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Comparative User Appraisals of Campus Architecture, Ambience and Perceived Environmental Support for Wellbeing in Two Nigerian Universities

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Abstract

Campus environments can shape how users appraise places in which they study and work, yet comparative evidence from Nigerian universities remains limited and may conflate perceived environmental qualities with attributed meaning. This study compares user appraisals of campus architecture, ambience, and perceived environmental support for wellbeing at Obafemi Awolowo University (OAU) and the University of Ibadan (UI). The analysis uses a cross-sectional survey of 765 staff and students (OAU = 384; UI = 381). Twenty 0–7 rating items were theoretically grouped into architecture appraisal (eight items), ambience appraisal (seven items), and perceived environmental support for wellbeing (five items). Analyses included internal consistency, exploratory factor analysis, Mann–Whitney U tests with rank-biserial effect sizes and bootstrap confidence intervals, Holm-adjusted item comparisons, within-campus Kruskal–Wallis tests with Dunn post-hoc comparisons, and covariate-adjusted robust regression sensitivity analyses. OAU respondents reported higher architecture appraisal than UI respondents (means 5.45 vs. 4.86; $r = 0.34$, 95% CI [0.27, 0.42], $p < .001$). No significant campus differences emerged for ambience ($p = .342$) or perceived environmental support for wellbeing ($p = .226$). After Holm adjustment, architecture descriptors and perceived uniqueness were higher at OAU, while quietness was higher at UI. The findings support participatory post-occupancy evaluation but do not establish causal effects of campus design.

Keywords*:* Campus architecture, ambience, environmental support, wellbeing, user appraisal, attributed meaning, Nigeria.

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1. Introduction

1.1 Background and Context

Campus planning provides the spatial conditions for learning, work, movement and informal social life. Architectural character includes the perceived activity, scale, visual interest, beauty and complexity of the setting, while the practical experience of a campus also depends on wayfinding, accessibility, comfort and maintenance. Campus design may transform space into place, but its effects are not uniform: users engage the same environment from different positions and routines (Temple, 2009; Samura, 2018). A comparative design should therefore regard a reported campus difference as a difference in user appraisal, not as a direct read-out of physical quality. University campuses are

complex person–environment settings in which buildings, outdoor spaces, circulation networks and everyday institutional practices are encountered repeatedly by staff and students. Campus form may contribute to comfort, identity, social interaction and restoration; nevertheless, user appraisals cannot be reduced to physical form alone. They may also reflect exposure, maintenance, management, institutional culture and the characteristics of the users themselves (Temple, 2009; Samura, 2018; Ding et al., 2024). Research on campus design has documented associations between environmental features, perceived greenness, restorative experience and student quality of life (Hipp et al., 2016; Lau et al., 2014; McDonald-Yale & Birchall, 2021).

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Ambience concerns the overall felt quality of a setting: for example, whether it is pleasant, useful, friendly or unique. Environmental support for wellbeing concerns whether a campus feels warm, flexible, facilitating, quiet and bright. The latter wording is intentionally cautious. The five items in the dataset are environmental descriptors, not a validated assessment of mental health, stress or clinical wellbeing. Evidence elsewhere suggests that campus outdoor conditions, greenery, comfort and walkability may relate to student health and restoration, but the direction and magnitude of these associations are contingent on context and study design (Lau et al., 2014; Hipp et al., 2016; Ding et al., 2024). Most of this evidence derives from East Asian, North American and European campuses; models built on those contexts risk overlooking maintenance regimes, climatic adaptation, institutional resourcing and cultural patterns of campus use that shape appraisal in West African settings.

Meaning in the built environment is attributed by users through experience, association and use, rather than being contained solely in a building's visual form (Rapoport, 1982). Rafiei and Gifford (2023) similarly show that campus meaning spans physical responsiveness, making sense, belonging and magnetism. The present survey contains evaluative descriptors but does not directly measure these broader processes. The study therefore uses attributed meaning as a conceptual frame for interpreting patterns across appraisals. It does not treat factor extraction as proof that a set of ratings is a “meaning” construct.

1.2 Problem Statement and Research Gap

A gap remains in comparative work that distinguishes three related but non-identical matters: users' appraisal of campus architectural character, the ambience users experience, and their perception that the environment supports everyday wellbeing. This distinction is especially important where studies use the term “meaning” broadly without separating it from observable ratings or testing whether it is an independently measured construct. Comparative evidence from Nigerian universities is particularly limited, and the comparison of two large, historically distinct federal campuses in the same region allows campus-level contrasts in user appraisal to be examined while holding ownership category, region and climate broadly constant.

