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Block Design Attributes and Residents Livability in Ogbomoso, Nigeria

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Abstract

The major brunt of inefficient planning is bore by residents within the area most proximal to their living, working, shopping or playing spaces. Against this background, the study analyses the livability correlates of block layout designs in Ogbomoso, Nigeria. Google Earth (2016) application was used to randomly capture 20 salient areas of the city using quadrant method. A questionnaire was also administered to 610 residents in a multi stage sampling procedure to elicit information on block layout performance and residents livability. Likert scaling was used to summarize ordinal data. Chi-square was used to explain the variation in the quality of block design across residential areas. Regression analysis was also used to explain the relationship between the quality of block design and environmental liveability. A reliable interdependence was observed (R = .701) between residents liveability index (RLI) and block design index (BDI). The study thus recommended an active joint participation involving the government through town planners and the developers to foster efficient city design of blocks and to guarantee liveable communities.

Keywords: Block Design Attributes, Residents Livability, Ogbomoso.

Introduction

The stake of theoretical underpinnings describing a good city or neighborhood posits that the built environment plays important roles to encouraging health, mobility, recreation, safety, physically fitness, efficient energy use, social cohesion, economy agglomeration and community organization among others. (Norhaslina, 2002; Myers, 1987; Werner, 2005). Greater emphasis upon responsive design, enhancing local identity, providing an interconnected network of streets with perimeter block development and frontage to streets and open spaces in a wider choice of housing type have become an imperative in recent times (Obateru, 2003). Therefore, the importance of neighbourhood in residents' life has attracted numerous studies (Veenhoven, 1996; Lee, 2005). A broader and more integrated perspective is needed; with many design issues best addressed at the neighbourhood structure planning level. However a well-designed intra block interaction sets out the intent of *Liveable Neighbourhoods* with respect to how towns and neighbourhoods should be structured, the layout of street networks and block structures. This seeks to provide safe, convenient and attractive neighbourhoods that meet the diverse needs of the community are adaptable to future change and which fit into the existing and planned urban context.

Livability is a concept resulting from the interaction between the community and its environment (Shafer, Lee and Turner, 2000). Werner (2005) summarises that liveability is not only related to spatial housing and urban qualities but also includes quality of community life. Various researches had relied upon residents' experiences as a measurement of neighbourhood quality (Lee, 2005). Reason being the human-built topography and block typologies of neighbourhoods cast a great impact on residents' social and psychological outcomes. Hence, residential environment is one of the important factors that influence consumers' choice and the property selection (Visser, van Dam and Hooimeijer, 2005). Due to the wide geographical area in urban setting, a residential environment that is able to satisfy the daily demand of inhabitants is desired. To achieve competitive advantage, any neighbourhood must ensure that its overall

'appeal' and the living experience offered to be superior to that of the alternative locations open to potential inhabitants (Visser *et al*., 2005).

However**, c**ities have grown without guide (Obateru, 2003; Achi, 2004) there is a growing awareness of the deterioration of liveability particularly in urban built environment due to the pressure of rapid development and growing population (Laily and Ahmad, 2004). Aspects such of social security and the quality of contact between neighbours are believed to be deteriorating due to the increase in growth. To this end; crime, anti-social behaviour and vandalism are prevalent. The effect of cities unguided physical development is etched in inaccessible dwellings. The obscurity of these buildings encourages the existence of socially inimical elements.

However, the relevant attributes and dimensions in evaluating liveability of urban neighbourhood should be one of the concepts used to designing; which makes neighbourhood more liveable than others. The aftermath of poor level of satisfaction with each liveability dimension could encourage break down of virile labour power and also reduction in social capital in terms of social mutual thrust, social behaviour that facilitate any civic engagement and so on. One-size-fits-all planning solutions to the urban problems have proven ineffective, aggravating the menace of unhealthy physical and social environment. We therefore need to ask:

There is limited works towards understanding the issue of liveability in Nigeria, most scholarly activities on local urban living environments are clustered around residents satisfaction, (Carp and Carp, 1982; Savasdisara, 1998; Parkes et al., 2002; Dekker et al., 2007 wellbeing, (Dasimah et al., 2005; Nurizan et al., 2004) and quality of life (e.g., Norhaslina, 2002); and rarely on the attributes or dimensions that are important to them. As mentioned by Garcia-Mira et al., (1997), person's responses to physical and social environmental stimuli are "coded" subjectively on internal scales in the individual's mind. Hence there is justification to study assessment of intra-block accessibility and environmental liveability.

