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Aesthetic Effect of Landscape Elements in Residential Environments in Ilorin Metropolis Nigeria

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Abstract

How would one perceive an outdoor residential environment devoid of greenery and scenic beauty? How would one perceive a lifeless environment? Landscape as an integral part of architecture has been denied its scenic aesthetic pride, particularly in residential environments in major cities due to the little attention paid to its elements. Therefore, this study identifies the aesthetic effects of landscape in residential environment in Ilorin Metropolis Nigeria. The study relies on both secondary and primary data for achievement of the aim of the study. It focuses on the planning and beautification of the environment by analyzing landscape elements. The study found that landscape elements such as trees, fountain and swimming pool are fast becoming scarce in residential environment in cities. In conclusion, this study recommends increased attention to landscape elements (both natural and artificial) as they provide mental refreshment. In addition, they could provide a beautiful and peaceful environment that will restore the age long respect for aesthetics and comfort of the built environment.

Keywords: Aesthetic; City; Elements; Landscape; Residential Environment.

Introduction

Landscape architecture refers to the planning and aesthetic composition of the built environments which is an integral part of architecture. As man build to protect himself from the effects of weather and enemies, he then develops a lifestyle which can set him apart from the natural world. As man can no longer accept or be justified with what was or provided manually, they tend to improve or alter the environment which they live in. man deliberately creates landscape which defines the external circulation between spaces, harmonizes the building with the natural environment where aesthetic pleasure and emotional satisfaction can be achieved.

Landscape elements such as gardens, water features, and vegetation have been found to evoke positive emotional responses among residents. According to Ulrich's seminal study (1984), exposure to natural environments can lead to stress reduction and improved mood, highlighting the importance of integrating natural elements into residential landscapes (Ulrich, 1984). Similarly, Kaplan and Kaplan (1989) argue that visually engaging landscapes enhance cognitive restoration and foster a sense of tranquility and well-being (Kaplan & Kaplan, 1989). These findings underscore the psychological benefits of incorporating aesthetically pleasing landscape elements in residential settings.

It is only natural to design with clear landscape to obtain a more harmonious and protective residential building. Landscape helps to blend and integrate the building into mother landscape provided by nature. It creates a complete and functional design that relates man and his residence with the natural surrounding on having ecological balance by competing the free

dimensional pattern and continuity of the planned environment.

The residential environment plays a crucial role in the urban landscape. Nowadays, the living environment is not merely a space for habitation but a key area for enjoyment and social interaction. Aligning with the three core elements of modern urban life—work, living, and entertainment—residential areas have become natural sanctuaries.

LITERATURE REVIEW

Landscape Design for Housing Areas'

Research by Kaplan and Kaplan (1989) emphasizes the importance of green spaces in enhancing the quality of life within residential communities. Their study suggests that access to green areas, such as parks and gardens, promotes psychological well-being and fosters a sense of community cohesion (Kaplan & Kaplan, 1989). Furthermore, Kuo and Sullivan (2001) found that green spaces in housing areas contribute to stress reduction and improved mental health among residents, highlighting the multifaceted benefits of incorporating natural elements into residential landscapes (Kuo & Sullivan, 2001).

Effective landscape design for housing areas requires careful consideration of design principles that optimize functionality and visual appeal. Nassauer (1995) emphasizes the importance of coherence and legibility in landscape design, advocating for landscapes that are both visually pleasing and functional for residents (Nassauer, 1995). Moreover, Gehl (2010) underscores the significance of human-scale design elements, such as pedestrian-friendly pathways and communal gathering spaces, in fostering social interaction and neighborhood connectivity within housing developments (Gehl, 2010).

The concept of sustainability is increasingly integral to landscape design for housing areas, with an emphasis on ecological conservation and resource efficiency. Colding and Barthel (2013) argue for the integration of sustainable practices, such as native plantings and water conservation measures, to enhance the resilience and ecological integrity of residential landscapes (Colding & Barthel, 2013). Similarly, Beatley (2011) explores the concept of biophilic design, which seeks to incorporate natural elements into the built environment to promote environmental sustainability and human well-being (Beatley, 2011).

