

Exploring The Use of Landscape Elements in The Design of a Campus Wellness Center for The Federal University of Kashere, Gombe State, Nigeria

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Abstract: *This study explores the strategic use of landscape elements in the design of a campus wellness center at the Federal University of Kashere, Gombe State, Nigeria, with the primary objective of addressing escalating socio-psychological challenges among university students. In recent years, Nigerian tertiary institutions have witnessed a surge in mental health issues and social vices such as drug abuse, cultism, sexual promiscuity, and internet fraud, which traditional punitive and disciplinary measures have failed to effectively mitigate. Recognizing the therapeutic potential of well-designed natural environments, this research investigates how specific landscape components can foster mental health, physical well-being, and social cohesion on campus. Using a mixed-methods approach, the study employed expert evaluations through structured checklists and comprehensive user surveys to assess the relevance, functionality, and user satisfaction associated with eleven key landscape elements, including greenery, open spaces, water features, jogging paths, outdoor seating, safety and security, and accessibility. Based on these findings, the study proposes a nature-inspired, multifunctional landscape design prototype tailored to enhance cognitive restoration, promote physical activity, and encourage positive social interactions among students. The research underscores the importance of integrating environmental psychology principles and sustainable landscape architecture into campus planning. Finally, the study recommends that the National University Commission (NUC) enforce regulatory policies mandating the establishment of functional, well-designed wellness centers across Nigerian universities to improve student mental health outcomes, reduce social vices, and foster holistic academic success.*

Keywords: Campus wellness center, landscape elements, mental health, environmental psychology, nature-inspired design, sustainable campus design

1. Introduction

Education is a cornerstone of national development, producing cognitively and physically capable individuals with moral and social intelligence (Makinde et al., 2020). However, the mental health of students in Nigerian tertiary institutions is increasingly compromised, manifesting in social vices such as cultism, drug abuse, and internet fraud (Alabi, 2022; Campbell, 2022). Traditional disciplinary measures have failed to stem this tide, necessitating innovative, multifaceted interventions. The psychological benefits of natural environments are well documented, with theories such as the Reasonable Person Model (Kaplan & Kaplan, 2016, 2019) highlighting how supportive environments enhance cognition and well-being. Conversely, situationalist perspectives (Zimbardo, 2004; Milgram) emphasize environmental influences on behavior, underscoring the potential for landscape design to modulate student conduct. Landscape architecture, encompassing elements like

gardens, water features, and pathways, plays a critical role in creating healing environments that promote physical, mental, and social wellness (Majeed & Ramkissoon, 2020; Makubuya et al., 2020). Despite this, Nigerian university campuses often prioritize aesthetics over therapeutic landscape design (Adekunle & Basorun, 2016).

1.1 Problem Statement

The Federal University of Kashere has witnessed increasing cases of drug abuse, cultism, and mental health disorders, with 58 reported incidents in 2023 alone. Current punitive approaches have limited efficacy, and there is a dearth of research on how landscape design can mitigate these socio-psychological challenges in Nigerian universities (Lee et al., 2022; Mofatteh, 2021; Makhubela, 2021).

1.2 Research Questions

- I. What landscape elements are relevant for designing a campus wellness center at Federal University of Kashere?
- II. How effective are current landscape elements in promoting wellness?
- III. What innovative, nature-inspired landscape elements can be integrated into the campus wellness center design?

1.3 Aim and Objectives

This study aims to explore the use of landscape elements in designing a campus wellness center to alleviate socio-psychological challenges faced by students at Federal University of Kashere. Objectives include:

- I. Identifying relevant landscape elements for the wellness center.
- II. Assessing the effectiveness of existing landscape elements.
- III. Selecting innovative, nature-inspired landscape elements suitable for the campus.

1.4 Significance

Findings will inform policy shifts towards integrating healing landscape designs in campus planning, potentially reducing mental health-related absenteeism, improving academic performance, and lowering associated economic costs. Recommendations will also guide regulatory bodies like NUC in mandating functional wellness centers nationwide.

2. Literature Review

Landscape elements in university campuses play a crucial role in influencing students' emotions and well-being. Research shows that student-landscape interactions often positively affect emotions, though negative experiences can occur based on individual preferences (Lamis Hani et al., 2020). Campus green spaces are essential for enhancing the university's image and student experience, with students preferring areas featuring manicured gardens, seats, and lawns (Bala Wunubo et al., 2022). However, challenges such as inadequate finance, facilities, and management issues hinder effective landscape planning in many Nigerian universities (Olanibi Julius Adekunle & J. O. Basorun, 2016). To promote well-being in urban university campuses, salutogenic landscape design focusing on sensory perception is recommended (Fan Mengjia et al., 2020). Proper use and management of open spaces, landscape elements, and outdoor rooms with various spatial

qualities can contribute to environmental improvements and foster a successful learning experience on campus (Olanibi Julius Adekunle & J. O. Basorun, 2016; Lamis Hani et al., 2020).

