

AN EVALUATION OF THE SPATIAL DIMENSION OF LANDSCAPE CONSCIOUSNESS AMONG RESIDENTS IN OGBOMOSO, NIGERIA

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Abstract

This study is a survey of residential houses, to evaluate residents' conscious inputs to qualitative and nature-sensitive housing environments in Ogbomoso. Three relative objects of the built environment are focused for the study. The first is the conscious provision of open space. Open space considered acceptable in this study should not be less than the 3.0, 1.5 and 3.0 metres, mandatory set backs at the front, to the property fence and to the next neighbour's outer wall, respectively; constituting the approval requirement for housing development by the Town Planning Authority - the development control agency in Nigeria. The second is the documentation of any evidence of residents' conscious attempt at landscape, indicated by any landscape deliberately located in the housing environment. The third is the overall state of the housing environment with respect to all landscape element by the reckoning/assessment of the households themselves-for the quality and nature-friendliness of their housing environment. The availability and resulting state of these three are noted in each and compared across the zones of the city. The results show that incidence of open space, conscious landscape elements and general nature-friendliness of housing environments are significantly better in the lower density residential zones of the city.

Keywords: Landscape, consciousness, spatial, dimension, evaluation, resident

Introduction

The concept of 'Green Architecture' has been prescribed as a design and development paradigm to engender optimally sustainable nature-sensitive and enduring built environment (Fedamiro and Atolagbe, 2005; Abubakar, 2011; and Atolagbe, 2011). In compliance with this prescription, housing design and development must harness and deploy nature's provision for heating, cooling, lighting, etc; optimally, to the benefit of users and for tempering housing environments (Osasona, 2011).

The human housing environment, today, evolved from the prehistoric shelter - a physical space, covered for the protection of man from harsh elements of weather. Shelter as was known then, has gone through a series of additive changes; in the hands of man, through successive civilizations and living sophistications. Today shelter is subsumed in a more complex, living environment; the process and product of which is now, housing. The latter is described as a total living environment.

For the purpose of this study, the housing environment has been divided into three mutually related components. The first is the house, consisting of the shelter or housing shell, enclosing a living space, together with a set of indoor services and amenities like water, light and facilities for cooking, cooling, heating, lighting, storing, etc. The second is the immediate outdoor environment which is subject to residents' micro-climatic and vegetational manipulations. The third component consists of the municipal, public managed facilities and services for transportation, health, communication, education, electricity, water and communication networks, etc. Acquisition of the first and second components of housing, identified in the foregoing, are direct responsibilities of the individual house owners, and residents earmarked for this study have acquired the first, (shelter and indoor services). How do they respond to the demand of the second; the housing environment that could be judiciously harnessed for a better quality residential life?

Studies on specific areas of open space and landscape quality, in Nigerian urban cities, are few

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in Nigerian housing literature. They include the one on Urban Environmental conditions in Akure (Fadamiro and Atolagbe, 2005) and many others on diverse areas of urban infrastructure, residents' indicators of urban housing habitability and stress (Abiodun 1985; Wahab, *et al.*, 1990 and Omole; 2001). Atolagbe (2011), worked sparingly on elements of landscape in Ogbomoso residential housing environments. No other studies have been done in the city on the specific area of open space and housing environmental landscape. The present study is done partly to open up discursion on this aspect of Ogbomoso residential housing environment.

The housing environment can be deployed, with adequate landscaping, - using landscape elements, to create a whole lot of difference in housing live-ability!

Landscape elements include hard and soft materials. Hard elements include kerbs, tiles and pavements, while soft elements include plant materials (trees, shrubs, flowers, grasses, etc); and water (like pools, fountains and even, running waters). Plant materials can be deployed as sun and wind breakers; to control water and wind erosions; and check environmental harshness, glare, etc. Water bodies can enhance cooling effect and enhance environmental beauty. Flowers and sculptures can also be used as ornaments and garden furniture, respectively.

Introduction of landscape elements around the house does not only help to enhance pleasant environment, but also restores a near-nature situation, where micro ecology has been distorted by human activities. The resulting environment, thrives in the interaction between ecological flora and fauna, biotic and a-biotic elements, including, air, water and energy cycles that replenish and rejuvenate freshness and friendliness between man and non-living components of the environment. Conscious efforts at landscaping ensure a better outdoor environment, complimentary to housing habitability. Thus, landscape elements aid users' comfort and good scenic views in housing environment. Housing environmental landscape compliments living; indeed, like good housing, aids residents in achieving their living goals!. How much of these good attributes of landscaping practice is known to residents in Ogbomoso? If residents are aware, how much evidence of such awareness is reflected in their housing

environment? What is the general landscape quality of houses in Ogbomoso? How does this differ across the zones of the city. These and more, are to be examined, for answers, in this study.

