

# Assessment of Users' Perception of Public Housing Indoor Spaces: Case of Ijapo Estate, Akure, Nigeria

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## Abstract

Users' perception of quality originates from the human perspective, which hinges the quality of space on the fitness of space to the intended function of use by the users. Studies have shown that the users' socio-economic status is a major factor that influences the human perspective. Since the public housing in Nigeria is being used by people of different socioeconomic class, this study investigates the consequence of socio-economic characteristics on the users' perception of the quality of public housing indoor spaces in Nigeria with a view of achieving a design that fit into users' lifestyles. All the returned 180 copies of the questionnaires administered to owner-occupiers in the Ijapo housing estate were used for the analysis. The data collected were processed using the descriptive statistics method, while chi-square was used to investigate relationships between factors under study. The result showed that the majority of the respondents in the public housing study were low-income earners. Also, the test of the relationship between the socio-economic characteristics and perceptions of the respondents revealed significance at 5% and 1% levels of probability. Therefore, the study corroborates the findings of similar studies in the literature. Consequently, the study recommended that the socioeconomic status of users should be considered as one of the determining factors in the design of residential interiors in Nigeria.

**Keywords:** Indoor space, Nigeria, Perception, Public housing, Quality.

## Introduction

Housing is one of the basic needs of men that protect them from negative environmental impact and promote health, and social and economic welfare (Nubi, 2008). It is always conceptualized to meet users' expectations and aspirations (Ibem and Aduwo, 2013; Jiboye, 2014). Public housing is one of the global housing delivery schemes put in place to meet the quantity and quality needs of the users (Olotuah, 2000). In Nigeria, large-scale public housing projects have been carried out over the years, both at the state and federal levels, to meet the housing demand of her citizens. However, a study by UN-HABITAT (2006) revealed that users are not satisfied with the quality of public housing products, especially the residential

interior spaces. This has been attributed to the absence of some expected qualities that are users' lifestyle compliant (Jiboye, Ogunshakin and Okewole, 2005; Ibem et al., 2013). Meanwhile, the performance of public housing is hinged on users' perception of quality, which originates from human factors that consider the quality of space from its fitness to the intended purpose of use (Bevan, 1995).

The concept of users' perception of quality sets a priority on the usability of the space to fit users' traits, desires, understanding, or life experiences as posited by Users' Experience ((UX) 2016). So, user-perceived quality is defined by the presence of some specific attributes that are inclined to the user's needs and wants in the residential

design output. Invariably, many studies have upheld the need for housing performance evaluations to ascertain the factors that influence users' perceptions of housing quality globally, and most especially, in Nigeria (Fatoye and Odusami, 2009; Ibem et al., 2013).

Studies have been conducted to understand users' lifestyles with the aim of improving the users' level of satisfaction with residential space usability (Carrol and Rosson, 2007; Villarouco, 2009; Statistics New Zealand, 2013; Taş, Taş, and Aydın, 2014). The results of these studies show that the socio-economic status of users stands out among factors that strongly affect the living standards of people (Cockerham, 2010) and that determine their type of housing (Adler and Snibbe, 2003; APA, 2007). However, there is still a need to investigate the implications of the effect on users' perception of their residential interior spaces where their basic activities of daily life are performed. Therefore, this study aims to examine the relationship that exists between socio-economic characteristics and users' perception of residential interior space quality by using one of the oldest public housing in Akure, Nigeria as a case study.

### **Literature Review**

Public housing is one of the housing delivery systems in Nigeria developed by the government at the local, state and federal levels (Olotuah, 2000) and designed by professionals in the building industry. Public housing projects across the globe target the improvement of the living conditions of citizens in different countries. In Nigeria, the current policy aims to ensure that all Nigerians own housing that is decent, safe, and healthy, with infrastructural services at an affordable cost, and with secured tenure (National Housing Policy, 2012). To achieve the set aim, both the Federal and state governments in Nigeria have built large-scale public housing for their citizens. Since the

implementation of the public housing schemes in Nigeria and other countries are through the existing housing policies, this study posits the need to examine how such housing schemes have achieved the goal of meeting individual needs and aspirations.