1.3 Objectives and Hypotheses

The contribution of this study is deliberately modest. It offers a transparent analysis of a comparative Nigerian university survey, identifies where the data support campus-level contrasts, and clarifies what the data cannot establish. Rather than treating a campus's historical period or architectural label as a causal explanation, the paper uses Obafemi Awolowo University and University of Ibadan as two historically distinct federal-campus cases that warrant comparison. University of Ibadan traces its origins to University College Ibadan in 1948 and was renamed University of Ibadan after Nigeria’s independence in 1962; Obafemi Awolowo University emerged in the early 1960s as the University of

Ife (University of Ibadan, n.d.; Obafemi Awolowo University, n.d.). The study does not contain a systematic architectural-style coding scheme and therefore does not examine colonial versus post-colonial design paradigms. The following hypothetical questions guide the analysis: (HQ1) How do regular staff and student respondents at OAU and UI appraise campus architecture, ambience, and perceived environmental support for wellbeing? (HQ2) Do the distributions of these appraisals differ between campuses? (HQ3) How coherent are the theory-guided item groupings in the data? (HQ4) What cautious planning and research implications follow from the observed pattern?

1.4 Significance and Structure of the Paper

In this paper, users' attributed meaning refers to the interpretive value that users attach to a place through their experience of it. It is not an attribute residing in the physical object alone, and it is not assumed to be identical to an item score. This framing follows work that distinguishes designers' intentions from users' attributions and treats meaning as person–environment interpretation (Rapoport, 1982; Hershberger, 1970; Rafiei & Gifford, 2023). The questionnaire does not contain a direct, validated measure of attributed meaning. Accordingly, the three rating domains are reported as related appraisals that may inform meaning, not as “meaning factors”.

Figure 1 links the constructs. The case context (campus history, layout, use patterns and management) is appraised by users along three domains — architecture appraisal, ambience appraisal and perceived environmental support for wellbeing — and these appraisals inform, but are not identical to, attributed meaning, which operates as an interpretive person–environment lens rather than a separately measured outcome. Measured possible confounders (age, gender, religion, respondent status, years on campus and campus familiarity) and unmeasured influences (maintenance, culture, socio-economic and institutional conditions) are represented explicitly, and no causal path is tested.

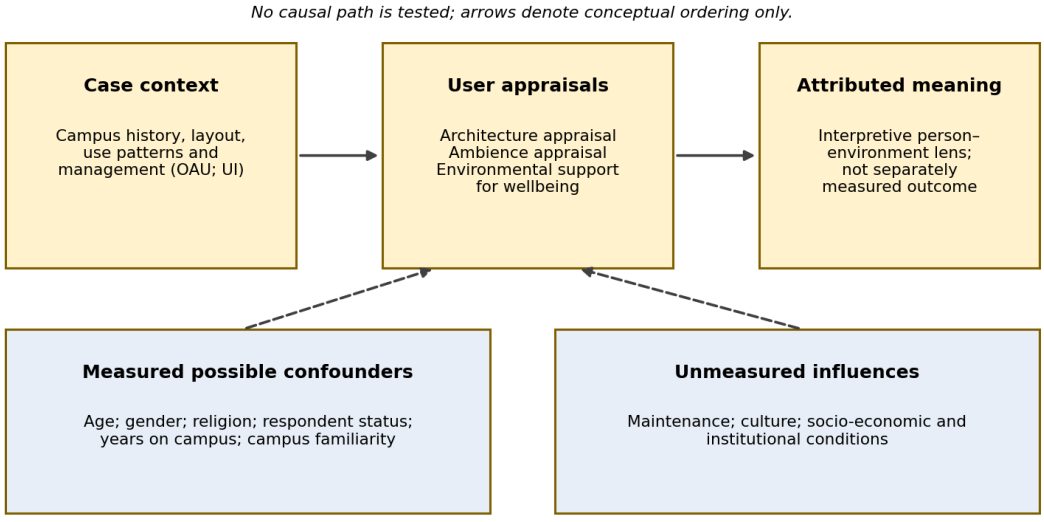

Figure 1. Conceptual framing of the study.