The Study Area

The Study Area

Ogbomoso (8°15'N, 4°14'E) is a medium sized city, the second largest in Oyo state Nigeria. It locates at the border of the rain forest and the guinea savannah within the south-western Nigeria. The city is traversed by the only road that connects the North from the southwest. It is 51km and 53km from Ilorin and Oyo respectively. The city performs high order functions including the fact that it is a University town. This evidences the land use diversification and the necessity to use electric power in making ends meet for the avalanche of diversified population.

Figure 1: Ogbomoso within West-Africa, Nigeria and Oyo State

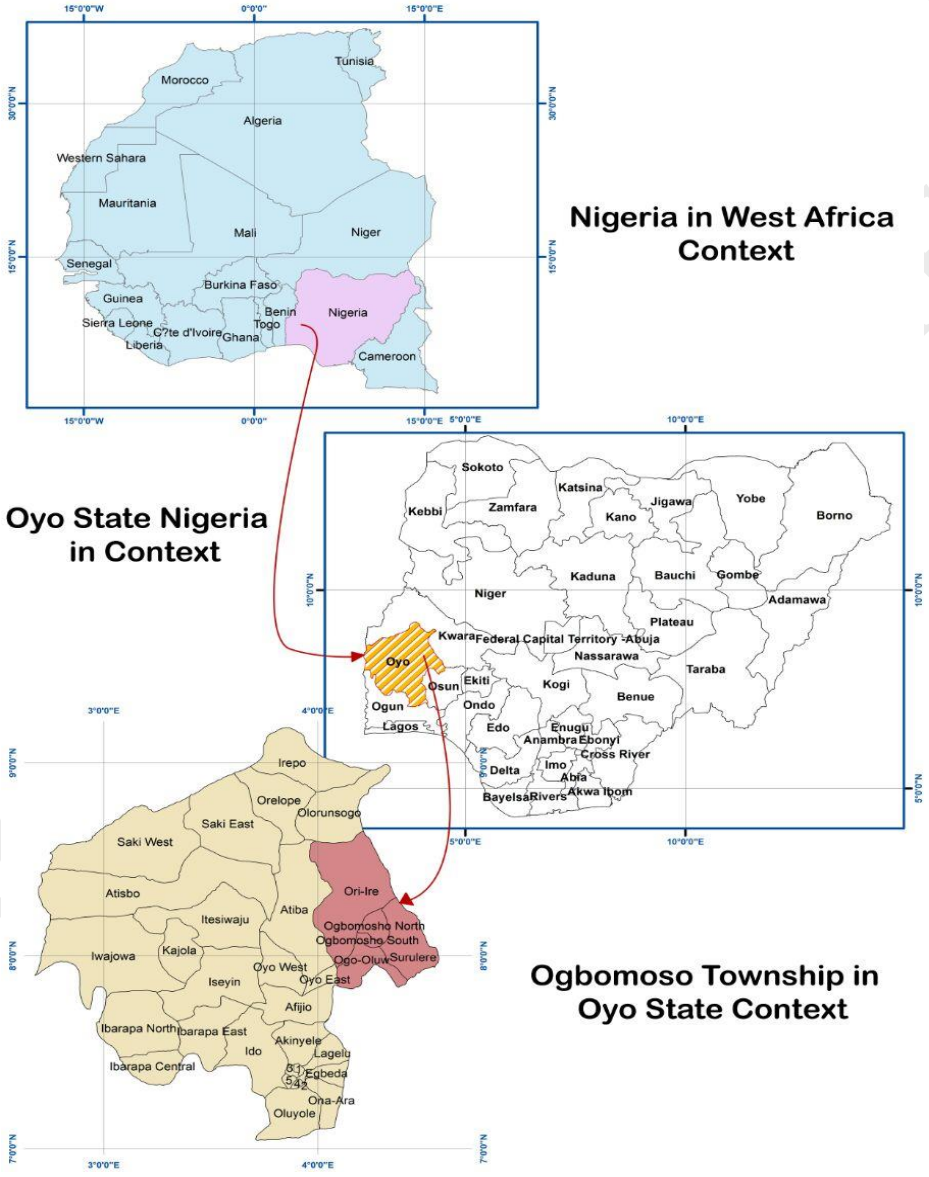
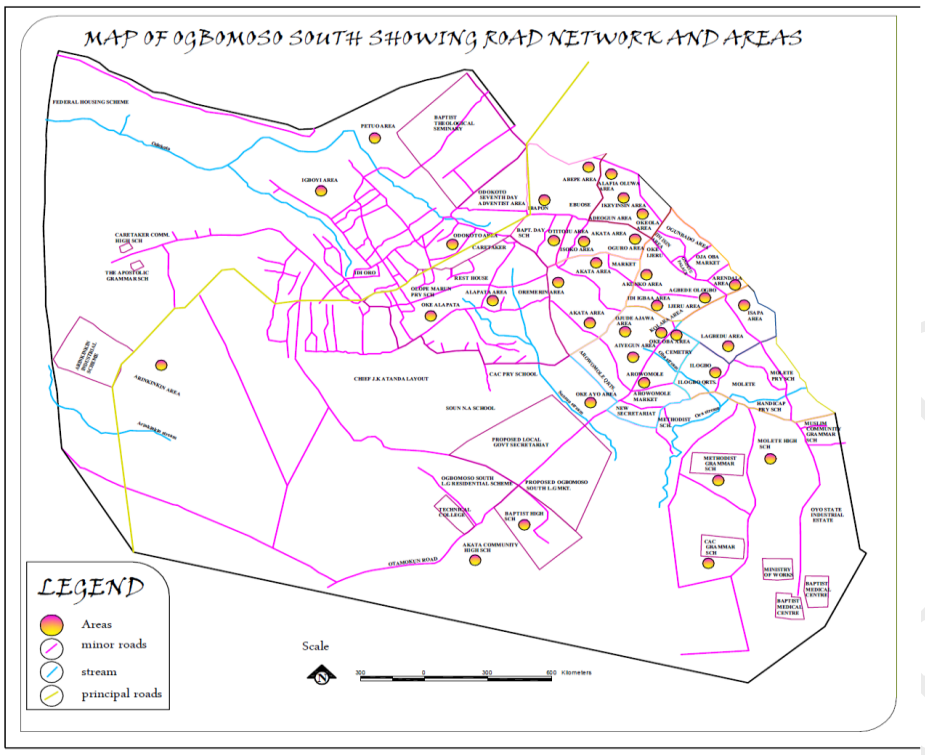


