

Published by the University of KwaZulu-Natal
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Journal of Inclusive cities and Built environment, Vol. 3 Issue 5

How to cite: O.O. Idowu, et al., 2023. Appraisal and design of landscape elements in the Federal College of education Kontagora, Nigeria. *Journal of Inclusive cities and Built environment*, Vol. 3 Issue 5, Pg 49-64.

APPRAISAL AND DESIGN OF LANDSCAPE ELEMENTS IN THE FEDERAL COLLEGE OF EDUCATION KONTAGORA, NIGERIA

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Published 6 July 2023

ABSTRACT

Campus landscape design, planning, and management have to do with the arrangement of both the natural and artificial features on land for resource conservation for practicable, healthy, and pleasurable functions. The culture of efficient campus landscaping, exhibited in developing countries like Nigeria is not the same with that of the higher institutions of learning in the developed countries. This study aimed at examining the condition of the landscape elements of the Federal College of Education Kontagora, Niger State, with the view to developing a culturally integrated design proposal that would be aesthetically and functionally pleasing to users. Both primary and secondary data were employed in the study. The data required for this study included satellite imageries of the campus, the topographical map of the institution, and information on the existing hard and soft landscape elements and data on users' perception. The data were analysed using descriptive approach, while JASP 0.9.2.0 descriptive software, ArcGIS 10.2, AutoCAD 2018, terra incognita, Global mapper, Sketch Up 2018, Lumion 8.0 were used to prepare the landscape design proposals for the institution. The study shows that there was evidence of present of both hard and soft landscape elements restricted to the clinic area alone, while departmental areas, staff quarters, hostel, the school library are left with little or no functional and aesthetically pleasing landscape. With respect to the condition of the hard landscape elements of the FCE, Kontagora, investigation revealed that the paved path (82.8%), road (66.7%), drainage (85.9%), waste bin (98%), parking area (90.8%) and water fountain (100%) were in poor condition, while the seat out (75.8%), signage (84.2%), and lighting (69.1%) were in good condition. The results of the condition of the soft landscape elements revealed that both the lawn (95.8%) and hedges (77%) are poor, while the trees (63.3%) in good condition. The prevalent challenges affecting landscape development in an FCE Kontagora range from funding (50%) and the management attitude (20%) to landscaping. In such regard, 83% of users are not satisfied with the condition of existing landscape elements of FCE Kontagora. With the aid of Google Earth map of the area, the topography map and the existing based map were extracted and then used in preparing the design proposal plan for FCE Kontagora campus landscaping.

KEY WORDS Campus, Design, Development, Federal, Landscaping, Planning

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1. INTRODUCTION

According to Acquah (2002) landscaping is an art and science of developing the outdoor environment using ornamental plants, and non-plant objects components for aesthetic and other functional purposes. When it comes to landscaping, the client may choose both the aesthetics and the functionality. Landscape design, planning, and management is the art of arranging both natural and artificial features on land with consideration for resource conservation so that the resulting environment can serve a practical, healthy, and pleasurable function. By organizing places with a sufficient understanding of the fundamental principles of design, it focuses on enhancing and managing the environment (Garrett, 2002). A crucial component of our culture, landscaping contributes to the environment's quality, people's economic well-being, and their physical and mental health. Smith (2009) opined that through preserving the well-being of the biosphere, it is possible to sustain and improve the quality of human existence.

The full scope of landscape design goes beyond where trees and bushes should be placed in a particular area. It alludes to gardens, statues, fountains, water features, rocks, and carvings. Brandt & Aagaard (2012) asserted that city's development is more than just bricks and mortar, it characterized a designed to look beautiful, a large part of this goal is accomplished by blending design made with an effective and visually appealing landscape design. When planning non-residential landscaping, this user requirement should be taken into consideration. In workplaces and other indoor open areas, plants are utilized to enhance the facade of buildings and to provide beauty. The needs of the user are important to the designs usefulness when developing a non-residential landscape (Acquaah, 2009; Brandt & Aagaard, 2012).

Planning for the landscape is one of the requirements for environmental sustainability. It is connected to

horticulture, landscape architecture, planning, and environmental management. It is also referred to as site beautification. In order to improve the quality of the environment, the process involves articulating the use of existing open spaces (Abu-Ghazze, 1999). Abu-Ghazze said that landscaping is a human endeavour that attempts to improve the quality of the environment and promotes harmony between the human mind and body.