2. Materials and Methods

2.1 Study Design and Setting

This is a comparative cross-sectional survey of regular staff (academic and non-academic) and student (undergraduate and postgraduate) campus users at Obafemi Awolowo University and University of Ibadan. The two cases were selected as large, historically distinct federal universities in south-western Nigeria, sharing ownership category, region and climate while differing in founding period and campus development history; this holds major institutional variables broadly constant while allowing the founding-era contrast to be described. This is a purposive comparative case design, not a representative sample of Nigerian universities; in addition, observation methods were employed by the researcher.

2.2 Participants or Subjects

University campus "doors" are relatively open to diverse users. The built environment called the university campus engages diverse campus users; however, this study makes use of campus users who are engaged in university education as undergraduates or postgraduate students along with the academic and non-academic staff. This group of campus users makes up the largest population of regular campus users over a consistent period of time. In addition, they regularly make use of the campus architecture and its built environment at large, since they are not restricted to a particular location in the course of their academic pursuit. In addition, respondents' participation was voluntary. Each respondent in the study voluntarily signed a consent form to participate without inducement or possibility of injury or harm. In all, a total of (n=384) staff and students from Obafemi Awolowo University and (n=381) staff and students from the University of Ibadan were the study respondents. This comprises staff (n=61), students (n=321) from OAU, and staff (n=69) and students (n=322) from UI. The final analytic dataset comprises 765 records: 384 OAU respondents and 381 UI respondents. All analyses use this dataset and campus-specific denominators.

2.3 Materials and Equipment

This data-collecting tool was both a structured and unstructured tool to obtain relevant data from the respondent with respect to the study. The questionnaire was designed in two parts, open-ended and closed-ended formats. This was to allow maximum use of the survey instrument to prompt detailed responses from the respondents. The questionnaire was planned and sectionalized to elicit information on campus users' personal characteristics, the physical and socio-physical characteristics of the university campus, along with the activities, and to assess the meaning and value of the two (2) selected university campus architecture. Also, the questionnaire was crafted to address each of the study's hypothetical questions.

2.4 Procedures and Protocols

Upon successful completing the consent form by respondents, the survey instrument is administered, which is carefully explained to the respondents to ensure unbiased data. Embedded in the survey instrument are the 20 rating items with legal values from 0 to 7, grounded in Hershberger's behavioural theory of architectural meaning. Following the theory-guided item groupings, eight items described campus architecture appraisal (active, vibrant, large, exciting, beautiful, interesting, colourful and complex), seven described ambience appraisal (pleasant, useful, good, friendly, generous, modern and unique), and five described perceived environmental support for wellbeing (warm, flexible, facilitating, quiet and bright). A domain score was calculated as the unweighted mean only where all constituent items were present. Cronbach's alpha was calculated separately by campus. Questionnaire-development, expert-review and pilot-testing records were not retained; the internal consistency analyses do not compensate for that limitation, which is duly acknowledged. Also, site walk-through observations were undertaken during fieldwork, but not under a structured protocol with a coding frame, identifiable field notes or an inter-rater record accordingly.

2.5 Data Analysis

All analyses use a dataset which comprises 765 records: 384 OAU respondents and 381 UI respondents, with campus-specific denominators. The recruitment and distribution records do not support a probability-based margin-of-error claim, so no such claim is made. In the primary two-group comparison, the achieved sample of 765 provides in excess of 90% power at $\alpha = .05$ (two-sided) to detect a small-to-moderate standardised difference of 0.25 between campuses; smaller true effects may not have been detected, and this is acknowledged.

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A range check found one value of 55 for the "Flexible" item, which is outside the 0–7 response range. It was treated as missing rather than corrected. No other invalid values were found on the 20 analysed items. No imputation was used. Complete cases were 757 for architecture appraisal, 754 for ambience appraisal, 761 for environmental support for wellbeing, and 745 for the exploratory factor analysis.

Descriptive statistics summarised sample composition and scale scores. Because the core comparison involved two independent campus groups and ordinal ratings, Mann–Whitney U tests were used; with two groups, the Kruskal–Wallis test is equivalent, so no post-hoc procedure applies to the campus contrast. Rank-biserial correlations quantify the direction and practical magnitude of each contrast, with positive values indicating higher OAU ranks; 95% percentile bootstrap confidence intervals were based on 5,000 resamples. Twenty item-level tests were Holm-adjusted as exploratory analyses. For within-campus comparisons across more than two groups (age, respondent status), Kruskal–Wallis tests with epsilon-squared effect sizes were followed by Dunn's post-hoc tests with Bonferroni correction. Internal consistency was summarised with Cronbach's alpha. Minimum-residual exploratory factor analysis with oblimin rotation assessed factorability and structure; KMO, Bartlett's test, eigenvalues and Horn (1965) parallel analysis are reported. Finally, HC3 robust OLS models adjusted each composite score for gender, age group, religion, respondent status, years on campus and self-rated campus familiarity (all entered categorically) as a sensitivity analysis. These models cannot establish causality.

