PUBLIC PERCEPTION OF RESIDENTIALLAYOUT FACILITIES IN EAGLE ISLAND, PORT HARCOURT

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Abstract

The nature of design of a residential layout and the facilities therein make life either enjoyable or difficult for residents. It is therefore within the purview of this research to analyze public perception of residential layout facilities in eagle island, Port Harcourt. This study adopted the cross-sectional research design. The sources of data for the study came from both primary data and secondary data. The primary data were specifically derived with the use of questionnaire. The sample size for the study was 312 and a corresponding number of copies of the research instrument were administered. However, 282 copies of the questionnaire were successfully filled and retrieved. The Paired Sample T-test and simple percentage were used to analyze the data. Housing Quality Index (HQI) system was also used in the assessment facilities in the layout. Seven indicators were developed in assessing residential neighborhood quality. The indicators were schools, play and leisure parks, shopping area, support services, public water supply, and electricity supply. This study found that over half of the population surveyed are of the view that play and leisure park, schools, shopping area, support services, public water supply, electricity supply, waste collection centres are not available in the Eagle Island residential layout. Precisely, 59.8% of the 282 respondents are of this disposition. Furthermore, the study indicated that the mean score for respondents that say there is absence of schools, play and leisure parks, shopping area, support services, public water supply, and electricity supply is higher than those who feel the facilities exist. On the other hand, results obtained from the paired sample t-test table revealed that there is no significant difference in the opinions of respondents on the indicators available at Eagle Island as p-value (0.070) is greater than the critical level of $\alpha = 0.05$. Following the findings of the study, it is recommended that municipal government should invest in the development of infrastructure in residential neighbourhoods. It is also recommended that residential layouts should be protected from unplanned development as seen in the residential layout in focus.

***Keywords**: Residential, Housing, Quality, Location, Layout*

Introduction

A residential layout is a geographically delineated zone in a city or town and is often a spatial unit where social interactions occur among residents. There are three classes of residential areas which are the low-class residential, the medium-class, and the high-class residential areas (Pacione, 2003).Multiple, and often conflicting factors influence local authorities' decisions in land use distribution within a city. These factors can generally be categorised as demographic, economic, sociological, legal and political. Residential layouts are designed for specific class of dwellers with consideration to the socio economic status of the residents. Residential layout facilities are financed in whole or in part, by national or sub-national governments (Ankeli, Dabara, Gambo, and Lawal, 2016). Layout facilities are required to provide the necessary and essential functions to the inhabitants of the area. These facilities include water supply, waste collection and treatment centre, schools, roads, navigation aids, fire and police stations and electricity among others (Butterworth,2007).

Housing environments consume the majority of developed urban space and humans spend quite a considerable period of their lifetime in such environment. Consequently, the nature of design of a residential layout and the facilities therein make life either enjoyable or difficult for the residents.It has been said that a good residential layout with facilities can support the development of stable communities and social inclusion (Adewale, Taiwo, Izobo-Martins, and Ekhaese, 2015 and Butterworth,2007). A residential layout with site and services does not only ensure the safety and wellbeing of people but promotes convenience and aesthetics in the overall built-up environment (Adesoji, David Jiboye 2012). Also, Okunola & Amole (2013) argued that the provision of site and services in a residential layout potentially influences residential satisfaction. Therefore, residential layouts with facilities will promote the socio economic and political satisfaction of the residents. Residential satisfaction is referred to as the degree of contentment experienced by a household with reference to the current housing situation (Ibem & Aduwo, 2013). Studies have shown that positive correlation exists between the quality of life and the comfort, convenience and visual appeal of neighborhoods (Baadom, Nwiganale and Needam, 2016).