Fig 1.2 Map Ogbomoso South Showing Road Network and Areas



source Author Device 2011

Methodology

Primary and secondary data were used. A block is a group of buildings bounded by public land use such as roads (Cohen, 2001). Google Earth (2016) application was used to randomly capture 20 salient areas of the city using quadrant method. Two blocks were sampled from each quadrant. Each block sampled were compared with a utopian ideal block with emphasis on: setback, percentage of plot developed, orientation, absence of voids, accessibility, uniformity of property line, skyline, length of block, incidence of landscape, incidence of land-locked plots, cul de sac, and double frontage buildings, pedestrian permeability, walkability, landmark accentuation, spaces for and convenience of cycling, integration with public transport, physical accessibility to basic utilities, exposure to thorough traffic and safety issues among others. A questionnaire was also

administered to 610 residents (average of 30 respondents per area) in a multi stage sampling procedure to elicit information on block layout performance and residents livability. Absence of design induced nuisances, perceived comfort, ease of accessing basic utilities, spacing of elements within the block, simplicity, dependency of mechanical ventilation, hotness within the building and incidence of greening were the examples of the surrogates used to measuring livability. Quantitative analyses were done. Likert scaling was used to summarize the ordinal data. There were five scale in the ordinal rating ('Very much', 'very', 'just', 'not' and 'not at all') attracting the weight of '4','3','2','1' and '0' respectively. Chi-square was used to explain the variation in the quality of block design across residential areas. Regression analysis was also used to explain the relationship between the quality of block design and environmental liveability.