Landscape planning, according to Brandt & Aagaard (2012), is concerned with the process of creating a beautiful outdoor place in our immediate surroundings. Forman & Godron, (2001) put landscape design as a tried-and-true method that improves the sustainability of ecosystems. Simply, landscape planning is the art and science of balancing a person's vision of the natural world with his requirements. Landscape design is the systematic and functional arrangement of natural and man-made elements to bring them into harmony and to shape man's natural inhabitants to suit his needs (Brandt & Aagaard, 2012).

Thus, Basorun (2004), agreed that the relevance of plant materials, such as trees, shrubs, ground coverings, and grasses, in landscaping, are easily illustrated using shape, line, texture, and colour. All these are applied based on the needed roles or purposes, such as emphasis, softening, screening, framing, and shading, they are employed in various design contexts. For the enclosure, surfacing, and transmission or circulation inside and between the areas supplied, man-made structural elements are utilized.

The study by Gobster (2007) admitted that human landscape perception, cognition, and values are all closely related processes, which influence human aesthetic experience. Landscape aesthetics value, therefore, has evolved into one of the most significant socio-ecological research issues and has also gained significant respect in the public perception. As such, the functions of landscape design have evolved into a

key idea in policymaking. Making the best decisions on the allocation and management of various land use choices and services, involves a number of diverse groups of specialists, including politicians, urban planners, urban managers, and landscape architects (Bills & Gross, 2005).

Different institutions, including universities, colleges, polytechnics, hospitals, research facilities and barracks are known to be well landscaped. Usually, institutional, landscape is meant for all categories of users, that is, the general public of all age categories: children, adolescents, adults, women, men, students, lecturers, and non-academic staff. Institutions landscaping must be different from others because it is not only for recreation purposes or for picnics, but also for instructional purposes (Oduwaye, 2009).

Dober (2012) claims that the process of designing a campus's landscape involves a number of crucial steps, including environmental impact assessments, campus master plans, long-range development plans, and landscape plans. To provide campus-wide physical and aesthetic coherence, a campus landscape master plan offers the general direction for landscaping initiatives. It provides important landscape concepts for the campus design in particular, as well as suitable locations for development. In a nutshell, a master plan offers a strategy for academic institutions' missions, aims, and objectives (Bills & Gross, 2005). The evolution of any campus is profoundly impacted by open space. These areas should be planned in accordance with the diverse activities and interactions that occur amongst visitors, since they contribute significantly to the unique qualities of the campus.

Development of a convenient and suitable environment for a higher institution of learning in most developed countries through the use of landscaping is something of higher interest. A well-organized campus setting, provided with sufficient open spaces and other

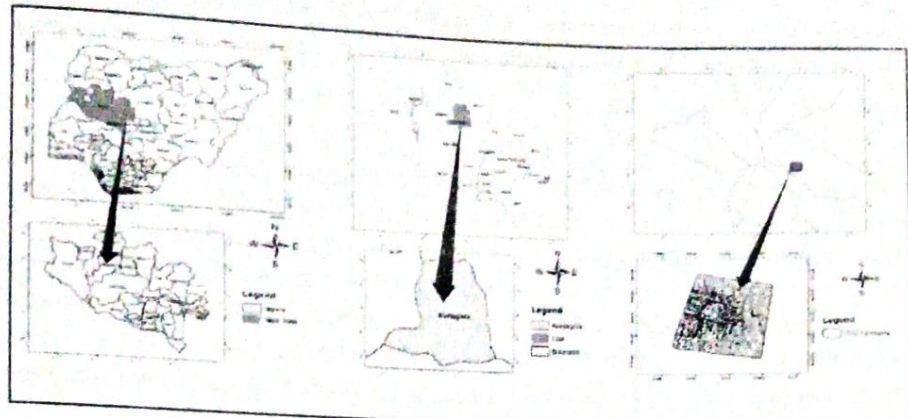
environmental needs is part of the necessary ingredients needed to enhance learning for students. Students realize the physical campus environment first when they visit a school even before enrolled, and the campus setting is remembered as a memorable experience after leaving a certain institution (Smith, 2009).

Campus landscape is the network of external and outdoor areas found on college campuses that organize and link buildings, serve and benefit students, staff, and visitors in various ways, and are generally used for recreational purposes, moreover, to serve as a representative of higher education (Berry, 2012). The culture of efficient campus planning and landscaping that are exhibited in developing countries are not the same with higher institutions of learning in Nigeria, particularly, in the schools in Niger State as an example, as the management of the institutions gives little or no attention to the landscape of their campuses. For this exercise, the existing landscape elements of the Federal College of Education Kontagora, Niger State are considered with the view to developing a culturally integrated proposal that will aesthetically and functionally pleasing to users.