The need for residential layouts with good and adequate facilities cannot be overemphasized. Yet, there is gross deficit of municipal infrastructure in many African cities. Investment in residential layout site and services is grossly inadequate compared to the increase in urban population (Obinna, Owei, and Mark, 2010). The increase in urban population arising from among other factors rural urban migration keeps altering the land use system of cities. One of the visible consequences of this development in Nigeria is the imbalance in the provision and maintenance of municipal facilities (Ebiwari, 2017). In some residential areas where these facilities exist, they are in dare need of maintenance. In many layouts, residents are therefore left with no option than to provide for themselves the basic services and facilities. Residential layouts facilities are very important components of housing that require to be critically examined and analyzed (Lee, You and Huang 2012, Cloise and Joan 2010). Facilities in a given residential layout have the ability to support the realization of the socio and economic aspirations of residents (Aiello and Scopelliti, 2010). It is against this background that this study seeks to evaluate the residential layout facilities in Eagle Island. A study that dissects the state of facilities in residential layout will provide a a checklist to residential layout managers on areas of intervention. The study will also benefit prospective tenants in their choice of residential layout.

Review of Literature

There is a plethora of literature on urban residential housing. Studies in this context and related areas have engaged the minds of professionals in the built industry and scholars in urban geography since the mid-20th century. The oldest available study was in the mid-1940s and was conducted in residential areas in the United States. Shortly after, there was a research. Solow, (1946)on measurement of housing quality value using a survey that comprised two distinct parts. The first covered the appraisal of structures and apartments, and the second the evaluation of environmental factors (Solow, 1946). Years later, Twichell designed a method for assessing housing quality. It introduced an overcrowding factor into housing quality assessment and was focused on assessing the physical neighborhood environment (Twichell, 1948). In 1970, Kain and Quigley estimated the market value of specific housing aspects. They measured the qualitative and quantitative dimensions of housing quality

on several levels: apartment units, structure, parcels, and micro-neighborhoods.

Currently, housing quality analysis research has assumed in a similar dimension though the number of evaluated parameters have increased. Housing quality is evaluated from the perspective of various experts (Acre & Wyckmansa, 2014; Kang, Lee, Kim and Kim, 2014), users (Mridha, 2015; James, 2007; Opoku & Abdul-Muhmin, 2010; Sima, 2015), and apartment buyers (Grum&KobalGrum, 2014; Haddad, Judeh and Haddad, 2011; Nahtigal & Grum, 2015). The Systèmed'évaluation de logements or Housing Assessment System is a Swiss online tool developed to provide assistance in the design, evaluation, and comparison of residential objects (Housing Assessment System - SEL). It consists of 25 criteria and measures the quality of a building in three aspects: situation, immediate environment, and housing (Housing Assessment System - SEL). Based on an analysis of the existing research, 25 studies were singled out and used to identify specific housing quality criteria. Because there were so many, the housing quality assessment criteria were divided into four main categories: apartment unit quality assessment criteria; apartment building assessment criteria; neighborhood quality assessment criteria, and social and economic criteria. Baadom, Nwiganale, and Needam, (2016) contended that the measurement of standards depends on several factors which are instrumental in the determination of residential qualities. The standard still varies based on national relating to the residential environment. Duruzoechi (1998) confirms that the issue of standard in housing (residential environment) may be seen in relative terms but there are basic parameters that could be used to measure the standard of any dwelling unit.

Haddad, Judeh and Haddad (2011) investigated the main factors that influence customers' purchase behavior toward apartments and tried to identify the factors that most influence buying (Grum & KobalGrum, 2014). Ljubljana, Slovenia, Nahtigal and Grum conducted market research with the intention of creating a so-called value frame of influential factors related to a particular type of potential buyer (Haddad, Judeh and Haddad, 2011). In any review of foreign research, in the spirit of technology advancement it is necessary to mention online tools for housing quality assessment. Housing Quality Indicators (HQI), designed in the United Kingdom from 2008 to 2015, is an