The walk-through notes describe entrances, open spaces, circulation, shade and maintenance, but they were not collected under a structured observation matrix, coding procedure or inter-rater protocol, and no raw qualitative responses or thematic analysis exist. These notes therefore cannot be treated as an independent qualitative result or used to triangulate the survey, and the present article is limited to the survey analysis. A structured post-occupancy audit is recommended for future work.

3. Results

3.1 Presentation of Key Findings

3.1.1 Sample composition

Table 1 shows the analytic sample. Gender and collapsed age distributions were similar between campuses. Respondent status, years on campus, and campus familiarity differed, which indicates that simple between-campus comparisons may partially reflect different exposure profiles. The adjusted analysis therefore treats these measured variables as covariates, but unmeasured contextual differences remain possible.

Table 1. Selected characteristics of the analytic sample.

Characteristic	OAU (n = 384)	UI (n = 381)	Comparison p-value
Gender: female	152 (39.6%)	175 (45.9%)	0.089
Age: <21 / 21–30 / 31–40 / 41+	73 / 269 / 18 / 24	70 / 254 / 28 / 29	0.372†
Respondent status: academic/non-academic / undergraduate / postgraduate	17 / 16 / 323 / 28	10 / 27 / 292 / 52	0.004
Years on campus: 1–3 / 4–6 / >6	116 / 210 / 58	230 / 99 / 52	<0.001
Campus familiarity (0–7 scale)	Median 5	Median 5	0.007

Note. †Age was collapsed for the χ^2 test to avoid sparse expected cells. The campus-familiarity comparison is a χ^2 test across seven response categories.

3.1.2 Internal consistency and exploratory measurement evidence

The three theory-guided scales demonstrated acceptable-to-good internal consistency within each campus (Table 2). The factor analysis met conventional factorability criteria: KMO = 0.940 (all item-level KMO values ≥ 0.89) and Bartlett's $\chi^2(190) = 6{,}764.60$, $p < .001$ (n = 745 complete cases). However, this alone does not validate the proposed constructs. The first three eigenvalues were 8.13, 1.80, and 1.18, jointly accounting for 55.5% of total variance, whereas the corresponding 95th-percentile parallel-analysis values were 1.35, 1.28, and 1.24. Parallel analysis therefore supported two factors, while the third observed eigenvalue exceeded the Kaiser criterion but not chance expectation. The theory-guided three-factor solution accounted for 39.7% of common variance and had correlated factors (0.39–0.61), with cross-loadings for unique, quiet, and bright (Appendix A). Consequently, the three domains are retained for descriptive transparency, but they are not claimed to be independently confirmed latent constructs or dimensions of meaning.

Table 2. Internal consistency of theory-guided appraisal scales.

Scale	Items	OAU Cronbach's α	UI Cronbach's α
Campus architecture appraisal	8	0.850	0.850
Campus ambience appraisal	7	0.841	0.873
Perceived environmental support for wellbeing	5	0.729	0.801

3.2 Primary comparisons between campuses

Table 3 and Figure 2 present the primary composite-scale comparisons. Obafemi Awolowo University respondents had higher campus architecture-appraisal scores than University of Ibadan respondents. The rank-biserial effect was small-to-moderate, and its confidence interval excluded zero. In contrast, ambience and perceived environmental support for wellbeing did not differ in the unadjusted analysis. Thus, the evidence supports a difference in how campus architectural character was appraised, but it does not support an overall difference in the two other composite domains.

Table 3. Primary unadjusted campus comparisons of theory-guided scale scores.