Methodology

A multi-stage sampling approach was adopted in the study. First, using the street map of Ogbomoso, about 50 percent of the streets was sampled, at the rate of 18, 15 and 14 streets for the high, medium and low residential density zones, of the city, respectively. Answers to three questions were sought for in the housing environments, through observation and discussion with 1, 250 household heads, chosen by randomly systematic sampling procedure. The three questions/observations are:

- i. Availability of adequate open space around the house,
- ii. Incidence of residents' conscious attempt at landscape in the housing environment and
- iii. Rating residents' satisfaction with resulting landscape quality of their housing environments. Answers to the three questions/observations were noted/recorded.

A contingency table was drawn for each of the three indicators of landscape consciousness and a Chi-Square significance test was performed on the distribution of the scores across the residential zones of the city.

Assessment of Open Space

As conceptualized earlier in the study, open space is considered adequate in this study, if the space around the building allows a minimum setback of 3.0 metres in the front and between two adjoining houses; measured between the two closest walls of the two. Where one or both of them have a boundary fence, this distance is 1.5 meters measured between the fence and the house under survey.

Identification of Cases of Conscious Attempt at Landscape

All housing environments with any noticeable landscape element was recorded a 'yes', provided the household could convince the researcher beyond reasonable doubt that such element was will - fully put in place. This is in addition to the evidence adduceable from the appropriateness of the location of the element of landscape. All cases of environmental tiling, standing flowerpots, cluster or hedges of flowers, demarcated lawns,

swimming pools, etc, were regarded as conscious landscaping.

Residents' Satisfaction Rating of Housing Environment

Each household was enlightened on the liveability, accruable from an environment with adequate open space and each of the two groups of hard and soft landscape element before asking for self assessment of their environment.

Results and Discussions

The distribution of the scores on open spaces around houses across the three residential zones of the city is shown in Table 1 It shows that over 74 percent of houses in the low residential zone of the city have adequate open spaces around them. This is followed by 67.1 and 43.1 percents in the medium and high residential density areas, respectively.

Conversely, the highest proportions (55.1%), of houses without adequate open spaces around them, are significantly in the high density followed by 36.5 percent in the medium; and the least (21.3%) in the low density zones of the city. Thus, adequacy of open spaces around residential houses increases with decreasing density zones, in the city, with critical value of 105.79. This result which is significant at 99 percent level of confidence, is not unexpected; judging from the settlement and building construction history of the city. The high density residential zone is a pre-colonial settlement. During this period cohesion was a good attribute of settlements; to be able to resist intertribal wars that easily ravaged small, scattered settlements. Thus, the interstitial spaces between houses were small, and every person saw himself as his brothers' keeper, the way he saw others having responsibility towards his/her security.

Besides, at this period of settlement, houses were built and developments carried out without any central control as occurred at the settlement periods of the medium (Colonial Settlement), and low (Independent Settlement), residential density zones when housing and other development gradually and increasingly, required development agency approvals.

In post colonial periods, affluent citizens, government officials and the rich in Nigerian cities embraced the Government Reservation Area (GRA) housing legacy (with large plot sizes and

wide interstitial spaces), introduced by the colonial governments at Central and Regional headquarters. This housing style has been perpetrated, without relief, among the rich and educated in Nigerian cities.

Conscious Attempt at Landscaping

Housing Environmental landscape, resulting from conscious attempt by residents, constitute 14.2, 31.6 and 52.3 percents in the high, medium and low residential density zones of the city, respectively. Thus only about 30.5 percent of residents in the city, as a whole display and demonstrate conscious awareness of importance of landscaping their housing environments (Table 2). A greater percentage (62.7%) of residents in the city show no interest in any of form of landscaping.

In the course of data collection it became apparent that fruit trees like mango, oranges and foliage trees that are food for domestic animals, constituted the landscape elements, residents popularly introduced into their housing environments. This curious observation was tabled at group interviews before respondents, most of which confirmed that love for edible fruits and animal forage (especially goats), rather than a congenial environment constituted the urge for introducing the elements in their yards. This finding is an improvement over what has been known as the general attitude of building developers in regards to landscaping. As confirmed by Fadamiro (1998), landscape elements, also called "nature" elements are often the first target of clearance or elimination in the process of physical development of an environment. They are called the third element and consists of ground forms, rocks, plants and water bodies in building or environmental development. The first and second elements, consist of the "structure" (buildings, streets, roads, parking areas and utilities above and below the ground) and "Open Space" (for pedestrians) respectively.

