GUESTS' PERSPECTIVE OF HOTEL DESIGN QUALITY – A QUESTIONNAIRE SURVEY OF HOTEL GUESTS IN LAGOS METROPOLIS

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ABSTRACT
The building is an important part of a hotel offering, whose quality must be improved towards achieving better guests satisfaction. The quality of a building is directly associated with the quality of its architectural design, which is why several studies have established a relationship between hotel design quality, and its guests' satisfaction. As the possible input resources of hotel design, management and financing are ever limited, it has become necessary to examine design quality itself, in this case in terms of its constituents, and identify which aspects of it mostly impact hotel guests' satisfaction decision. This paper, therefore, aimed to identify the perspective in which guests assess the design quality of hotels, with the explicit objectives of identifying and grading the extent of the impact of each dimension of design quality on guests' satisfaction. Employing the philosophical framework of the Design Quality Indicator (DQI) tool with its design quality dimensions, however with the addition of hotel atmospherics aspect obtained from literature, this is a quantitative study, using data obtained from 333 administered questionnaires, spread across sixteen hotels - one from each of the sixteen federal approved local government areas of Lagos metropolis. Design quality was found to be a significant predictor of guests' satisfaction; and also Hotel Atmospherics, as a dimension of design quality, emerged as the only significant predictor of guests' satisfaction, as well as having the strongest singular relationship with it amongst other dimensions of design quality.

KEYWORDS: *Design Quality, Design Quality Dimensions, Guests' Satisfaction, Hotel Architecture, Hotel Atmospherics*

1. INTRODUCTION

As a result of the growth of the hotel industry in Nigeria, through new properties development as well as the entrance of new foreign brands such as Radisson, Southern Sun, Best Western and Protea, hotels now seek to improve the quality of their offerings towards meeting competition from other brands. The building is an important hotel product offering - in terms of the room, which is the primary hotel product, as well as restaurants, bars, lobbies and other spaces of support value. The quality of a building is directly associated with that of its architectural design, which therefore explains why hotel architectural design quality is now well associated, in literature, with the consequence of customer (guests') satisfaction with the hotels.

1.1 Background of the study

The relationship between design quality and guests' satisfaction is an important issue that is worthy of exploration, towards identifying the value and strength of its correlation as well as those of the components of design quality, independently with guests' satisfaction. Such clear impact value will guide not only design or the extent of solutions towards achieving desirable impact on guests' satisfaction but also design as a means of achieving better hotel business outcomes through guests' satisfaction. Furthermore, the enquiry into the various aspects or dimensions of design quality as they impact guests' satisfaction will reveal areas for better focus by hotel designers, owners and managers; others that require more attention as well as those that are really of little or no consequence, thereby presenting as a guide

for more efficient deployment of limited resources of funding, service and management in the hotel building procurement, operations and business.

1.2 Statement of the Problem

All architectural design effort in a hotel is directed towards meeting the satisfaction of the hotel guest, either directly or indirectly - by meeting the functional needs of the staff who in turn ultimately work to satisfy the hotel guest. It is then pertinent to state that any quality impact on the hotel should be sensibly viewed from the guests' perspective. The user-centred Theory of the Built environment, which proposes that the user is at the core of built activity, is the theoretical focus of this enquiry. The main postulate of this theory is that the built form and its environment exists to satisfy the needs of the user. Its elements are the user, user experience and the built environment itself (Vischer, 2008). The relationship of two out of the three elements are at play in this study. To what extent is the influence of design quality, a built environment item, on the hotel guests' satisfaction, which is one of the most common items of user experience? What definitions are most appropriate to adopt or adapt, in this case, for design quality and guest satisfaction? What are the appropriate dimensions of design quality and their metrics of measurement? The central question in this study is what are the various dimensions in which design quality is viewed by hotel guests and what are the relative extents of their impact on guests' satisfaction decisions?

1.3 Aim and Objectives

This study aimed to examine guests' perspectives of local hotel design quality assessment through its impact on their satisfaction with the hotels.