Public housing stimulates a whole range of feelings. They can bring about friendly relations between man and the environment, creating positive sensations. Aside from helping to keep a roof over the heads of users, it also acts potentially as a medium for services that advance other aspects of their lives, contributing to reinvestment and improving the conditions of their surrounding neighbourhoods (Fischer, Acosta, and Bailey, 2021). On the other hand, it can also create adverse reactions, such as aversion, fear, or opposition, among others (Kalinkara and Arpacı, 2013). The perception of a residential indoor space determines the quality of use of the space through the amount of attention given to it. The quality of use in the context of this text is the measuring tool for effectiveness, efficiency, and satisfaction, otherwise known as 'space usability'. Usability here is defined as the tendency or ability to use a product for its intended purpose (Bevan, 1995).

Following the human intention approach, since housing quality is determined by the extent to which the user feels satisfied with the indoor space, the perception of usability determines the quality of the spaces in it. To consider public housing as good quality housing, Heritage and Local Government (2007) posits that housing should be architectural, socially and environmentally appropriate; accessible and adaptable; safe, secure and healthy; affordable and resource-efficient. While Tas, Tas & Aydın (2014) posit that the attributes span the spatial, physical, and socio-cultural dimensions relevant to residents' daily living and quality of life. All the stated and other studies are closely related, although viewed from different perspectives accordingly.

However, they are strongly geared toward architectural mechanisms as regards the quality of work standards, quality of materials used, and effective use of the space (Brown and Werner, 1985; Zubairu 2002; Alagbe et al., 2014; Ibem & Alagbe, 2015; Araloyin and Alao, 2018; Adetunji, 2020). This study, therefore, evaluates the architectural mechanisms, quality of materials, and effective use of space stated above from the users' perception perspective to explore the influence of users' socio-economic status on the perception of housing quality in public residential housing.

### **Study Area and Methodology**

Akure, the Ondo state capital city in Nigeria, is located at the intersection of Latitude 7° 15' N and Longitude 5° 15'E at an approximate altitude of 370m above sea level. This study was carried out using a case of the Ijapo housing estate, situated in the Akure South Local Government Area of Ondo State. The estate is one of the oldest government-built housing facilities and one of the products of the public housing scheme in Nigeria.

The collection of primary data was through the use of a questionnaire administered to the residents in the study area. The questionnaire was constructed to source information on the socioeconomic status, the specific attributes of perception that inform users' definition of housing quality,

and the relationship between both of them. All the residents in the community constituted the general sampling frame for the study. Since the study only focuses on houses that are owner-occupied, a reconnaissance survey preceded the survey to update the list of owner-occupied houses and the rented ones; 180 houses were identified as owner-occupied, and a census was conducted for data collection.

The data collected from the participants were subjected to both descriptive and inferential statistics. Descriptive statistics were used to analyse the socio-economic characteristics, the perception of residential spaces, and the space-use behaviour of the respondents. The Chi-Square Test was further used to examine the relationship between users' socio-economic characteristics and perceptions of indoor space quality. In the assessment of the users' perception of the public housing interior spaces, the study reported only the negative response of the respondent for each space considered in the spaces. The questions used to measure the perception of users were negatively coined. This was rated on a five-point Likert scale from strongly agree to strongly disagree. The percentage that agrees with the statement was recorded. Also, since it is the same subject that assesses the different spaces, the responses to all the interior spaces considered for this study were merged as one before they were tested against the users' socioeconomic characteristics.



**Figure 1:** Map of Akure showing the study area in the shade  
Source: Ondo State Ministry of Housing and Urban Development, Akure



**Figure 2:** Layout Plan of Ijapo Estate, Akure  
Source: Ondo State Development and Property Corporation, Akure

## Results and Discussion

The socio-economic characteristics of the respondents were measured by gender, age, level of education, marital status, and income class. Also, the spaces in the residential interior considered in this study are the living room, bedroom, kitchen, and indoor bath space.

This study discovered three categories of ownership tenure status present in the study area: the house built by the owner; the inherited house; and those living with an adult child or close relatives. These categories have a collective capacity to influence alteration in part or whole of the design products they occupy as deemed fit. Therefore, they are considered uniform.

### The Socio-Economic Characteristics of Respondents

Table 1 shows that there are more male respondents than females, at 63% to 37%, respectively. In Nigeria's cultural context,

and in most African countries, the father represents the family in matters and decision-making. Most issues are left unresolved most of the time until the man, the head of the family, arrives, while the mother steps in when the head is unavoidably absent. Since the questionnaire was expected to be filled out by any available adult in the family, the cultural mentality cannot be overlooked and may have probably influenced the number of male respondents in the study.

