

PERCEIVED SATISFACTION INDICATORS FOR URBAN HAUSA TRADITIONAL HOUSE RESIDENTS IN KATSINA CITY

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ABSTRACT

In this paper, the perceived socio-cultural and environmental satisfaction of residents of the Hausa traditional housing were investigated, using Katsina city in northern Nigeria as a case study. Contextually, housing satisfaction is viewed as a concept which measures among others perceived gap between a respondent's needs and aspiration of reality of respondent's current residence. Methodology adopted involves questionnaire surveys, which targeted 120 respondents and which were randomly distributed in all four traditional sectors of the downtown city of Katsina. The questionnaire analysis was undertaken to determine the satisfaction level, satisfaction index and habitability index of identified satisfaction variables using a mathematical relationship between the desired and perceived housing satisfaction of the residents. The results revealed that while majority of residents seemed satisfied with the socio-cultural aspects of their houses, many, were, however, not satisfied with some environmental aspects. The study results also empirically identified housing elements and variables that made highest contribution to the resident's satisfaction as well as those that made the least contribution. Drawing from traditional experiences, contemporary lessons derivable include the need for the local planning authorities and professionals concerned with the built environment to take up the challenges to provide solutions through opening up of such areas and the introduction of soft landscape elements to enhance environmental response within the traditional city.

KEYWORDS: Housing, Housing satisfaction, Katsina city, traditional housing

INTRODUCTION AND THEORETICAL BACKGROUND

Scholars approach the concept of housing satisfaction from different perspectives, generally with recourse to their areas of specializations such as sociology, geography and planning among others (Lu, 1999). The importance of resident's perceived housing satisfaction is as varied as its definitions. Galster, (1987) cited in Mastura, Liza, Osman, & Ramayah, (n.d) defined housing satisfaction as the perceived gap between a respondent's needs and aspiration of reality of current residential context. Other scholars refer to housing satisfaction as the degree of contentment experienced by an individual or a family member with regard to the current housing situations (McCray & Day, 1977). In this paper, perceptions of residents with specific reference to the socio-cultural and environmental needs were measured based on houses they currently occupy. The quality of life of residents could be predicted by measuring the individual housing satisfaction (Campbell, Converse & Rogers, 1976). Resident's perceptions of and feelings for their housing units and their immediate environment could be evaluated by measuring the level of their housing satisfaction (Ogu, 2002).

Housing and related environmental satisfaction studies until recently were restricted to western examples (Turkoglu, 1997) and other European cities. Examples include studies by Pacione, (1993), Troy, (1971), Australia and Andrews & Withey, (1976) in the U.S.A. Current study efforts, however, indicate a growing literature in other parts of the world including developing countries. This is evidenced by recent works of among others Ogu, (2002), and Ozo, (1987), for

Benin City, Nigeria, Kaitilla, (1993), Papua, New Guinea, Savasdisara & Suwannodom, (1989) Bangkok, Thailand, and Mastura et al, (nda), Penang and Seberang Perai, Malaysia. Target house samples were studied at various scales; at the city or national scales including low income areas (Fried & Glicher, 1961) and public housing areas (Onibokun, 1974, Rent & Rent, 1978). This study is restricted to individual houses within traditional housing context in Katsina.

Residential preferences including housing satisfaction have consistently been appraised using three aspects; housing, neighborhoods and the city as a whole. Scholars attributed reasons for applying various aspects in their studies. For example, scholars such as Marino, Ferdinand & Mirilia, (2003) chose neighborhoods in their studies because generally, public, private and processes were in view, and that it serves as a bridge between home and city levels in people's perception. The appraisal generally took two forms; determination of normative resident's perception (Nabila, 2009) and determining a relationship between perception and expert views (Mohit, et al 2009). This study relates with the first approach. It measures resident's perception in the traditional house in the northern Nigerian traditional city of Katsina. Two aspects were identified as critical to housing satisfaction in traditional settings in this area; socio-cultural and environmental aspects (Hamza, 2010). Hence, in the study, variables such as religious, cooking, sleeping and family interactions activities constitute the socio-cultural variables, while thermal comfort, level of the ventilation and hygiene conditions of houses constitutes the environmental aspect.

