assessed route segments. A programme of shaded seating installation at key nodes — academic building approaches, path junctions, and the chapel approach — would directly address the comfort and optional activity deficiencies identified by Atolagbe et al. (2025) and Gehl (2010) as consequences of inadequate outdoor amenity provision.
7. Campus Landscape Masterplan: The totality of the landscape deficiencies documented in this study reflects the absence of an integrated campus landscape masterplan that establishes design standards, maintenance protocols, and development priorities for the outdoor pedestrian environment. The adoption of such a masterplan — consistent with the recommendations of Odeyale (2022) for Nigerian university campuses — is the most fundamental institutional response required to prevent the re-emergence of the conditions documented here.

CONCLUSION

This study has documented, through systematic site observation, behavioural mapping, and photographic evidence, a pattern of landscape design failure at Caleb University, Imota that significantly compromises the quality, safety, and comfort of pedestrian movement across the campus. The principal findings — absent shade canopy on primary routes, collapsed drainage infrastructure, widespread paving degradation and failure, active desire line formation at key junctions, and surface root uplift causing structural paving damage — are not isolated or exceptional conditions. They represent the cumulative consequence of a campus development approach that has prioritised built infrastructure at the expense of the outdoor pedestrian landscape.

These findings are consistent with the broader pattern documented by Atolagbe et al. (2025) at south-western Nigerian universities, by Odeyale (2022) at federal university campuses across the south-west, and by Adebara et al. (2022) in Nigerian university town pedestrian environments — all of which identify drainage inadequacy, shade deficiency, and informal pedestrian behaviour as systemic

characteristics of Nigerian campus outdoor environments rather than institution-specific anomalies. At Caleb University, the conditions have reached a level of severity — particularly at the stepped academic building path and the open court zone — that constitutes an immediate safety concern requiring urgent remediation.

The recommendations proposed in Section 6 address these conditions in order of urgency and within a framework of practical implementability. More fundamentally, this study argues that the quality of the campus pedestrian landscape is a matter of institutional responsibility that deserves the same level of planning investment as the design and construction of buildings. A campus landscape that fails its users in the basic provision of safe, shaded, well-drained, and legible pedestrian routes is a campus that fails its academic mission. The evidence presented in this documentation provides the basis for immediate action.

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