Thus, landscaping awareness and response to same like open spaces, also increases significantly with decreasing residential density zone. This result may be explained on the bases of residents' socio-economic status. In a recent study, Atolagbe (2011) showed that socio-economic status of residents in the city increased with lower residential density zones. The inference from here, is that awareness of landscaping advantages in

residential houses generally increases with the socio-economic status (education, income, employment status, etc).

Residents' Perception of Quality of Housing Environment

Generally, quality of housing environment are rated low in all zones of the city as residents consider landscape quality in the entire city as generally unsatisfactory, at about 67 percent, (constituting total unsatisfactory and very unsatisfactory). Nevertheless, users' satisfaction with overall housing environment varies significantly across the residential zones of the city. It is higher in the low, followed by the medium and least in the high residential zones, with a combined rating of 'very satisfactory' and satisfactory at about 38, 30 and 10 percents respectively. About 83, 62 and 50 percents of the residents are either dissatisfied or very dissatisfied, in the high, medium and low residential density zones of the city respectively. Thus, like in the findings on open space (Table 1), and conscious attempt at environmental landscape (Table 2), conscious treatment of housing environment and consequently landscape quality is significantly higher; and least in the low and high residential areas of the city (Table 3). This result may not be surprising, as residents of the lower residential zones of the city are more affluent; being of higher socio-economic status. People with better levels of education and income are expected to have better understanding of value for a good environment that is commensurate with the quality of their houses.

From the results in table 1 to 3, the general inference is that majority of the residents have no appreciation for environmental comfort accrueable from the landscape of housing environment. And here arises another curiosity! On what basis are residents assessing their housing environment; since they are not judging from the viewpoint of landscaping? Once again this was subjected to a conference discussion! The result, as envisaged, showed that residents' parameter for judging/assessing the quality of their housing environment, though linkable to, were not directly based on the presence or absence of natural elements around their houses. Rather reasons often given by residents for returning dissatisfaction for the quality of their housing environment include, but are not limited to the following.

- i. Poor drainage within the housing environment, sometimes resulting in stinking, water, in trenches and gullies.
- ii. Too hot housing environment, especially at certain periods of the year. When it was too hot in the house, the outdoor was too sunny to provide any respite; and when it was hot in the nights, mosquitoes would not allow outdoor living.
- iii. Accumulation of domestic waste, especially, air-blown paper and nylon bags from neighborhood waste dumps, especially during the Harmattan seasons.
- iv. The menace of rats especially the noisy, long smelly ones with pointed mouths, in and around the housing structure. They are carnivours and are predators to newly hatched poultry chicks.
- v. The pester of free ranging, domestic animals like goats, sheep, etc from neighboring houses, making incursion into, and consuming unguided food stuff undergoing sun-drying in the immediate housing environment.
- vi. Disturbing noise from music, grinding mills, power generators, prayers and call to prayers from neighboring houses and worship centres. As observed earlier, some of the dissatisfactory attributes of the housing environments, listed above, could have been mitigated in a properly landscaped environment. For instance: a judicious selection of paving, tree-planting and grass-carpeting materials can obviate poor drainage and excessive environmental heat.

Introduction of hedges with spiked flowers, fences and other boundary barriers of plant materials can also, help to moderate wind effects and offer barriers to stray animals; even air-borne wastes.

Conclusions and Recommendations

The live-able housing environment, derivable from proper landscaping of immediate housing environment, with all its benefits to residents is lost to the majority of residents across the city of Ogbomoso. Thus, there are, generally, inadequate open spaces, low residents' attempt at landscape practice and poor quality of housing environments in Ogbomoso.

This is evident from the harsh qualities of their housing environment which are considered largely unsatisfactory by residents themselves. The few attempts at landscaping and deliberate introduction of nature elements in a few housing environments, are more in the lower density zones of the city, where residents are of higher socio-economic status. Thus, their better level of enlightenment (education), high income and general affluence may have contributed to enhancing their better awareness on importance of retaining elements of nature in melowing housing environments. A good number of residents in the city who show apparent awareness of, and demonstrate conscious attempt at housing environmental landscape, may have done such for a few other reasons. Some of the reasons evident from field discursions include love for fruits which occasion the planting of mangoes, oranges and other fruit trees. Others include some specific type of foliage trees to supplement feeding for domestic animals, notably goats and sheep. Some residents in this category in the high, and to a lesser degree in the medium residential density zones of the city, cannot even do this for lack of enough open spaces around their houses to accommodate them.