Despite the acceptance of housing satisfaction as a concept, some criticisms were leveled against it as means of measuring housing and environmental quality. Among the criticisms are those that could arise due to human factors such as when respondents became protective of their living environments, which could lead to the reporting of high satisfaction by respondents and, which does not represent a true situation on the ground. In some instances also, scholars expressed reservations on how physical features could be used directly to measure human feelings (Ogu, 2002). As observed by many scholars however, housing satisfaction as a concept does not lose its relevance as a means of measuring environmental quality. The observed limitations are not enough to overturn its usefulness (Savasdiara & Suwannodom, 1989). Its applicability to measure the satisfaction of an individual over a given time and to identify changes in social and personal factors makes the concept of a housing satisfaction ideal for measuring resident's perception of their built environmental quality, specifically housing.

Characteristics of the study area-Katsina traditional city

Historically, Katsina traditional city dates back to the 14th century (Usman, 1981). The traditional city *birnin* Katsina consists of the traditional core areas characterized by traditional houses and institutions while the government planned areas with modern institutional buildings and residences, courtesy of the western colonial legacies were located in the city's- extension called *bayan ganuwa*, (behind the city-wall). The traditional urban elements forming the core of the traditional city include: the emir's palace open public square, the central *Jum'at* (Friday prayer) mosque and market. Behind this central core are the residential neighborhoods which constituted the highest percentage in terms of area coverage. These are referred to as *unguwanni*, and were historically allocated based on family lineage, common ancestry or those practicing similar trades such as dyeing, leatherworks, etc.

The traditional city of Katsina is divided into four wards, each named after the four cardinal points for traditional administrative purposes. As shown in Figure 1, these are; *gabasa* (East), *yamma* (West), *kudu* (South), and *arewa* (North). Each was administered by a *wakili* (literarily meaning a representative) who was answerable to the *magajin gari*, the *hakimin birnin* Katsina (district head of Katsina city). These wards were of unequal sizes and each one has its historical peculiarities. The *yamma* ward for instance, is arguably the oldest of the four wards and where you find more Islamic scholars *malams*, accommodate some members of the royal family and the older inhabitants of the city of Katsina (Maxlock Group, 1978). The *gabasa* ward however, is the largest of the four wards in terms of area

coverage, most populated area and has the highest number of immigrants from neighboring rural areas and neighboring Hausa cities. The *kudu* ward shares some of the features of *gabasa* in terms of accommodating immigrant's population of the city. However, it has more non-indigenes who came from other parts of the country such as the civil service in federal government offices, construction and technicians. The smallest of the four wards is *arewa* ward in terms of area coverage, population and was occupied by the assimilated Fulani settlers, referred to as Hausa-Fulani. The emir's (*sarki*) palace was approximately centralized within the city and, by traditional protocols does not fall within any of the four wards, rather it serves as the origin from where each of the wards transcends.

Objectives of the paper

The primary aim of this paper is to measure housing satisfaction of traditional house residents with specific reference to defined socio-cultural and environmental variables in the traditional city of Katsina. To achieve this aim, two objectives were set as follows:

1. To empirically determine socio cultural and environmental satisfaction levels, satisfaction indexes and habitability index of respondents
2. To determine the design elements and variables that have influenced the perception of respondents in the determination of gap between the desired and the achieved satisfaction in both socio-cultural and environmental aspects

METHODOLOGY ADOPTED IN THE PAPER

To measure the respondent's perceived house satisfaction, a questionnaire survey was undertaken. A structured questionnaire was used for the survey. Using simple random sampling technique, the questionnaires were administered to respondents in all four traditional housing sectors that made up the traditional city. The questionnaire was based on Likert scale, in which choice answers were scaled and numbered 1 to 5, with 1 being the least value and 5 with highest. Using this scale, the number of respondents that indicated any of the scales above with respect to the variables were added and presented as a percentage, as the respondent's satisfaction level. A mathematical relationship was used to compute the respondent's satisfaction index.