Conceptualizing Livability

Liveability does not enjoy a common understanding among scholars (Heylen, 2006). Liveability has been used in various studies, ranging from different scales of individual, neighbourhood and country to multiple disciplines, such as ecology, geography, sociology and urban planning.

Understanding liveability encapsulates in the theory of s good settlement; where places and spaces are responsive, connects human values to actions that affect the spatial, physical city, and have optimal performance (Lynch, 1981). The performance is measured by physical human needs and constraints, cultural practices and the qualities of "dimensions": vitality, sense and perception, fit, access and control and ownership. These dimensions will vary depending on the discipline, culture and objectives of the researchers (van Kamp et al., 2003; Pacione, 2003). Liveability has been measured through objective and subjective quality of life (Omuta, 1988), using: employment, housing, amenities, nuisances and socio-economic dimensions. Holt-Jensen (2001) considered four dimensions: aesthetics, functionality, social relations and individual factors. Visser et al

(2005) and Heylen (2006) drew on the quality of the dwelling, physical environment, social environment and neighbourhood safety.

Table 1: Liveability Dimensions Defined in the Selected Studies

Omuta (1988)	**Holt-Jensen (2001)**	**Visser et al (2005)**	**Heylen (2006)**	**ODPM (2006)**
Employment Housing Amenity Educational Nuisance Socio-economic	Aesthetic of living environment Personal Social relations Functional	Housing Social environment Physical environment Functional	Dwelling Social environment Physical environment Safety	Environment quality Physical environment Functional environment Safety

Source: Office of the Deputy Prime Minister, (2006)

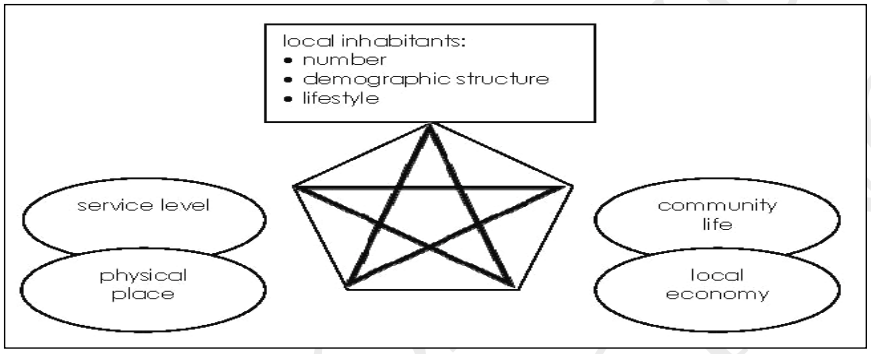
Basic to the tenet of defensible space is gaining meaningful control within residential areas; harnessing residents' involvements to abate crime by bringing people of different incomes and race together in a mutually beneficial union. Defensible space technology stimulates private reinvestments and produced inexpensive housing for the poor, often without government assistance. (Newman,).

Liveability encompasses the characteristics of urban environments (such as: sense of place, local identity and social networks) that make them attractive places to live (Throsby, 2005). It is the ability of a city to maintain and improve its vitality and viability (Balsas, 2004). This agrees with Lynch (1998) five dimensions of good city form: vitality, sense, fit, access and control, elaborating that a liveable place should be safe, clean, beautiful, economically vital, affordable, efficiently administered, have good functional infrastructure, include interesting cultural activities, contain ample parks, maintain effective public transportation, support broad opportunities for employment and provide

a sense of community. Liveability is therefore symbolic of an environment with the quality of being pleasant, safe, affordable and supportive of human community (Wheeler, 2001).

Livability is made up by the interactions between five variables: local inhabitants, community life, service level, local economy and physical location (Vergunst, 2003) (see figure 1).