According to Kaplan and Kaplan (1989), access to green spaces within housing areas is essential for promoting psychological well-being and fostering a sense of community cohesion. Similarly, Nassauer (1995) emphasizes the importance of coherence and legibility in landscape design, advocating for landscapes that are both visually pleasing and functional for residents. Gehl (2010) underscores the significance of human-scale design elements in fostering social interaction and neighborhood connectivity within housing developments.

The Importance of Landscape Design in Housing Areas

Effective landscape design in Nigerian housing areas requires consideration of local cultural, environmental, and socio-economic factors. Adeyemi (2014) emphasizes the importance of designing landscapes that reflect Nigeria's cultural heritage and respond to the needs and preferences of local communities (Adeyemi, 2014). Additionally, research by Olayiwola et al. (2019) explores the integration of sustainable design principles, such as rainwater harvesting and indigenous plantings, in Nigerian residential landscapes to enhance environmental resilience and resource efficiency (Olayiwola et al., 2019).

This paper focuses on the importance of landscape design in the planning and development of housing properties in urban areas. Landscape elements are crucial for fostering a better living environment for communities in residential areas. According to Ye, three factors support residential landscape elements: natural, artificial, and cultural. The use of plants is essential for maximizing the benefits of landscape design in housing areas. Plants contribute to the landscape through form, texture, and color, embodying design principles and allowing residents to experience nature amidst the urban setting. Additionally, plants offer climate and ecological benefits by mitigating the high temperatures caused by urban hard surfaces. Shaded trees protect residential areas from sun radiation, creating a more comfortable environment. Furthermore, plants support wildlife habitats, prevent soil erosion, control microclimates through shade and windbreaks, and reduce pollution.

Economic value is also enhanced through landscape design, as the higher market prices of landscape materials can increase property value and attract prospective buyers. Landscape design significantly impacts humans and other living things by providing a conducive living environment. The cumulative effects of landscape design influence the social, aesthetic, and environmental qualities of housing areas. Therefore, innovative landscape designs that incorporate ecological benefits are crucial for creating sustainable living environments.

The Elements of Landscape Design for Housing Areas

The elements of landscape design such as softscape, hardscape, and water elements are important to create balance in landscape designs. Mohd Hussain and Ahmad mentioned that the function of hardscape and softscape especially in the housing area give a sentimental value and contribute to creating images and character of the contemporary landscape. It can be visualized through the use of varied type of plants such as ornamental plants, herbs / kitchen garden, shaded plants and palm in most of their lawn and front yard area. In the other hand, hardscape also plays a role in the landscape setting as attractive components that balance the natural environment. Among the hard landscape elements that commonly used in the landscape in a housing area including gazebo as a place to meet, pergola, concrete pots, water features, fountains, swings and benches. Furthermore, the use of these elements will increase the benefit and value to the house property.

Aesthetics and Landscape

Aesthetics encompasses the notion of beauty and the functionality of a design. In line with Shakespeare's sentiment that "beauty is in the eyes of the beholder," landscaping for aesthetic pleasure is inherently subjective, driven by individual preferences. However, this subjectivity does not negate the existence of guidelines for successful landscaping. Often, the expertise of a specialist is sought in this domain to translate emotional and psychological aspirations into tangible landscapes.

Landscape Elements

Landscape elements can be recognized under two broad division which are Natural elements and artificial elements (man- made)

Natural Landscape Elements

These are landscape elements that occur in nature, which are either used in their natural state or changed and used in different forms or appearances by man in defining his landscape and environment. These materials include the earth, plants, rocks and water body.

Artificial Landscape Elements

Artificial Landscape elements refer to the man-made or carpentered landscape elements, as man in his continuous search for a better surrounding to satisfy his functional security as well as aesthetic desires has manipulated the existing natural landscape, the man-made landscape elements are fundamental and dominate the landscape and, in some cases, totally eclipse or destroy the natural mother or original appearance of the existing landscape. The man-made landscape materials as incorporated into the natural environment changes such an environment. This then creates an harmonic or disharmonic situation which might serve as the yardstick for measuring the degree of success of the design and quality of that environment. Some principal common man-made landscape materials include; surfaces, shelter, water bodies, outdoor fittings furniture and children play ground

Landscape Around Residential Building

In the design of residential landscape, there has to be the composition of forms and structures around the environment with consideration given to certain items which wherever present should be in conformity with the building design, by this, the landscape design could be said to be synonymous with the unified design of the residential building, some of this form and structures includes; Plant material, outdoor element, infrastructure, circulation game and recreational facilities.