The formulae adds up all the score that each respondent has given to all the variables, the score is then divided by the maximum possible score and then multiply the sum by 100 to obtain the result as percentage.

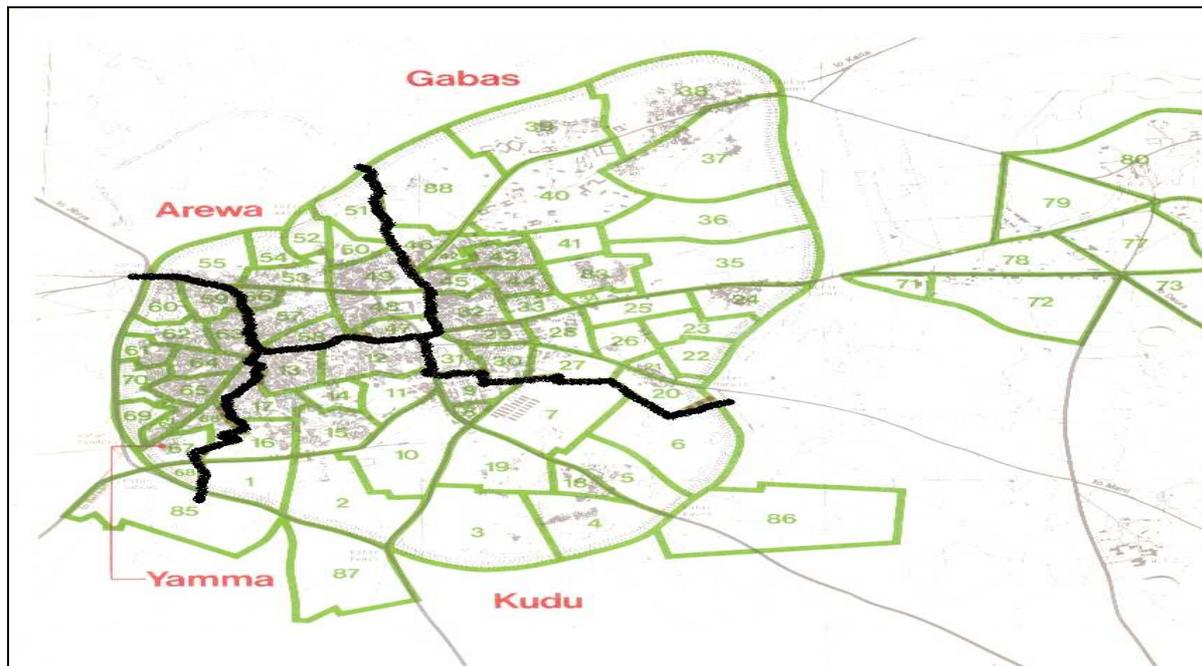


Figure 1 Boundary locations of the four wards of *birnin* Katsina

Source: adapted from Maxlock Group, (1978)

As shown in the formulae below Sis is the satisfaction index derivable for each of the socio-cultural and environmental aspects, where s is any of the two aspects. N is the number of the variables rated by the respondents under the Likert scale. y_l is the actual score by respondents on all variables, (l th) YI is the maximum score that could be scored by a respondent on all variables. Using this formula, therefore, a respondent could score a maximum of 100% and minimum of 20%. The higher the score to 100%, the higher is the satisfaction, while the closer the respondents score to 20% the lower the degree of satisfaction.

$$Sis = \left(\frac{\sum_{l=1}^N y_l}{\sum_{l=1}^N Y_l} \right) \times 100$$

Similarly, to compute the habitability index of a particular variable, all the scores that respondents gave to a particular variable are added up, the total score is then divided by the maximum possible score for that variable which is then obtained as a percentage by multiplying by 100. In the formulae below, Hie is the habitability index of the variable (in other words the level of importance of the variables according to the scores given by respondents). N is the number of respondents in this case 120. aye is the actual score of all respondents (y th) on one variable (e th). Aye is the maximum possible scores that respondents (y) could give to one variable (e) on the five point Likert scale.