online toolkit for the measurement, evaluation, and improvement of buildings' design quality (Housing Quality Indicators – HQI). It was designed for evaluation of housing schemes on the basis of quality rather than just cost. It contains 10 indicators that measure housing quality and presents a series of questions on location, site, unit, and external environment quality. The Building for Life criteria were designed parallel to the HQI. They represent a national standard for well-designed homes and neighborhoods. The 20 criteria measure the functionality, attractiveness, and sustainability of housing, and cover the following housing aspects: the environment and community, character, streets, parking and pedestrianization, design, and construction (Building for life). The Systèmed'évaluation de logements or Housing Assessment System is a Swiss online tool developed to provide assistance in the design, evaluation, and comparison of residential objects (Housing Assessment System - SEL). It consists of 25 criteria and measures the quality of a building in three aspects: situation, immediate environment, and housing (Housing Assessment System - SEL). At the core of this study is the evaluation of residential layout facilities. Residential layout facilities criteria are considered along four broad themes namely general neighborhood characteristics, traffic, hazards, and the existence of and distance from different services and facilities. The first subgroup of the criteria contained general characteristics of the neighborhood, such as the condition of adjacent structures, and building and population density. The traffic criteria subgroup included criteria concerning the condition of surrounding streets, accessibility to and proximity of different kinds of public transportation, traffic nuisances, etc.

A broad literature review suggested that residential layout facilities are both tangible and intangible and to this extent it has many determinants to be studied (Mohit, Ibrahim, and Rashid, 2010; Hipp, 2010). The physical attributes are usually structural and they include physical characteristics of housing such as kitchen space, laundry and washing areas, size of living area and dining area, morphological configuration of residence hall, number and levels of sockets, number of bedrooms and bathrooms, and other aspects of housing such as housing quality, privacy (the social densities), housing services provided by developers such as garbage disposal and safety, and brightness and ventilation of the house (Baum, Arthurson, & Rickson, 2010;

Hipp, 2010). In Nigeria, studies exist on residential attributes and their effect on residents' satisfaction (Ilesanmi, 2010;Olatubara&Fatoye, 2007). No doubt, there is much research conducted about residential satisfaction. However, there are few in-depth studies on the evaluation of residential layouts in Port Harcourt metropolis. This study therefore aims to analyze the residential layout facilities in Eagle Island by adapting the existing parameters such as schools, play and leisure parks, shopping area, support services, public water supply, and electricity supply in analyzing the residential layout facilities. This study also has the ability to provoke government interest in the provision and maintenance of residential facilities. Stakeholders in the built environment will ultimately benefit from the output of the research.