Besides, the result shows that about 79% of the respondents have a tertiary education and 57% are married. 57% live in their own home, and almost 84% were between 35 and 55 years old. The rate of literacy is justifiable as the majority are officers in government parastatals. Furthermore, the majority are either wage earners or self-employed (44% and 32% respectively), but most of them are in the low-income category (between no specific income and ₦50,000 monthly).

Table 1: Descriptive Statistics of the Respondent's Socio-Economic Characteristics

Variables	Frequency	Percentage
<b>Gender</b>		
Male	114	63.3
Female	66	36.7
<b>Age Group</b>		
26-40	79	43.9
41-55	72	40.0
56-70	25	13.9
Above 70	4	2.2
<b>Level Of Education</b>		
Sec. School Cert	39	21.7
B.Sc./M.Sc.	68	37.8
M.Sc./M.Tech	39	21.7
Above Masters	20	11.1
<b>Marital Status</b>		
Single	65	36.1
Married	103	57.2
Divorce	4	2.2
Widow	8	4.4
<b>Tenure Status</b>		
Respondent	102	56.7
Family House	69	38.3
The Adult Child	4	2.2
<b>Income Classification</b>		
Low-income earner	109	60.5
middle-income earners	39	21.7
high-income earners	23	12.8

Source: Author's fieldwork

### Users' Perception of Residential Indoor Spaces

Table 2 shows the result of users' perceptions of the residential indoor spaces occupied by them. For the living room, about 43% perceive their living room to lack good circulation, 27% complain of poor lighting, 25% show displeasure with adequate ventilation, and 55% complain about material finishes used. In all, 35% reported that the size of the space is inadequate to support all the activities they perform in it. The respondents showed displeasure with the bedroom space. Approximately, the perception of displeasure shows 61% for poor lighting, 65% for small space size, 56% for poor space arrangement, 71% for poor

ventilation, 47% for repelling material finishes, and 40% for poor circulation. In all, the table shows that 60% of the respondents perceived that the bedroom space does not fit all the activities performed in it. About 26% and 39% complained about inadequate space size and the distastefulness of the toilet space, respectively.

Also, Table 2 shows that respondents have changed the floor material of their living room, and the wall material of their bedroom, but retained the ceiling material used in the building interior to suit their preferences. In the overall assessment of the indoor space, table 2 shows that respondents are not satisfied with their bedroom (58.5%) and the living room (34.6%) respectively.

**Table 2: Frequency Table On User Perception Of Their Residential Indoor Spaces**

Variables	Residential Spaces			
	Living room Freq. (%)	Bedroom Freq. (%)	Kitchen Freq. (%)	Bath/Toilet Freq. (%)
It is hard accessing the space	<b>42.9</b>	38.9	0.0	18.2
It is always dark in here	26.7	<b>60.9</b>	0.0	12.4
Space size is small	9.5	<b>64.4</b>	0.0	26.1
Space has an ugly look	5.0	<b>56.1</b>	0.0	38.9
Space is hot most time	24.8	<b>71.1</b>	4.1	0.0
I have changed the floor material	<b>52.1</b>	24.8	0.0	23.1
I have changed the wall material	29.8	<b>47.1</b>	0.0	23.1
I retained the ceiling material used	<b>55.2</b>	24.0	14.4	6.4
Space does not fit well into the activities I perform there	34.6	<b>58.5</b>	0.0	6.9

Source: Author's fieldwork

### The Relationship Test

Furthermore, this study examined if there is a relationship between users' socio-economic status and their perception of the indoor spaces using the Chi-Square test of significance. Table 3 shows the result of the Chi-Square test on the relationship, revealing a strong significant relationship at both the 5% level of probability ( $p < 0.05$ ) and at a 1% level of probability ( $p < 0.01$ ) within the variables of socio-economic characteristics and users' perception of the indoor space used. The relationship of each

socio-economic variable against all the users' perceptions was examined.

Strong significant relationships were observed at 1% level of probability between the respondents' gender and opinions regarding circulation, space size, floor and ceiling materials, and general assessment of the space usability at  $\chi^2 = 0.000$ ,  $\chi^2 = 0.005$ ,  $\chi^2 = 0.000$ ,  $\chi^2 = 0.009$ , and  $\chi^2 = 0.000$ , respectively. The table also shows a very strong and significant relationship between marital status and perception, all at a 1% level of probability, except for circulation. The age group proves to be significant too,

some at 1% and 5%, respectively, as shown in table 3.