Figure: 2 Framework of Liveability



After Vergunst, (2003)

Demographic structure (age and sex) service (communication, schools, homes for the elderly, and shops), local economy (the ability of a place to generate income and employment), and physical location (landscape, streetscape, buildings, spaces etc) interacts for an optimal performance. Vergunst"s categorization of livability research into five main variables highlights the contingency of the meaning of livability, which depend on the interests and perspectives of the researchers or participants who might emphasize different interrelationships of the framework. He suggested that this framework should be viewed as a heuristic model to enable different communities to discover and explore the perspectives in a wider context.

Another important dimension of liveability is the ability of environmental design to guarantee freedom from psycho-social problem of safety. Claim to a territory diminishes

proportionally as the number of families who shares it increases; so, the larger the number of people who share a territory, the less each individual feels rights to it. Informal understanding could easily be reached among fewer users. With more users, implicit understanding diminishes, anyone can have access, any use is permissible and no individual identify with the space as his. Everyone thus lose the right to control or maintain the space. It becomes easier for outsiders to gain access to and linger in the spaces.

Findings and Discussions

This section discusses block design performance, residents' liveability and the relationship between the two. Liveability necessarily sums up the local details from the minutest environmental factors such as the comfort derivable from ease of living in individual appurtenances and grows to a wider scale of block, neighbourhood, district, city web, region, national and the globe at large. In this study, the environment closest to the residents formed the basis of analysis. This involves buildings and within a block.

Block Design Appraisal

On the average, 30 respondents came from each of the areas. If all the 30 in an area rate an item of their house/block to be 'very much adequate' (with the weight of 4); they attain the maximum point of 120 (30x4). Thus the maximum point that may be scored is 120. For uniformity purpose, the scoring guide for physical measurement of spaces and objects was also standardized to 120. A comparison between an ideal block and the sampled blocks revealed a gross discrepancy as most of the areas exhibit poor block layout. It would be observed that the highest point (40.4) was scored by 'Low cost' (area 13); which is less than 40% of the highest point obtainable.

Table 2: Scaled Adequacy of Block Design

Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Mean
Set-back	21	27	18	23	19	29	22	17	23	21	21	21	49	21	23	39	24	27	19	38	25.1
% Plot Developed	14	19	11	13	12	21	11	19	12	22	18	11	37	13	31	17	15	13	26	21	17.85
Orientation	22	24	29	28	21	34	23	29	21	32	24	23	46	21	39	26	21	23	35	29	27.45
Voids	26	27	21	24	23	29	19	14	18	27	17	19	34	18	17	14	17	19	32	24	21.95
Accessibility	27	22	19	25	21	37	17	27	17	36	17	12	47	19	33	19	17	19	34	21	24.3
Property line	21	26	18	23	19	29	22	17	23	21	21	21	45	21	23	39	24	27	19	38	24.85
Skyline	17	27	12	22	19	23	22	19	22	21	21	21	41	21	23	39	24	27	19	38	23.9
Block length	19	27	18	23	18	29	22	17	23	21	21	21	43	21	23	39	24	27	19	38	24.65
Landscape	07	05	06	07	09	10	07	11	09	11	07	08	19	07	05	06	06	05	08	11	8.7
Land-locked	19	21	26	24	22	19	17	23	23	19	17	21	33	21	28	23	19	19	21	22	21.85
Cul-de-sac	21	27	18	23	19	29	22	17	23	21	21	21	48	21	23	39	24	27	19	37	25
Double frontage	25	27	24	22	24	31	21	17	18	27	17	19	34	18	17	14	17	19	32	24	22.35
Thorough fare	21	27	18	23	19	29	22	23	23	21	21	21	49	21	23	39	24	27	19	38	25.4
Mean	20	23.5	18.3	21.5	18.9	26.9	19	19.2	17.9	23.1	18.7	18.4	40.4	18.7	23.7	27.2	19.7	23.5	23.2	29.2	