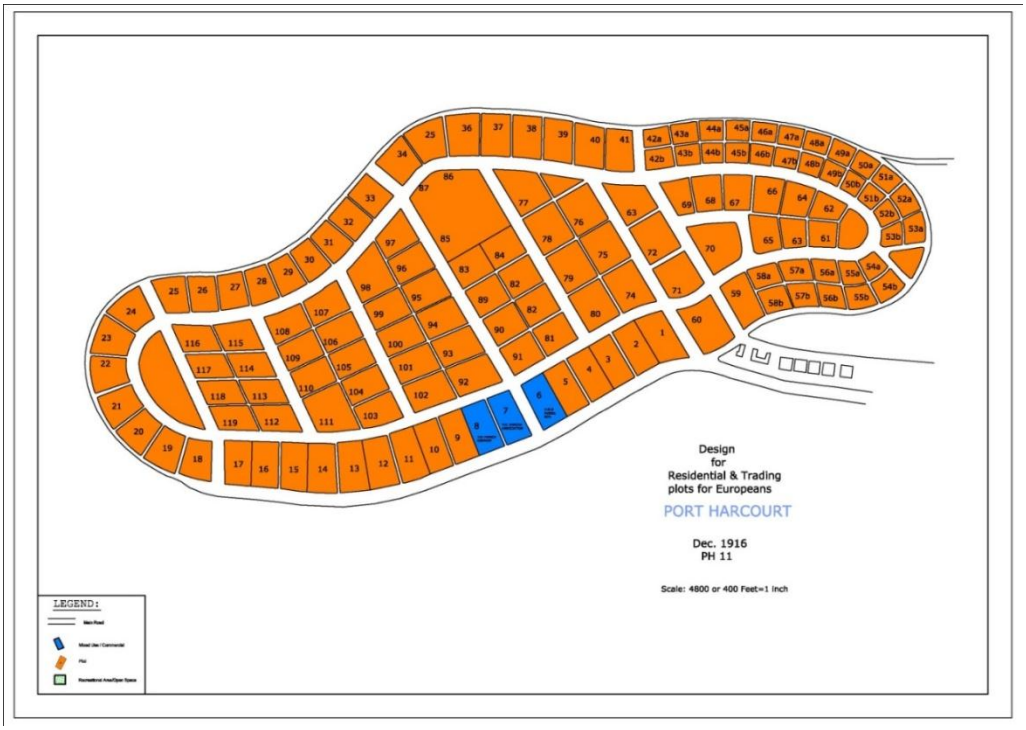
Methodology

Study Area

The study area of this research is Eagle Island which is within the precincts of Port Harcourt metropolis. Eagle Island is located along the latitude of 4' 47'' 21.73 and longitude 7 0'56.59. It lies between the Diobu River and the Mgbuodohial Agip River. The layout is shown in figure 1.

Eagle Island layout is a reclaimed land by the Rivers State Government. It sits on 69 hectres of land and a total of 30 streets including crescents, closes and avenues. The layout contains various buildings types and designs ranging from bungalows, duplexes to semidetached flats (Rivers State Ministry of Physical Planning and Urban Development, 2019). It is one of the major low residential density layouts in Port Harcourt. It is calm and placid with lots of beautiful houses close to the sea side and in close proximity with the Nigerian Agip Oil Company and Iloabuchi street popularly called Port Harcourt Electronics Village.

Fig.: 1: Layout of Eagle Island



Research Design/Research Instrument

This research adopted the cross-sectional research design. It is a type of research design that takes a sample from a given population with a view to making a generalization about the whole population. This research made use of this research design because it was helpful in eliciting residents' opinions and feelings about the residential layout. Household heads of residential houses constituted the study population because they are affected by the absence or presence of residential layout facilities. According to Rivers State Ministry of Physical Planning and Urban Development, (2019) there are 312household heads in Eagle Island layout. In view of the small size of the sample frame, the study undertook a survey of all the households. Therefore, the sample size for the study was312 and a corresponding number of copies of questionnaire were administered. However, 282 copies of the questionnaire were successfully filled and retrieved. Hence, the analysis was based on the 282 copies of questionnaire that were retrieved.

Data and Sources

The sources of data for the study came from both the primary data and the secondary data. Primary data were specifically derived with the use of questionnaire. This instrument for the study was grouped into two sections with direct questions covering the objective of the study. For secondary data, they were sourced from the Rivers State Ministries of Urban Development, Housing and Lands and Survey, journals, textbooks, and published and unpublished theses.

Method of Data Analysis

The data generated were analyzed using simple percentage. It provided meaningful discussion and analytical description about the social economic characteristics, housing types and housing preferences by student. Raw scores collected from the field were presented in frequency distribution tables and then interpreted into simple percentages [%], which is defined as a part of a whole expressed in hundredths. It is expressed as:

$\frac{F}{N} x \frac{100}{1}$……..(Equation 1)

Where:

F =frequency (number of times of each response)

N= size (282)

The Housing Quality Index (HQI) system was also used in the assessment of facilities in the layout. The HQI system is designed to allow residential layouts to be fully assessed without detailed examination of all individual units hence it was used for this study. The questions in the questionnaire related to facilities in the layout of the study area. Appropriate answers to the questions that made up the indicators were ticked by the respondents. This information was then transferred to the scoring spreadsheet which then produced the scores. Based on the peculiarities of the study area, seven indicators were developed based on existing templates used in assessing residential neighborhood quality. The indicators were schools, play and leisure parks, shopping area, support services, public water supply, and electricity supply in

analyzing the residential layout facilities. Each Indicator received one tenth of the total possible score as equally, though differently, important in creating quality. Each indicator had several parts and there were individual questions within each part for each respondent. Within each indicator, the weight of each part was shown alongside the relevant sub-title. Scoring the responses of the respondents on the HQI form was calculated into a standardized score. This was expressed as a series of scores showing how well the layout performed on each indicator as well as an aggregated score. The profile of the seven different indicators gave the most useful information about the strengths and weaknesses of the residential layout.