The table shows that level of education is also significant to respondents' perception of space size, space planning, thermal comfort, choice of indoor space material finish and the overall assessment of space at  $\chi^2 = 13.353$   $p=0.004$ ,  $\chi^2 = 22.008$   $p=0.000$ ,  $\chi^2 = 8.171$   $p=0.043$ ,  $\chi^2 = 45.397$   $p=0.000$  and  $\chi^2 = 7.974$   $p=0.004$  respectively. It also shows that a very strong relationship exists between respondents' income class and their perception of the indoor spaces in the study area.

Consequently, this study posits that there is a significant relationship between users' socio-economic status and their perception of residential indoor space in public residential buildings. This study has shown that a user's lifestyle is responsible for their behaviour in space usage. Therefore, it is imperative that the end-user lifestyle informs the design of residential indoor space to eradicate alteration of finish products by improving the level of space satisfaction.

### **Discussion**

The characteristics of the respondents in the study showed that most of the residents

were low-income earners, but owned the houses they occupied. In the assessment of their perception of the interior space they lived in, the study revealed that the respondents' perceptions of their bedroom and living room do not conform to their lifestyle. The major alteration that the respondents reported having made in the building they occupied involved changing the floor material of the living room and the wall material of the bedroom. Furthermore, the relationship between the respondents' socioeconomic characteristics and the perception of the interior space was tested. The results show significance at a 99% level of probability. This indicates that the socioeconomic characteristics of the respondents significantly affect the perception of their residence. This shows that socioeconomic status was not among the factors considered during the design process. This substantiates the posit of Ibem et al (2013) and Jiboye (2014) that some attributes that are users' lifestyle compliant are missing in the design products of public housing in Nigeria. The result also agrees with other reports in the global literature that the socio-economic status of users strongly affects the living standards of people and the perception of their housing (Adler and Snibbe, 2003; APA, 2007; Cockerham, 2010; Taş et al, 2014).

**Table 3: Chi-Square Test Of The Relationship Between Respondents' Socio-Economic Characteristics And Their Perception**

	Using Chi-square Test									
	Gender		Marital Status		Age group		Income class		Education	
	$\chi^2$ - value	P - value	$\chi^2$ - value	P - value	$\chi^2$ - value	P - value	$\chi^2$ - value	P - value	$\chi^2$ - value	P - value
It is hard accessing the space	22.02	0.00	8.686	0.069	7.602	0.022	8.252	0.022	6.189	0.103
It is always dark in here	0.268	0.74	43.85	0.000	4.706	0.095	76.46	0.000	2.653	0.448
Space size is small	10.63	0.05	42.89	0.000	55.22	0.000	43.79	0.000	13.35	0.004
Space has an ugly look	2.863	0.39	19.75	0.011	32.22	0.000	52.23	0.000	22.00	0.000
Space is hot most time	3.634	0.163	48.43	0.000	40.93	0.000	31.85	0.000	8.171	0.043
I have changed the floor material	17.99	0.000	14.77	0.005	7.320	0.026	11.96	0.003	4.854	0.183
I have changed the wall material	2.360	0.07	24.32	0.000	5.566	0.062	45.03	0.001	3.831	0.280
I retained the ceiling material used	11.48	0.09	87.62	0.000	7.202	0.027	21.21	0.001	45.39	0.000
Space does not fit well into the activities I perform there	27.27	0.000	48.70	0.000	6.320	0.042	21.84	0.011	7.974	0.047

\*Associations that are significant at 5% level of probability

Source: *Author's fieldwork*

## Conclusion

Designers consciously or unconsciously apply the elements of design methodology, which is an essential part of the design process. Further investigation of the techniques and methods of applying this design methodology would improve its efficiency and the quality of the design product being developed. Therefore, broadening the criteria and considerations for assessing the needs of users during the design stage is very important in achieving a satisfactory design product. This study has revealed that the users' socio-economic status is a compelling factor that affects the perception of the quality of space. Consequently, this study recommends that users' socio-economic status should inform part of the factors considered in the design guidelines to evaluate better user needs and expectations of designed products.

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