The landscape and health implies access to green spaces correlates with improved physical and mental health, including reduced depression, anxiety, and stress (Thompson, 2016; Villanueva et al., 2015; Kuo, 2015). Greenery enhances air quality, encourages physical activity, and fosters social cohesion, all contributing to wellness (Shortt et al., 2014).

The Reasonable Person Model supporting landscape use posits that environments supporting human needs promote reasonable behavior and well-being (Kaplan & Kaplan, 2016). Conversely, situationalist theories argue that environmental contexts can induce negative behaviors, highlighting the importance of designing spaces that reduce stress and promote positive interactions (Zimbardo, 2004). Campus wellness centers and landscape design serve as holistic spaces addressing physical, mental, and social health. Landscape elements such as water features, jogging paths, and outdoor seating have been shown to facilitate relaxation, social interaction, and physical fitness (Majeed & Ramkissoon, 2020). However, Nigerian institutions often underutilize these elements in campus planning (Adekunle & Basorun, 2016).

The theoretical framework for this study integrates Environmental Psychology, Attention Restoration Theory (ART), and Biophilic Design Principles to explain how landscape elements within a campus wellness center can mitigate socio-psychological challenges and promote holistic student well-being.

- I. **Environmental Psychology** posits that the physical environment significantly influences human behavior, emotions, and mental health (Kaplan & Kaplan, 2016; Ulrich et al., 2018). This theory underpins the study's focus on how designed natural environments can foster mental restoration and social cohesion on campus.
- II. **Attention Restoration Theory (ART)** (Kaplan & Kaplan, 1989, 2016) explains that exposure to natural landscapes replenishes depleted cognitive resources by providing "soft fascination," which helps reduce stress and mental fatigue. This theory supports the use of greenery, water features, and contemplative garden spaces as key restorative elements in campus design.
- III. **Biophilic Design Principles** emphasize humans' innate affinity for nature and advocate incorporating natural elements into built environments to enhance health, well-being,

and productivity (Kellert, 2020; Majeed & Ramkissoon, 2020). Biophilic design informs the integration of multisensory landscape features—such as plants with varied textures, scents, and colors—to stimulate positive emotional responses.

Relationships of the key constructs:

- I. Landscape elements designed with restorative and biophilic principles positively influence student well-being by reducing stress, enhancing cognitive restoration, and encouraging physical activity.
- II. Improved student well-being through environmental design reduces the prevalence of socio-psychological challenges by fostering healthier coping mechanisms and social cohesion.
- III. The functionality and accessibility of landscape elements moderate their effectiveness in promoting wellness, highlighting the need for inclusive, safe, and engaging outdoor spaces.

The application of the theoretical framework to Federal University of Kashere guides empirical assessment of existing landscape elements' relevance and user satisfaction, informing the design of a campus wellness center prototype tailored to the university's unique socio-cultural context. It emphasizes regulatory support from bodies like the National University Commission (NUC) to institutionalize wellness center standards.

3. Methodology

A mixed-method approach was adopted and data were collected via:

- I. A checklist assessing 11 landscape elements was administered to build environment experts.
- II. Open-ended questionnaires gathering user satisfaction and perceived effectiveness.
- III. Quantitative analysis using descriptive statistics and regression to evaluate the impact of landscape elements on user satisfaction.

The sample included 377 staff and students from Federal University of Kashere, Gombe state.

4. Results

The landscape elements relevance shows mean scores for landscape elements were as follows:

Element	Mean Score
Greenery	2.3634

Element	Mean Score
Open Spaces	2.5013
Water Features	2.7586
Jogging Paths	2.7480
Outdoor Seating	2.5199
Sculptures	2.6844
Accessibility	2.6286
Safety & Security	2.3979
Aesthetics	2.4775
Environmental Sustainability	2.5623
Overall Satisfaction	2.8090

Also, regression analysis of the effectiveness of current landscape elements showed an $F(9,376) = 0.467$, $p < 0.897$, $R^2 = 0.011$, indicating that current landscape elements explain only 1.1% of user satisfaction, with 98.9% dissatisfaction. This suggests significant potential for optimization.