Source: Author's Fieldwork, 2016

Areas: 1= Abepe 2= Adeogun 3=Akata 4 =Arowomole 5 =Ayegun 6 =High School 7= Ijeru 1 8= Ile Ewe 9= Isoko 10= JK 11 =Oke Alapata 12=Lagbedu 13=Low Cost 14= Molete 15= Odokoto 16= Oke-Ayo 17= Oke-Ola 18=Otitoju 19=Sun Sun 20=isapa

Invariably, most area in the city has poorly designed blocks. The reason adduced for this is that the expansion of the city predates scientific town planning. The city has been growing without town planning guidance for a long time and the Government have not considered an Urban renewal scheme. High urbanization and cost of land has induced high residential densities as most residents develop most parts of their land; scoring 17.85 in the study. Most of the buildings have inadequate setback and airspaces scoring 25.1 points out of 120 for the study. This affects the uniformity of the property line (24.85) and skyline (23.9). This further affects residents' ability to plant trees or put a good landscape (8.7) on their plot. Accessibility was not measured only by building's orientation to the road; rather it includes ability of automobiles to directly access the road from each

building. Some residents can only climb steps from their houses to the road, that was the reason for the point (24.3) scored by accessibility. The problem of accessibility was much, this necessitate the reporting of roads that leads nowhere (cul-de-sac) with the score of 25, double frontage buildings (22.35), and thorough traffic (25.4) in supposedly quiet neighbourhood separately. There were still many land locked plots (21.85) even in the new areas where town planning efforts should be highly felt.

Orientation depicts the positioning of buildings relative to other buildings, sunlight, road and public facilities. The orientation of buildings within the block was poor (27.45); but relatively it is the highest score obtained by the variables of measurement. Orientation is relatively intuitive and most developer would heed advice that affects their immediate comfort. Voids are accidental unbuildable open spaces that either becomes derelict or nuisance in the neighbourhood. While this may be a common feature of traditional neighbourhood, it is appalling to see even new areas to be rife with voids, which are mostly being used as refuse dump or making residents prone to accidents or other dangers. Many of the large blocks accommodating many land locked buildings are long (24.65). All these describes inadequate layout of blocks in the city.

Liveability Appraisal

Similar to the rating and standardization done for block adequacy appraisal is obtainable here. Absence of crime, adequacy of basic facilities, absence of fear of crime, absence of accidents, neighborliness, social interaction, imageability, social cohesion, ease of driving, walking, shopping and recreation were used to measure residents liveability within their blocks. Although, some of the areas sampled shows a relatively higher evidence of liveability (low cost, sunsun); a cursory comparison of the mean scores obtained against each of the variables suggests a general relatively low liveability level. The highest of the scores is only about 46% of the maximum point obtainable. In other words, residents' liveability was observed to be poor.

Table 3: Scaled Livability Appraisal

Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Mean
Crime	57	32	45	58	47	45	58	43	36	46	51	44	61	26	44	31	28	26	41	36	42.75
Facilities	36	37	42	41	34	34	43	39	41	32	34	33	59	31	49	36	41	33	45	39	38.8
Fear	39	41	35	37	36	49	39	44	48	37	47	39	44	48	47	44	47	39	42	44	42.15
Accidents	41	35	33	38	34	57	47	39	47	46	47	52	67	39	43	51	47	49	44	41	44.85
Neighbourliness	44	39	31	36	32	42	42	47	53	51	51	51	57	41	43	49	44	47	49	39	44.4
Social Interact	41	43	49	35	33	43	51	49	42	41	51	47	51	49	53	42	44	47	49	48	45.4
Imageability	32	42	34	39	31	49	49	47	43	51	52	47	74	51	53	39	44	47	49	48	46.05
Cohesion	49	41	33	36	37	43	47	47	53	51	47	51	49	48	53	49	54	51	49	50	47.1
Driving	52	55	49	49	57	49	49	56	43	59	57	51	83	51	58	53	59	51	61	52	54.7
Walking	59	48	52	56	49	52	55	57	53	51	51	61	68	52	53	59	54	57	59	57	55.1
Shopping	41	41	39	42	41	44	49	47	58	57	47	49	64	58	57	54	57	59	52	54	50.45
Recreation	43	39	38	47	45	36	46	49	32	42	38	41	47	33	31	47	35	33	46	41	40.45
Mean	44.5	41.1	40	42.8	39.6	45.3	47.9	47	45.8	46.8	46.8	47.2	60.3	43.9	48.7	46.2	46.2	44.9	49.7	45.8	