Scale	OAU: n; M ± SD; Mdn	UI: n; M ± SD; Mdn	U	p	Rank-biserial r (95% CI)
Campus architecture appraisal	376; 5.45 ± 0.93; 5.50	381; 4.86 ± 0.99; 4.88	96,225.0	<0.001	0.34 [0.27, 0.42]
Campus ambience appraisal	373; 5.11 ± 0.95; 5.14	381; 5.00 ± 1.05; 5.14	73,897.0	0.342	0.04 [−0.04, 0.12]
Environmental support for wellbeing	381; 4.72 ± 0.94; 4.80	380; 4.79 ± 1.02; 4.80	68,723.5	0.226	−0.05 [−0.13, 0.03]

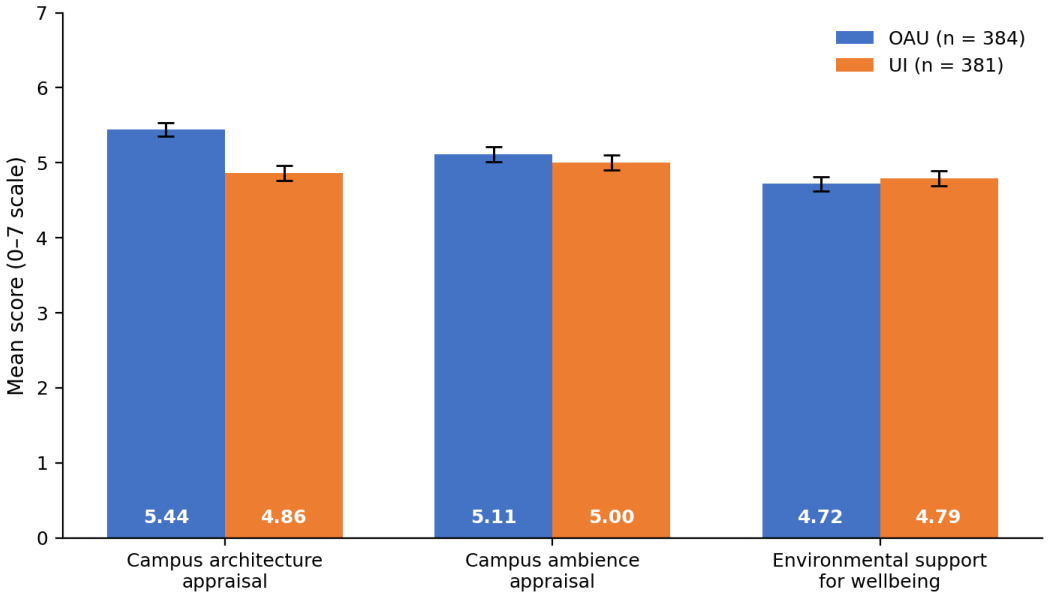

Figure 2. Composite campus appraisals on the 0–7 response scale. Error bars show 95% bootstrap confidence intervals for the mean.

3.2.1 Item-level patterns

The composite architecture difference was consistent across all eight architecture descriptors after Holm adjustment. The largest item-level contrast was beauty (rank-biserial r = 0.38), followed by large (r = 0.28), active (r = 0.28), and exciting (r = 0.27), all in the OAU direction. In the ambience set, uniqueness was higher at OAU (r = 0.26; Holm p < .001); modernity (unadjusted p = .021) did not remain statistically significant after multiplicity adjustment (Holm p = .214) and is not interpreted. In the environmental-support set, quietness was higher at UI (r = −0.19; Holm p < .001). The full item-level table is provided in Appendix B.

Table 4. Item-level results retained after multiplicity assessment.

Item set/item	Direction	Rank-biserial r	Holm-adjusted p
All eight architecture descriptors	OAU higher	0.15 to 0.38	All ≤ .002
Unique	OAU higher	0.26	<0.001
Quiet	UI higher	−0.19	<0.001
Modern	OAU higher on unadjusted test only	0.09	0.214

3.3 Covariate-adjusted sensitivity analysis

The adjusted sensitivity analysis is reported in Table 5. The architecture-appraisal contrast remained positive after adjustment (OAU–UI = 0.67 points on the 0–7 scale, 95% CI [0.52, 0.82], p < .001). The adjusted ambience coefficient was small and borderline (0.15, 95% CI [0.00, 0.30], p = .044), whereas its unadjusted comparison was non-significant; it should not be interpreted as robust evidence of a campus effect. Environmental support for wellbeing remained non-significant (−0.01, 95% CI [−0.17, 0.14], p = .874). These models reduce imbalance in recorded respondent characteristics but cannot account for unmeasured differences such as maintenance condition, local culture, route use or institutional experience.

Table 5. HC3 robust OLS sensitivity analysis adjusted for measured respondent characteristics.