To compute the mean of the various indicators responses were scaled using a five point Likert scale. In doing this, the individual raw score for all the respondents was added and the sum divided by the total number of indicators using the Paired Sample T-test was used. It is written in the form:

$$t = \frac{\bar{d}\sqrt{n}}{S_d} \qquad \text{(Equation 2)}$$

Where $\bar{d} = \frac{\sum_{i=1}^{n} d_i}{n}$

$$S_d = \sqrt{\frac{\sum_{i=1}^{n}(d_i - \bar{d})^2}{n-1}}$$

Here, d_1, d_2,……, d_n are values of a random sample of the difference in the paired observations, which is assumed to be normally distributed with the mean and variance. This test is used to check the difference in two means arising from dependent observations.

Results and Discussion

Availability of facilities in residential neighbourhood is critical to the satisfaction of residents. The present study showed the perception of residents about the availability of facilities. This study found that over half of the populations surveyed are of the view that play and leisure park, schools, shopping area, support services, public water supply, electricity supply, waste collection centres are not available in the Eagle Island residential layout. Precisely, 59.8% of the 282 respondents are of this disposition. See table 1.

Table 1: Respondents' Perception on Facilities

Indicators	Responses					
Variables	YES	%	NO	%	% Total	Total
Schools	23	8.2	15	5.3	13.5	38
Play and leisure park	16	5.7	32	11.3	17	48
Shopping area	12	4.3	19	6.7	11	31
Support services	17	6	18	6.4	12.4	35
Public water supply	21	7.5	28	9.9	17.4	49
Electricity supply	15	5.3	27	9.6	14.9	42
Waste collection centres	9	3.2	30	10.6	13.8	39
Total	**113**	**40.2**	**169**	**59.8**	**100**	**282**

Source: Researcher's computation, 2021

This finding of this study suggests that the municipal government investment in residential neighbourhood is poor. Inadequate facilities imply little or no comfort for the residents. Furthermore, the paired sample statistic table showed the mean response, standard deviation as well as the standard error of the mean presented in tables 2 and 3 indicate that the mean score for respondents that say there is absence of the identified facilities study instrument is higher than those who feel the facilities exist. On the other hand, results obtained from the paired sample t-test table revealed that there is no significant difference in the opinions of respondents on the indicators available at Eagle Island as p-value (0.070) is greater than the critical level of $\alpha = 0.05$. This implies that the opinions of respondents on the availability of these indicators are consistent across the study area. This finding agrees with a similar study carried out in France by Arrif & Rioux, (2008).

Table 2: T test Output

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	yes	16.1429	7	4.84522	1.83132
	no	24.1429	7	6.66905	2.52066

Table 3: T test Output

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	
Pair 1	yes - no	-8.00000	9.62635	3.63842	-16.90289	.90289	-2.199	6	.070

Conclusion and Recommendations

The satisfaction residents derive from a layout of the facilities available in the neighbourhood. These facilities can help families to achieve their socio economic aspirations. This study provided a comprehensive overview of the criteria used for the evaluation of housing layout quality based on existing studies. The criteria used were schools, play and leisure parks, shopping area, support services, public water supply, and electricity supply. The result showed that, the remark of most of the residents is that there is absence of these facilities in the layout. In conclusion, the study revealed that there is no significant difference in the opinions of respondents on the indicators available at Eagle Island hence the researchers are of the opinion that municipal government should invest in the development of infrastructure in residential neighbourhoods.

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