Source Author's Computation 2016

Areas: 1= Abepe 2= Adeogun 3=Akata 4 =Arowomole 5 =Ayegun 6 =High School 7= Ijeru 1 8= Ile Ewe 9= Isoko 10= JK 11 =Oke Alapata 12=Lagbedu 13=Low Cost 14= Molete 15= Odokoto 16= Oke-Ayo 17= Oke-Ola 18=Otitoju 19=Sun Sun 20= Isapa

Absence of crime scored 42.75 points and fear of crime 42.15. This suggests that there is a whopping 64% improvements needed to establish a 'perfect' security system that forestall crime in the city. Even more effort is needed to improve on basic facility provision such as potable water, electricity, sewerage and refuse collection among others. It is not easy to walk around (55.1) drive (54.7), shop (50.45) or recreate (40.45). This may be the reason for poor social interaction (45.4), neighborliness (44.4), social cohesion (47.1) and imageability (46.05). Poor block layout design has the propensity to promote accidents (44.85) and induce environmental poverty.

Relationship between Block Design Adequacy and Environmental Liveability

With the observation of relatively poor block layout design and liveability level in the study, it becomes pertinent to test an hypothesis that says: there is no relationship

between block layout design adequacy and residents' livability.Two methods are used to explain the relationships between block design adequacy and residents liveability in this study. The first is bi-variate correlation analysis between the mean of both block design adequacy and liveability. The second goes further to explain which aspects of the block design should be prioritized to improve residents liveability. This is done through a multiple regression model.

Table 4: Bivariate Correlation of Block Layout Index (BLI) and Residents Livability Index (RLI)

	Block layout Index (BLI)	Residents' Livability Index (RLI)
Block Layout Index: Pearson Correlation	1	.680
Sig (2-tailed)		.001
N	20	20
Residents' Livability Index: Pearson Correlation	.680	1
Sig (2-tailed)	.001	
N	20	20

Author's Computation, 2016

Using Pearson product moment rule, a bivariate correlation between block layout and residents' liveability indices reveals a high degree of overlap between the two at 99% confidence level. This depicts a causal relationship between adequacy of city design and residents livability. It follows that, environmental designers has to look keenly into what enhances comfortable physical, social, economic and psychological living for the residents. This necessitates a further analysis into what factors in their order of priority within the design framework affects residents livability and which must be addressed at the design phase of the city.

Factor Derivation

Factor analysis was used to collapse the variables of block design adequacy and residents' livability. Using the principal component variant of the methods, three component

matrices were generated for both sides. The first component for each extracted the highest proportion of variance from the data set, therefore, the variables load highly in the component making the rest count as residual. Hence, the linear composites of building design and residents' liveability indices were generated from the model.

Table 5: Factor Derivation

SN	Variables	BDI	_	Rank
1	Setback	.928		1
2	% Land developed	.765		7
3	Building orientation	.738	.509	8
4	Voids	.526	.660	12
5	Accessibility	.889	.650	5
6	Property Line	.907		4
7	Skyline	.674		10
8	Block Length	.836		6
9	Landscape	.712		9
10	Land Locked	.615		11
11	Cul de sac	.924		2
12	Double frontage	.502		13
13	Thoroughfare	.922		3

Source: Author's computation, 2006

Three principal components were generated from the 13 variables data set. The communality loadings showed that the first factor extracted 74.65% of the data set, the second extracted 22.51% while the third extracted 2.84%. While the communalities of the variables followed the same pattern in the factors, the value of the communalities was greatly reduced in the rest factors compared to the first. For this reason, only the first factor was considered a surrogate for block design index and the rest as residuals. The ranking of the variables were based on their communalities and the rank of each depicts its level of importance in the explanation of the linear composite. For instance, the most important variable in the explanation of block design adequacy in the study is the set

back to the road (.928) followed by absence of cul de sac (.924), absence of thoroughfare (.922), uniformity of property line (.907) and so on.