2. STUDY AREA

The Federal College of Education Kontagora is situated in latitude 50E and longitude 100 N of the equator. The institution has a total land area of 447 hectares which is approximately 1020 acres. It is situated in the southern area of Kontagora town, and to the west of Bolo-boo Road. The Bolo-boo water works is 2km away from the college. To the north of the institution is a power station and to the east is a Gwagwara community. Historically, the Federal Advanced Teacher's College (FATC) at Kontagora which is now referred to as the Federal College of Education was established in 1978.

Figure 1: The study area in context of the country, local government, and the FCE Kontagora campus.



3. METHODOLOGY

Both primary and secondary data were used in this study. The data employed in this study include satellite imageries, existing hard and soft elements of landscape, and existing physical characteristics of the area, users' perception, and topographical map. Table 1 presents the process and methodology for the study. Data collected were analyzed using JASP 0.9.2.0 descriptive software. While ArcGIS 10.2, AutoCAD 2018, terra incognita, Global mapper, Sketch Up 2018, Lumion 8.0 were used to prepare the landscape design proposal for the institution.

Table 1: Methodological Approaches to the Study

Objectives	Description of Data	Instrument
Identification of the appropriate landscape elements.	Existing physical characteristics of the study area on hard and soft elements of landscape.	Field survey and observation
Examination of the existing physical condition of landscape elements.	Data on existing condition hard and soft elements of landscape.	Questionnaire
Assessment of the challenges affecting the development and management of landscape.	Data on existing challenges affecting the progress of landscape in the campus.	Questionnaire
Preparation of proposal for the landscape construction	Satellite imagery Topographical map	Computer Aided Design and GIS

4. DISCUSSION OF RESULTS

This section presents the existing landscape elements, physical state, the user's perception toward the existing landscape as well as the challenges associated with the development and management of landscaping in Federal College of Education Kontagora.

4.1. Existing Landscape Elements

Table 2 reveals that both hard landscape elements (paved roads, drainages, street lights, site furniture's, parking spaces and water fountain) and soft landscape elements (trees, lawns, hedges) that are present in the study area, but it is important to note that these identified landscape elements are not evenly distributed to the entire area, they are restricted to the clinical area, department, staff quarters, hostel, school library are left with little or no functional and aesthetically pleasing landscaping which is important for better relaxation and comfortability after academic activities. This implies that the existing landscaping in the Federal College of Education Kontagora is biased since it restricted to certain areas which is not functional for the functional and aesthetical pleasing working environment the existing landscaping is expected to create for the users (visitors, academic staff, non-academic staff, and student).

Table 2: The Existing Landscape Element in Federal College of Education Kontagora

Type	Names	Description
Soft landscape	Trees	Palm, Mango, Cashew, Neem tree, Shea butter tree, Gmalina, Butterfly Palm, Masquerade tree
	Lawns	Axonopus (grass carpet)
	Hedges	Duranta Goldiana, Duranta Rapens
Hard landscape	Drainages	along paved road and building 0.7m wide
	Paved road	10m collector access, 8m road to provost office, departments, library school clinic, staff quarters and student hostel access to car park respectively covering 0.6 hectares
	Parking area	4 parking areas of different capacity within the school with total area coverage of 0.4 hectares
	Site furniture	include 19 sign boards, 64 solar power kind of streetlights were accounted for, 5 sit out and no collective refuse point (drum for refuse dump or public basket)
	Fountain	No fountain was accounted at the study area.
	Path	2.0m walkway within the provost office with total area covered of 0.1 hectare

4.2. Physical Characteristic of the Existing Situation of Campus Landscape

4.2.1. HARD LANDSCAPE ELEMENTS

Table 3 shows the condition of hard landscape design elements in the study area. 65.4% of respondents identified that the paths condition is very poor, 18.3% are in poor condition, 10.0% are in good condition, 5.4% are in very good condition and 0.8% of pathways are in excellent condition. 4.6% of the roads are in very poor condition, 62.1% are in poor condition, 24.6% are in good condition, 6.2% are in very good condition, 2.5% of roads are in excellent condition. A total of 38.8% respondents identified that the drainages are in very poor condition, 47.1% are in poor condition, 7.9% are in good condition, 4.2% are in very good condition, and 2.1% are in excellent condition.

For the hard landscape elements, this implies that the condition of most of the footpath, road, and drainage are poor, while the seating, signage and lighting are considered good. Invariably, the condition of the waste bin, parking area and water fountain are poor.