Impact of Landscape Design on Built Environment

Landscape design exerts a multitude of impacts on the built environment, each contributing to its functionality and aesthetic appeal. Firstly, the aesthetic impact aims to provide visual satisfaction to viewers. For example, in residential settings, a well-designed landscape offers visitors a favourable first impression, enhances the overall ambiance, delineates functional components of the environment, and provides a serene relaxation space. Additionally, it effectively manages undesirable views while adhering to established principles of landscape design. Moreover, landscape design influences the environment by modifying climate and microclimate, regulating noise, and controlling solar radiation and glare. These objectives contribute to the creation of a conducive living atmosphere tailored to the specific climatic conditions and microclimates of the area. Various landscape materials, including plants, play a crucial role in climate modification. For instance, plants such as ground cover, low and

medium-height species, and grasses absorb solar radiation and prevent glare, while creeping and climbing plants enhance thermal insulation by reducing reflection.

Furthermore, landscape design facilitates movement direction and circulation control, alongside providing visual privacy. Plants strategically guide viewers towards focal points by framing views and define outdoor spaces that offer both privacy and access to surrounding vistas. Overall, landscape design serves as a multifaceted tool in shaping the built environment, harmonizing functionality, aesthetics, and environmental considerations.

The Study Area (Ilorin)

Geographical Location

Ilorin is one the gate-way between Northern and southern Nigeria. It is situated between 8.50Northing 4.54 Easting and 8.24 Northing 4.28 Easting and it is situated at elevation 320 meters above sea level. It lies on the plain of the South-West plain of Nigeria. It is a transitional zone between the open savannah belt of which is an integral part to the North and forest area to the South. The city which lies along Lagos-Kaduna highway is about 134km away from Ibadan and 360km from Lagos. It is bounded in the North by Kogi state, in the East by Ekiti/Osun States and in the South by Oyo State (see figure 3.1). Ilorin is about 600km from Kaduna and about 500km from Abuja, the Federal Capital of Nigeria.

Research Methodology

The research utilized both primary and secondary data. Primary data collection involved distributing 150 questionnaires to respondents within and near the study area. The sample frame comprised two residential areas: the Government Reserved Area at Agric along Sango and the Lower Niger River Basin residential area

Presentation and discussion of results

Five indices were developed. These are the Level of Aesthetics of Trees and Plants (LATPI), Level of Aesthetics of Water Features (LAWFI) Level of Aesthetics of Hardscape Elements (LAHEI), Level of Aesthetics of Outdoor Lighting (LAOFI) and Level of Aesthetics of Outdoor Furniture's (LAOFI)). The variables were measured in the ranking scale of Likert as "Very Aesthetics" (5), "Aesthetics" (4), "Neutral" (3)," Not Aesthetics" (2) and "Not Aesthetics at all" (1). This was obtained by dividing the summation of the weighted (SWV) value by the total number of respondents

Note that, NAA =Not Aesthetics at all = 1, NA = Not Aesthetics= 2, N =Neutral = 3, A = Aesthetics = 4, and VA = Very Aesthetics = 5

. The SWV of each variable is the addition of the product of the proportion of responses to it.

SWV = $(ax5) + (bx4) + (cx3) + (dx2) + (ex1)$

LOAI $= \left[\frac{SWV}{No\ of\ respondents}\right]$

$\bar{X} = \sum \left[\frac{SWV/_{NR(f)}}{No\ of\ variables}\right]$

D = $\frac{SWV}{NR(f)} - \bar{X}$

$D^2 = \left[\frac{SWV}{NR(f)} - \bar{X}\right]^2$

$\bar{X}$= mean D= Deviation

D^2 = Standard deviation

SWV = Sum of weight value

NR (f) = No of respondents

Table 1: Level of Aesthetics of Trees and Plants

Elements	Ratings					SWV	NR(f)	LATPI		D	D2
	1	2	3	4	5						
Mature Trees	6	8	12	28	45	99	30	3.3		0.09	0.008
Flowering Plants	5	16	12	20	40	93	30	3.1		-0.11	0.012
Shrubs	5	12	15	20	45	97	30	3.23		0.02	0.00004
Total								**9.63**	**3.21**		

In Table 1, the highest level of aesthetics for trees and plants is observed in Mature trees, scoring 3.3, followed by Shrubs at 3.23, and Flowering plants at 3.1.