Outcome	n	Adjusted OAU–UI difference	95% CI	p
Campus architecture appraisal	757	0.67	[0.52, 0.82]	<0.001
Campus ambience appraisal	754	0.15	[0.00, 0.30]	0.044
Environmental support for wellbeing	761	−0.01	[−0.17, 0.14]	0.874

Note. Adjusted for gender, age group, religion, respondent status, years on campus and self-rated campus familiarity, all entered categorically. Education was omitted because it overlaps conceptually with respondent status.

3.4 Within-campus comparisons by respondent characteristics

Table 6 reports Kruskal–Wallis tests of each domain score across respondent characteristics within each campus, with epsilon-squared effect sizes. Appraisals varied more by age and respondent status than by religion or education, and all within-campus effects were small (ε^2 = 0.003–0.054).

Table 6. Within-campus Kruskal–Wallis tests of domain scores by respondent characteristics.

Campus/scale	Age	Religion	Respondent status	Education completed
OAU – Architecture	H(4) = 6.95, p = .139, ε^2 = .019	H(1) = 2.71, p = .100, ε^2 = .007	H(3) = 5.86, p = .119, ε^2 = .016	H(1) = 1.30, p = .254, ε^2 = .003
OAU – Ambience	H(4) = 14.26, p = .007, ε^2 = .038	H(1) = 5.13, p = .023, ε^2 = .014	H(3) = 5.93, p = .115, ε^2 = .016	H(1) = 4.82, p = .028, ε^2 = .013
OAU – Environmental support	H(4) = 19.11, p = .001, ε^2 = .050	H(1) = 1.50, p = .221, ε^2 = .004	H(3) = 12.95, p = .005, ε^2 = .034	H(1) = 7.70, p = .006, ε^2 = .020
UI – Architecture	H(4) = 20.53, p < .001, ε^2 = .054	H(2) = 3.85, p = .146, ε^2 = .010	H(3) = 10.98, p = .012, ε^2 = .029	H(1) = 1.18, p = .277, ε^2 = .003
UI – Ambience	H(4) = 18.67, p = .001, ε^2 = .050	H(2) = 4.51, p = .105, ε^2 = .012	H(3) = 8.93, p = .030, ε^2 = .024	H(1) = 1.23, p = .267, ε^2 = .003
UI – Environmental support	H(4) = 13.24, p = .010, ε^2 = .035	H(1) = 2.76, p = .097, ε^2 = .007	H(3) = 8.38, p = .039, ε^2 = .022	H(1) = 6.48, p = .011, ε^2 = .017

Note. Groups with fewer than three respondents were excluded, which is why the religion comparison has one degree of freedom at OAU and, for Architecture and ambience, two at UI.

Dunn post hoc tests with Bonferroni correction located the significant contrasts. At Obafemi Awolowo University, respondents aged 31–40 rated ambience higher than those under 21 (M = 5.72 vs 5.00, p = .025) and those aged 21–30 (M = 5.09, p = .038), and rated environmental support higher than those under 21 (M = 5.42 vs 4.71, p = .027) and those aged 21–30 (M = 4.64, p = .003); non-academic staff rated environmental support higher than undergraduates (M = 5.32 vs 4.66, p = .017), and degree holders rated it higher than respondents with secondary education (M = 5.04 vs 4.66, p = .006). At University of Ibadan, respondents aged 51–60 rated architecture higher than those aged 21–30 (M = 5.75 vs 4.77, p = .006) and those under 21 (M = 4.89, p = .033), and those aged 41–50 rated it higher than those aged 21–30 (M = 5.49, p = .020); non-academic staff rated architecture higher than undergraduates (M = 5.31 vs 4.84, p = .047) and postgraduates (M = 4.67, p = .022), and ambience

higher than postgraduates (M = 5.41 vs 4.81, p = .031). These patterns indicate that older respondents and non-academic staff, whose routines and exposure differ from those of students, tended to appraise their campus more favourably; they reinforce the need to disaggregate post-occupancy findings by user group (Section 5.3).

4. Discussion

4.1 Interpreting the comparative pattern

The clearest pattern is a higher Obafemi Awolowo University appraisal across the eight architectural-character descriptors, together with higher perceived uniqueness. This is a user-perception finding, not an objective ranking of the two campuses. It may reflect differences in the visibility or coherence of campus form, routinized exposure, institutional identity, recent development, maintenance, respondent composition or a combination of these factors. The persistence of the composite architecture contrast after adjustment for measured user characteristics (adjusted OAU–UI difference = 0.67 points, 95% CI [0.52, 0.82]) indicates that the pattern is not explained solely by those characteristics, but the cross-sectional design cannot isolate a design mechanism.