$$Hie = \left(\frac{\sum_{l=1}^N aye}{\sum_{l=1}^N Aye} \right) \times 100$$

ANALYSIS, RESULTS AND DISCUSSION

To measure satisfaction levels of respondents, a total of thirteen variables were identified. As shown in Tables 1 and 2 the thirteen variables were categorized into four groups for the socio-cultural aspects and three for the environmental aspects respectively. The results indicated that in the in the socio-cultural aspect, none of the respondents (0%) was very dissatisfied but majority (35.1%) were fairly satisfied with the adequacy of cooking spaces variable. Under the religious activities grouped variable, nearly half of the respondents (47.4%) were fairly satisfied with spaces they used for prayers in their houses, while at least half of the respondents were satisfied with privacy in their bedrooms (43.9%). Respondent's satisfaction level on spaces for reception of visitors was nearly uniform. In the environmental aspect, majority of respondents (55.3%) were dissatisfied with the thermal comfort and ventilation level in their houses both during the day and night in the hot season (Table 3). In winter, the perceived level of environmental satisfaction is much higher. For example, in this season, 45.6% and 40.4% of the respondents were fairly satisfied and satisfied with the ventilation level in the day and night respectively.

A very high number of respondents were also satisfied with the number of toilets in their houses (49.1%). Analysis on the perceptions on the house waste water discharge indicated that

the number of respondents that were dissatisfied, fairly satisfied and satisfied were nearly the same (28.1%, 26.3%, and 28.9%) respectively.

Table 1 Summary of respondent's perceived socio cultural satisfaction level

Socio-cultural variables	V. dissatisfied		Dissatisfied		Likert Measurement scale				V. satisfied	
	Frq	(%)	Frq	(%)	Fairly satisfied Frq	(%)	Satisfied Frq	(%)	Frq	(%)
<i>Cooking activities</i>										
Sufficiency for cooking space			29	25.4	40	35.1	34	29.8	10	8.8
Accessibility of cooking space			27	23.7	38	33.3	40	35.1	9	7.9
Sufficiency of spaces for taking meals			8	7.0	62	54.4	38	33.3	6	5.3
Sufficiency for food storage			33	28.9	33	28.9	34	29.8	14	12.3
<i>Religious activities</i>										
Spaces for prayers (female)	2	1.8	5	4.4	54	47.4	35	30.7	18	15.8
Spaces for prayers (male)			3	2.6	54	47.4	33	28.9	24	21.1
Spaces for <i>tilawa</i> teaching of al-Qur'an	2	1.8	19	16.7	26	22.8	41	36	26	22.8
<i>Sleeping activities</i>										
Privacy of bedroom	1	0.9	6	5.3	41	36.0	50	43.9	16	14.0
Spaciousness of bedroom			9	7.9	42	36.8	48	42.1	15	13.2
Ventilation of bedroom	4	3.5	24	21.1	30	26.3	39	34.2	16	14.0
Security of bedroom	1	0.9	9	7.9	33	28.9	46	40.4	26	21.9
<i>Family interaction</i>										
Reception of male visitors	8	7.0	30	26.3	31	27.2	34	29.8	11	9.6
Space for children play	8	7.0	23	20.2	31	27.2	43	37.7	9	7.9