Residents contend with other environmental problems, which are though, not directly contingent on landscaping, but to which effective landscape may provide some respites. These include hot afternoons and nights at certain periods of the year, poor drainage of housing environments and accumulation of air-borne solid wastes, in the immediate housing vicinity. Others include the menace of rats in the housing environment, incursion of stray domestic animals from riparian neighbours foraging into housing environments, among others. Some of these problems may not directly have bearing on landscaping. Yet proper environmental management, including judicious introduction of landscape principles may ameliorate them. In any case, solutions to them are squarely within the purview of environmental research. They identify pertinent areas for environmental research attention!

Following from the forgoing results and conclusions, some recommendations are proffered towards a better, habitable housing environment.

First, residents in Ogbomoso need some enlightenment on the benefits of natural elements in the housing environment; and the gains of

retaining such elements in the course of building development. These include the cooling effect of shade trees, flood water erosion control by using carpet grasses, water channeling through paves, articulation of outdoor space with the use of lawns, kerbs, tiles and moderation of climatic effects with the use of trees as wind and sound breakers/insulators and shading houses from daylight insolation. Others include deployment of hedges, beds (of flowers), fencing (with soft and hard elements), to create barriers and enhance better privacy of individual housing environment.

Development control and approval requirements in future may include the introduction of landscape elements in plans, including site plan. Such may be mandatory identification of positions on site plans for a minimum number of trees (say two) in the front of the house.

Atolagbe (2011) reported the gradual emergence of single family houses replacing compound houses in the high residential city cores. Such new developments should attract keener attention of development control agencies to ensure provision of adequate open spaces. The present practice of the Town Planning Authority, which gives approval to building plans in the city core without Land Survey plans, should be stopped. Rather a greater approval attention should be given to developments in this area to ensure adequate set backs. Similarly, attention should be focused on low-cost house types and styles coming up in the low-residential zone of the city. This is to ensure that the tradition of no-set backs and the accompanying planless-ness in the high, does not crop into the low density residential zone.

The menace of domestic animals on free-range is multi-dimensional in residential environments with no security fences and gates. These stray animals eat neighbour's food stuff, defaecate in others yards and destroy lawns, ornamental plants and generally distort environmental setups. They even discourage residents from raising vegetable gardens in their housing environment. The general fear is that such tender crops would be eaten up by foragers! For the same reason, some residents erect costly fences around their gardens, yearly, to forestall animal invasion of gardens. These are unnecessary expenses in environments free of stray domestic animals. It is therefore recommended that agencies for environment and development control

should make it mandatory that residents that breed domestic game should do so in confinement. Invasion of others' housing environment by stray pets or other forms of animals, from neighbours, should be punishable by law.

Sources of urban noise have been identified in Nigeria (Atolagbe and Tanimowo, 2006); and recommendations made for its abatement. It is hoped, the Nigerian leaders and environmental agencies will develop enough courage, sincerity and fearlessness to tackle this problem.

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Table 1 Open Spaces Around Houses

Variable	Category	Residential Density Type								Chi-Sq. value	P-value
		High		Medium		Low		Total			
		No	%	No	%	No	%	No	%		
Availability of open space	No Response	9	1.8	9	2.4	10	2.8	27	22	105.797	0.000
	Yes	21	43.1	253	67.1	269	74.1	741	59.4		
	No	280	55.1	115	30.5	84	21.3	479	38.4		
	Total	508	100	377	100	363	100	1248	100		

Table 2 Conscious Attempt at Environmental Landscape

Variable	Category	Residential Density Type								Chi-Sq. value	Probability value
		High		Medium		Low		Total			
		No	%	No	%	No	%	No	%		
Conscious Attempt at Landscaping	No Response	38	7.5	33	8.8	14	3.9	85	6.8	149.379	0.000
	Yes	72	14.2	119	31.6	190	52.3	381	30.5		
	No	398	78.3	225	59.7	159	43.8	782	62.7		
	Total	508	100	377	100	363	100	1248	100		

Table 3 Landscape Quality of Housing Environments

Variable	Category	Residential Density Type								Chi-Sq. Value	P-value
		High		Medium		Low		Total			
		No	%	No	%	No	%	No	%		
Landscape Quality of Housing Environment	No Response	20	3.9	19	5.0	12	3.3	51	4.1	148.678	0.000
	Very satisfactory	6	1.2	11	2.9	31	8.5	48	3.8		
	Satisfactory	34	6.7	74	19.6	95	26.2	203	16.3		
	Can not Decide	27	5.3	39	10.3	43	11.8	109	8.7		
	Unsatisfactory	221	43.5	142	37.7	127	35.0	490	39.3		
	Very Unsatisfactory	200	39.4	92	24.4	55	15.2	347	27.8		
	Total	508	100	377	100	362	100	1248	100		