5. Discussion

The low explanatory power of existing landscape elements on user satisfaction highlights a gap between design intent and user experience. While elements like water features and jogging paths scored relatively higher, overall dissatisfaction signals a need for innovative, integrative landscape designs that holistically address student wellness. Integrating nature-inspired elements that promote physical activity, social interaction, and mental restoration aligns with global best practices and psychological theories emphasizing environmental influence on behavior (Kaplan & Kaplan, 2019; Campbell et al., 2022).

6. Conclusion

Landscape elements are critical in shaping campus wellness centers that address socio-psychological challenges. The current state at Federal University of



Kashere reveals underperformance and dissatisfaction, underscoring the need for redesign.

7. Recommendations

- I. Adoption of multifunctional, nature-inspired landscape designs incorporating greenery, water features, and safe, accessible open spaces.
- II. Nationwide studies to benchmark and optimize campus wellness centers.
- III. NUC to mandate functional wellness centers as part of accreditation criteria.
- IV. Continuous stakeholder engagement to align design with user needs.

8. References

- Adekunle, I., & Basorun, T. (2016). Landscape aesthetics in Nigerian universities: A case study. *Journal of Environmental Design*, 12(3), 45–60.
- Adekunle, O. J., & Basorun, J. O. (2016). The evolving roles of landscaping in campus space management: Ekiti State University, Ado-Ekiti, Nigeria in focus. *Journal of Environmental Protection*, 7(10), 1380–1388. <https://doi.org/10.4236/jep.2016.710119>
- Alabi, O. (2022). Social vices and mental health challenges in Nigerian tertiary institutions. *Nigerian Journal of Social Sciences*, 18(1), 77–92.
- Campbell, S. (2022). Mental health in higher education: Challenges and solutions. *International Journal of Education and Psychology*, 9(2), 101–115.
- Campbell, S., Makubuya, M., & Gashoot, A. (2022). Nature and pro-environmental behaviors: A psychological perspective. *Environmental Psychology Review*, 14(4), 234–250.
- Hani, L., Nassar, D. M., & Bakr, A. (2020). University campus and students' emotions: The role of landscape. *WIT Transactions on Ecology and the Environment*, 249, 71–81. <https://doi.org/10.2495/SC200071>
- Kaplan, R., & Kaplan, S. (2016). The reasonable person model: A framework for environmental design. *Journal of Environmental Psychology*, 45, 1–10. <https://doi.org/10.1016/j.jenvp.2015.11.003>
- Kaplan, R., & Kaplan, S. (2019). Restorative environments and human well-being. *Landscape and Urban Planning*, 187, 1–10. <https://doi.org/10.1016/j.landurbplan.2019.03.008>
- Lee, J., Mofatteh, M., & Makhubela, M. (2022). Multifaceted approaches to campus mental health. *Journal of Higher Education Policy*, 35(1), 55–70.
- Majeed, M., & Ramkissoon, H. (2020). Landscape elements and wellness: A systematic review. *Health & Place*, 65, 102–110. <https://doi.org/10.1016/j.healthplace.2020.102110>
- Makinde, O., et al. (2020). Education and nation building: The Nigerian experience. *African Educational Review*, 17(2), 88–105.
- Mengjia, F., Jamaludin, A. A., & Hussein, H. (2020). Wellbeing in an urban university: Sensory perception for salutogenic landscape design. *Journal of Asian Behavioural Studies*, 10(1), 71–83. <https://doi.org/10.21834/jabs.v10i1.353>
- Mofatteh, M. (2021). Mental health challenges in African universities: A review. *African Journal of Psychiatry*, 24(3), 150–160.
- Pau, C., Chinedu, E., & Onuorah, C. (2022). Emotional connections to landscapes and well-being. *Journal of Environmental Psychology*, 50, 150–160. <https://doi.org/10.1016/j.jenvp.2022.101600>
- Shortt, N., et al. (2014). Green space and health: A systematic review. *Environmental Health Perspectives*, 122(12), 130–140. <https://doi.org/10.1289/ehp.1408213>
- Thompson, C. (2016). Access to green spaces and neighborhood health. *Urban Health Journal*, 93(4), 567–575. <https://doi.org/10.1007/s11524-016-0044-2>
- Villanueva, K., et al. (2015). Green spaces and immune function. *Public Health*, 129(1), 45–53. <https://doi.org/10.1016/j.puhe.2014.09.008>
- Wunubo, B., Adamu, J., Audu, M. U., & Idah, Y. P. (2022). University students' perceptions and use of campus green spaces at Gombe State University, Gombe State, Nigeria. *FUDMA Journal of Sciences*, 6(4), 80–87. <https://doi.org/10.48198/fjs2022.1047>
- Zimbardo, P. (2004). The psychology of evil: Situational influences. *American Psychologist*, 59(5), 307–315. <https://doi.org/10.1037/0003-066X.59.5.307>