Table 2 Summary of respondent's perceived environmental satisfaction level

Environmental variables	V. dissatisfied		Dissatisfied		Fairly satisfied		Satisfied		V. satisfied	
	Frq	(%)	Frq	(%)	Frq	(%)	Frq	(%)	Frq	(%)
<i>Thermal comfort</i>										
Comfort in the day in hot season	15	13.2	48	42.1	30	26.3	18	15.8	3	2.6
Comfort in the night in hot season	15	13.2	48	42.1	25	21.9	22	19.3	4	3.5
Comfort in the day in winter			4	3.5	66	57.9	37	32.5	6	5.3
Comfort in the night in winter			4	3.5	54	47.4	50	43.9	6	5.3
<i>Ventilation level</i>										
Ventilation in day in hot season	4	3.5	54	47.4	28	24.6	22	19.3	6	5.3
Ventilation in the night in hot season	6	5.3	50	43.9	25	21.9	28	24.6	5	4.4
Ventilation in the day in winter season			5	4.4	52	45.6	48	42.1	9	7.9
Ventilation in the night in winter season			3	2.6	46	40.4	52	45.6	12	10.5
<i>Hygiene</i>										
Toilet position in relation to source of water	3	2.6	11	9.6	41	36	41	36	18	15.8
Toilet position in relation to bedrooms			15	13.2	36	31.6	45	39.5	18	15.8
Type of toilet facility	1	0.9	8	7	35	30.7	56	49.1	13	11.4
Number of toilets in the house	4	3.5	12	10.5	37	32.5	47	41.2	12	10.5
Waste water discharge	3	2.6	32	28.1	30	26.3	33	28.9	16	14.0

The respondent's satisfaction indexes are classified into percentage score-groups; 20-39% very low, 40- 59%, low, 60-79% moderate and 80-100% high score-group, this is in cognizance of the score of 60% as a mean score on the Likert scale in the analysis. The respondent's socio-cultural satisfaction index was measured as shown in Table 3. In the cooking activities grouped variable, nearly half of respondents fall in the moderate satisfaction group. In the religious activities grouped variable, nearly forty percent of respondents fall in the high satisfaction group. Sleeping activities grouped variable seems to have the highest number of respondents that fall under the moderate-satisfaction group. For the environmental

satisfaction index (Table 4), in the thermal comfort grouped variable, the highest percentage of respondents fall in the low-satisfaction group, while, the least number of respondents fall under the moderate-satisfaction. Generally, the highest number of respondents that fall in the moderate and high satisfaction range are found under the hygiene grouped variable (81.6%) while the lowest is found under the thermal comfort group variable. Majority of all respondents fall either in the low or moderate satisfaction regions. This value is lower than in the socio-cultural satisfaction grouping. Based on the measured occupant's perceptions, the socio-cultural response of the Hausa traditional house is higher than the environmental index.

Table 3 Derived socio-cultural satisfaction indexes of respondents

interactions Satisfaction Index (%)		Cooking activ.		Religious activ.		Sleeping activ.		Fam.	
		Frq	(%)	Frq	(%)	Frq	(%)	Frq	(%)
20-39	Very low			2	1.7			9	7.8
40-59	Low	33	28.9	20	17.6	9	7.8	33	28.9
60-79	Moderate	55	48.2	49	43.4	64	56.1	37	32.4
80-100	High	26	22.8	42	37.2	41	35.96	35	30.7
Total N		114	100	113	100	114	100	114	100
Mean			3.28		3.61		3.58		3.13
Std. dev			0.89		0.92		0.90		1.08

Table 4 Derived environmental satisfaction indexes of respondents

Hygiene Satisfaction Index (%)		Thermal comfort		Ventilation			
		Frq	(%)	Frq	(%)	Frq	(%)
20-39	Very low			1	0.8	1	0.8
40-59	Low	57	50	40	35	20	17.5
60-79	Moderate	38	33.3	44	38.6	65	57.0
80-100	High	19	16.7	29	25.4	28	24.6
Total N		114	100	114	100	114	100
Mean			2.99		3.17		3.48
Std. dev			0.84		0.85		0.94

The socio-cultural and environmental habitability indexes of the variables were similarly measured by classifying the respondent's scores into three score-regions; 20-59% scores represent negative region, 60-69% and 70-100% percents represents moderately positive and positive regions respectively. The habitability index refers to the degree at which each variable under the group variables contributes to satisfaction or dissatisfaction of respondents. As shown in Table 5, none of the socio-cultural variables made a negative contribution. Sleeping activities or bedroom conditions made the highest contribution to respondent's satisfaction than all the other independent variables. The variables could therefore, be ranked according to the degree of their contribution. Spaciousness of bedroom and Privacy of bedroom in the sleeping grouping variable made the highest contribution in descending order while spaces for the reception of male visitors and space for children play made least contribution of respondent's satisfaction.