The absence of an unadjusted ambience difference is equally important. Respondents at both Obafemi Awolowo University and University of Ibadan campuses reported broadly similar levels of pleasantness, usefulness, goodness, friendliness and generosity. The item-level results show one difference in favour of OAU (uniqueness) and one in favour of UI (quietness). This mixed pattern cautions against an overall statement that either campus necessarily provides better ambience or environmental support for wellbeing. It instead suggests that desirable campus experience is multidimensional and can involve trade-offs between activity, visual character, identity and quietness.

4.2 Theoretical contribution

The study contributes by separating attributed meaning from the survey's descriptive rating scales. The survey supports claims about campus appraisals, not claims that architecture directly created wellbeing or that factor analysis discovered a stable “meaning” construct. The EFA indicates that architecture appraisal is the most distinct item grouping, whereas ambience and environmental-support descriptors are more interrelated. This outcome is consistent with an environmental-behaviour interpretation in which users form overlapping evaluations of places rather than experiencing neat, independent psychological dimensions — aligning with Rapoport’s (1982) attributed-meaning account and Rafiei and Gifford's (2023) multi-theme model, and qualifying salutogenic readings that would attribute wellbeing directly to physical form.

Previous campus studies in this literature typically report either single-campus evaluations or comparisons in which perceived environmental quality, wellbeing, and meaning are used interchangeably. This study advances that work in two ways: it demonstrates empirically, in a Nigerian comparative sample, that architectural-character appraisal can differ sharply between campuses while ambience and perceived environmental support do not; and it shows that the common practice of labelling extracted rating factors as “meaning” is not sustained by the measurement evidence, providing a corrective template for future environment-behaviour studies in African university contexts.

4.3 Practical implications

The results do not prescribe a single design solution; they point to a more defensible management process. First, both Obafemi Awolowo University and University of Ibadan campuses should use periodic, disaggregated post-occupancy evaluation that combines the survey items with a structured physical-condition, accessibility, route, shade, noise, and maintenance audit. Second, planners at the University of Ibadan should use participatory diagnosis to explore why users rated architectural character and uniqueness less positively before proposing a physical intervention. Third, Obafemi Awolowo University should investigate perceived quietness through time-of-day noise mapping, study-space availability, and pedestrian–vehicle conflict assessment. Fourth, design and estate units

should report findings by user group and exposure duration, so that staff and students with different patterns of campus use are not treated as a single homogeneous public.

5. Conclusion

5.1 Summary of Key Finding

In the analytic sample, Obafemi Awolowo University respondents appraised campus architectural character more positively than University of Ibadan respondents, while the two campuses did not differ in their unadjusted ambience or perceived environmental-support-for-wellbeing composites. OAU was perceived as more unique, whereas UI was perceived as quieter. These are comparative user-appraisal findings, not causal evidence that one campus design produces greater wellbeing or meaning, and they do not demonstrate a Colonial versus Post-Colonial Modernist contrast, which was not empirically coded or tested.

5.2 Implications of the Findings

The principal methodological contribution is therefore one of clarification: user meaning should be treated as an interpretive person–environment process, and future campus research should combine reliable scales with transparent sampling, objective audits and qualitative evidence before drawing causal or style-based conclusions.

5.3 Limitations and future research

Several limitations narrow the conclusions. The recruitment process does not support a claim of representative probability sampling. The study covers two campuses and uses cross-sectional self-report ratings, so it cannot provide causal evidence or generalise to Nigerian universities as a whole. Instrument-development and pilot-testing records were not retained. The five "wellbeing" descriptors are environmental perceptions rather than direct measures of health or psychological wellbeing, and self-reported ratings are open to response and social-desirability biases. The three-factor structure was not confirmed by parallel analysis, and direct qualitative data, structured observations and objective environmental measures were unavailable.

Future studies should use a documented multi-campus sampling strategy, test measurement invariance, combine a validated wellbeing outcome with structured post-occupancy measures, retain qualitative walk-along interviews and observation protocols, and follow users over time.

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Conflict of Interest

The authors declare no conflict of interest.

Data availability statement

The original contributions presented in the study are included in the article; further inquiries can be directed to the corresponding author.

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