Table 2: Level of Aesthetics of Water Features

Elements	Ratings					SWV	NR(f)	LAWFI		D	D2
	1	2	3	4	5						
Fountains	3	10	12	32	50	107	30	3.57		0.17	0.029
Ponds	6	12	12	28	35	93	30	3.1		-0.3	0.09
Waterfalls	3	8	18	32	45	106	30	3.53		0.13	0.017
Total								**10.2**	**3.4**		

In Table 2, the most elevated aesthetics in water features are attributed to fountains, achieving a score of 3.57, followed by waterfalls at 3.23, and ponds at 3.1.

Table 3: Level of Aesthetics of Hardscape Elements

Elements	Ratings					SWV	NR(f)	LAHEI		D	D2
	1	2	3	4	5						
Pathways	4	10	12	24	55	105	30	3.5		0.09	0.0081
Patios	2	8	15	36	50	111	30	3.7		0.29	0.0841
Sculptures	4	12	13	32	30	91	30	3.03		-0.38	0.144
Total								**10.23**	**3.41**		

In Table 3, the highest level of hard landscape elements is observed in Patios, scoring 3.7, followed by pathways at 3.5, and Sculptures/Pieces at 3.03.

. **Table 4: Level of Aesthetics of Outdoor Lighting**

Elements	Ratings					SWV	NR(f)	LAOLI		D	D2
	1	2	3	4	5						
Landscape Lighting	2	16	15	32	35	100	30	3.33		0.08	0.006
Decorative Lighting	3	14	15	32	35	95	30	3.17		0.006	0.00004
Total								**6.25**	**3.25**		

In Table 4, the highest Level of Aesthetics of Outdoor Lighting is observed in Landscape lighting, scoring 3.33, followed by Decorative Lighthing at 3.17.

Table 5: Level of Aesthetics of Outdoor Furniture's

Elements	Ratings					SWV	NR(f)	LAOFI		D	D2
	1	2	3	4	5						
Seating Areas	4	8	15	36	40	103	30	3.43		-0.12	0.014
Table and Doors	3	14	15	38	40	110	30	3.67		0.12	0.014
Total								**7.1**	**3.55**		

In Table 5, the highest Level of Aesthetics of Outdoor Furniture's is observed in Table and Doors, scoring 3.67, followed by Table and doors at 3.43.

Recommendation:

Based on the development of the five indices for assessing the aesthetics of various landscape elements, it is recommended to implement these indices in future landscape design projects. These indices provide a comprehensive framework for evaluating the aesthetic qualities of trees and plants, water features, hardscape elements, outdoor lighting, and outdoor furniture. By utilizing these indices, landscape designers and architects can objectively assess the aesthetic appeal of different elements within their designs.

Furthermore, it is suggested to conduct further validation and refinement of these indices through empirical studies involving larger and more diverse sample populations. This would help ensure the reliability and validity of the

indices across different contexts and settings. Additionally, incorporating feedback from landscape professionals and stakeholders in the field can contribute to enhancing the robustness and applicability of the indices.

Moreover, integrating these indices into decision-making processes can facilitate more informed design choices and ultimately lead to the creation of visually captivating and aesthetically pleasing landscapes. It is advisable for practitioners to regularly update and adapt these indices to align with evolving trends, preferences, and best practices in landscape design.

Conclusion:

In conclusion, the development of the Level of Aesthetics indices for trees and plants, water features, hardscape elements, outdoor lighting, and outdoor furniture represents a significant advancement in the field of landscape assessment. Through the utilization of Likert scaling, these indices provide a systematic approach to evaluating the aesthetic qualities of various landscape elements.

The implementation of these indices offers valuable insights for landscape designers, architects, and urban planners seeking to create visually appealing and functional outdoor spaces. By considering the aesthetic attributes of trees, water features, hardscape elements, lighting, and furniture, designers can enhance the overall quality and enjoyment of outdoor environments.

Moving forward, it is essential to further validate and refine these indices to ensure their reliability and applicability across different contexts. By incorporating stakeholder feedback and staying abreast of emerging trends, these indices can serve as valuable tools for guiding decision-making processes in landscape design, ultimately contributing to the creation of more vibrant and engaging outdoor spaces.

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