hygiene grouped variable made positive contribution except waste water discharge, which contributed moderately positive. Under the thermal comfort and ventilation level grouped variables, comfort levels in the day and night in hot season and ventilation in the day and night in hot season contributed moderately positive respectively. In all, therefore, comfort levels in the night in hot season seems to be the independent variable that least contributed to respondent's satisfaction. This factor partly explains why in the traditional Hausa house, occupants sleep in the courtyard in the hot season. In general, under the environmental grouped variables, number of toilets is the key predictor of respondent's satisfaction followed by type of toilet facility, ventilation in the night in winter, toilet position in relation to bedrooms, ventilation in the day in winter, comfort in the day in winter and waste water discharge in descending order. These elements represent elements that have significantly influenced respondent's satisfaction.

Table 6 shows the habitability indexes of the environmental aspect. All variables in the

Table 5 Socio-cultural Habitability indexes of independent variables

Socio-cultural grouping variables	Variables	Habitability Index (%)
<i>Cooking activities</i>		
Adequacy for cooking space	64.7	A
Accessibility of cooking space	65.3	
Adequacy of spaces for taking meals	67.4	
Adequacy for food storage	64.7	
<i>Religious activities</i>		
Spaces for prayers (female)	70.3	
Spaces for prayers (male)	72.6	
Spaces for <i>tilawa</i> or teaching of al-Qur'an	71.6	
<i>Sleeping activities</i>		
Privacy of bedroom	72.8	
Spaciousness of bedroom	73.2	
Ventilation of bedroom	69.1	
Security of bedroom	74.6	
<i>Family interaction</i>		
Reception of male visitors	61.8	
Space for children play	62.8	

Table 6 Habitability indexes of environmental independent variables

Environmental grouping variables	Variables	Habitability Index
<i>Thermal comfort</i>		
Comfort in the day in hot season	51.8	
Comfort in the night in hot season	51.6	
Comfort in the day in winter	67.5	
Comfort in the night in winter	70.9	
<i>Ventilation level</i>		
Ventilation in day in hot season	53.9	
Ventilation in the night in hot season	53.7	
Ventilation in the day in winter season	70.4	
Ventilation in the night in winter season	72.4	
<i>Hygiene</i>		
Toilet position in relation to source of water	70.5	
Toilet position in relation to bedrooms	71.2	
Type of toilet facility	73.3	
Number of toilets in the house	73.5	
Waste water discharge	64.6	

CONCLUSION

Findings on respondent's perceived socio-cultural satisfaction level indicated that the highest percentage of respondents were generally satisfied with cooking activities and that spaces for taking meals played a key role. The least number of respondents was satisfied with spaces for the reception of male visitors, in other words, it accounted for the least satisfied variable. Proportionately, the high-satisfaction group is recorded in sleeping activities while the very-low satisfaction group was recorded in the family interactions. Respondents rated the security of their bedrooms as the most important and spaces for children's play as the least important. Similarly, perception of respondents on environmental aspect indicates that the highest percentage of respondents were satisfied with the ventilation level in the night in the winter season and least number with the comfort level in the day in hot season. In the satisfaction

index, the highest satisfaction fall under the hygiene grouped variable, while the very-low was found under the thermal comfort grouped variable. The respondents also consider the number of toilets in the house as the most important variable and comfort level in the night in hot season as the least contributing to their satisfaction. The highest socio-cultural satisfaction of the residents in the Hausa traditional house as shown in the analysis is expected, as houses were built based on practical needs of the occupants. Important lessons derivable include the need on the part of governments to find ways of improving the traditional settings through appropriate policies and active participation targeted at improving sanitary conditions and the creation of more open spaces for adequate ventilation in the traditional housing neighborhoods, while still helping residents to maintain their traditional building needs and preferences.

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