The Regression Model

Further to analyse the importance of each variables of block design adequacy, Block design index (BDI) which is a composite of 13 variables was regressed on the linear composite of residents' liveability (RLI). The result is presented on table 6. The coefficient of joint correlation R, measuring the relationship between the linear composite of block design (BDI) as well as residents' liveability (RLI) is .701, the coefficient of determination is .492, F is 17.404 and the probability value is .001. This connotes a reliable relationship between block layout design adequacy and residents livability.

Table 6: Relationship between RLI and BDI

Dependent	Independent	R	R^2	F	P.Value	B	PValue
RLI	BDI	.701	.492	17.401	.001	Constant : 46.025 BDI : 3.020	.000 .001

Source: Authors' Computation 2016

The coefficient of determination implies a 49.4% overlap between residents' liveability and block design characteristics of a neighbourhood and the city web at large. The regression equation: y = a + bx + e was calibrated with the dependent composite (y) being the residents' liveability index (RLI); the independent linear composite (x) is block design index; 'a' is the regression coefficient of the constant of the equation and 'b' is the regression coefficient of the independent linear composite (block design index). The equation is written as:

Y (RLI) = a/(46.025) + b/(3.020)BDI + e or RLI = 46.025 + 3.020BDI + e

In all, the model implies that there can be other factors that are jointly responsible for the summation of residents' livability in the area. However, 49.2% of why a neighbourhood or community may be liveable lies within the adequacy of its block design. It follows that if residents liveability is desired, building an adequate block layout has the propensity to

guarantee 49.2% assurance of livability results. The equation also imply that, if all other environmental situation is kept constant, a unit improvement in the quality of block design can produce a corresponding 3.020 unit increase in the liveability of the residents of the neighbourhood or community.

Recalling the factor loadings and the eigen-values of the variables that makes up the linear composite referred to as block design index (BDI), it will be analysed that; the quest to achieve residents' liveability is reliably dependent on block design adequacy, but is more dependent on the: adequacy setback to the road, absence of cul de sac, avoidance of thoroughfare, uniformity of property line, comfortable vehicular and pedestrian accessibility, sizeable/walkable block length, reduced concentration of building mass etched in acceptable percentage of residents' plot used for physical development, orientation of buildings within the block, incidence of greens/landscape, uniformity of skyline, absence of land locked houses, absence of unwanted open spaces (voids) and buildings with double frontages; in the order of listing. In other words, ease of facility provision, comfort of neighbourhood social interaction, reduction in energy consumption, avoidance of vehicular accidents, airspaces and air quality improvement (in and outdoor) and imageability among others are implicated for environmental liveability by the listed variables in the order of listing.

Recommendation and Conclusion

Avoidance of the "creeping" monotonous block design is a joint responsibility of the developers and the Government who is responsible through its Town Planning agencies to monitor and control all developments; to make them conform to a pattern of standards which ensures a livable community. Building livable neighborhoods entails a meaningful cooperation between these two parties.

Walkable neighborhood, reduced auto dependency, improved air quality, reduced congestion sense of community, territoriality, The ability to take control of living space through improved physical and social surveillance tend to reduce crime and the fear of

crime in communities. These are all block design properties that are implicated in residents' livability. Neighborhoods should be designed with minimal unassigned space as ambiguous spaces make them vulnerable to antisocial activities both internally and externally. Incivilities etched in vacant lots, litter, vandalism, graffiti and rundown areas or buildings. Policy makers are advised to ensure the preparation of block layouts only by professional town planners and should enforce the implementation of such policies through the EPM process which emphasized the participation of all stakeholders.

The study has been able to show the interdependence of residents' livability and block layout design. It is a demonstration of the fact that issues of livability and sustainability must start with the smallest units of the environment and to build up to a larger scale of the environment. Knowledge of the objective as well as subjective understanding of block layout designs and its element of environmental livability gives impetus to the planners and policy makers informed actions towards residents" satisfaction and environmental livability by incorporating livable community principles into their agenda and thus enhancing sustainable city living making it an attractive place to live, work and invest.

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