Objectives are:

1. to examine the extent to which the design quality of hotels impacts guests' satisfaction in the Lagos metropolis.
2. to evaluate the extent to which the various dimensions of design quality of the hotels impact guests' satisfaction
3. to therefore determine the design quality dimension(s) that contribute(s) most towards predicting guests' satisfaction with the hotels

1.4 Scope and Context of the Study

Lagos state is said to have over 2000 hotels according to the Lagos State Tourism Board. The bulk of the standard hotels are concentrated in the Lagos metropolis (Durodola et al., 2018). Lagos metropolis, being the hub of international and local transport connections and the commercial nerve centre of Nigeria. The hotel business has become much more competitive and thereby more responsive to quality improvements. This study was conducted in the sixteen federal approved local government areas of the Lagos metropolis as the core of Nigeria's hotel activities, as well as being a source of more urbane hotel guests which should enhance the generalizability of this enquiry. While there are several growing bodies of architectural design quality knowledge such as Evidence-Based Design (EBD), Usability, user-centred Design. Design Quality best captures the essence of this enquiry, with its comprehensive look into all the dimensions of design. The Design Quality Indicator (DQI) tool provides this research with its philosophical perspective of design quality which subdivides it into the three dimensions of functionality, build quality and impact (Gann et al., 2003). This study however looks into the addition of another dimension that best captures design's quality effort towards the hospitality essence of a hotel building. They identified four dimensions of design quality, along with their various indicators are the independent variables of this study, measured against guests' satisfaction as the dependent variable. The hotel guest is the unit of analysis in this study, and his satisfaction decision against the influence of each of the variables of design quality is the data. The analysis is through descriptive statistics and SPSS linear regression.

2. LITERATURE REVIEW

In the view of Thomson et al. (2003), the quality of a product is an assessment of how well its features or attributes meet the customer's needs. Suratkon et al. (2016) in agreement with the definition by ISO 9000, defined design quality as the overall characteristics of an entity (product or services) that satisfies the requirement of customers. Also, the quality of a building as a product stems primarily from its design (Suratkon et al., 2016). The design quality of a building can thus be said to be how well the total embodiment of design solution, composition or appeal of a building in totality, as well as in terms of its component parts, meets its implicit or specific purpose.

2.1 Design Quality Dimensions

As this study is essentially an examination of the relative impact of the various dimensions of Design Quality in influencing hotel guests' overall satisfaction decision, it is necessary to identify appropriate and comprehensive dimensions that encompass various elements or indicators of Design Quality. In view of this, this study turns to the Design Quality Indicator (DQI) tool for its general philosophy and perspective, having been rigorously tested in practice, especially in the United Kingdom (UK) which is its place of origin since its inception. Its categorization of indicators and dimensions of Design Quality has rarely been questioned. In addition, several scholars have either adopted or adapted the tool for use in the measurement of design quality (Suratkon et al, 2016; Zemke et al., 2017)

2.2 Theoretical Foundation: user-centred Theory of the Built Environment

The user-centred theory of the Built Environment is built around the two key concepts of "building users' experience" and the 'user – building relationship' (Vischer, 2008; Kalvelage and Dorneich, 2004). The first postulate of the theory is that "the built environment exists to support the activities of users that it shelters" (Vischer, 2008). Its dimensions are users, users' experience and the built environment. It is the broad perspective in which this study is investigated. This study evaluates the design quality of hotels which is an aspect of the built environment in Lagos metropolis, from the point of view of the hotel guests, that is, users of the built space, using their satisfaction, which is a "user experience" as the metric of its measurement. Thereby appointing the three dimensions of the user-centred Theory in the investigation.

2.3 Hospitality essence of hotel building design

The nature of this inquiry demands a well-rounded understanding of the nature of this particular built form and its potential peculiarities especially as it may relate to users and their experience with it. The primary function of a hotel is to accommodate tourists or guests for a specific period, in exchange for payment. The hotel product is now very diverse, leading to limitless classifications that have produced hotel types and ratings such as 1 to 5 star, economy to ultra-luxury, lower to upper scale, business, boutique or lifestyle, suburban to resort and casino hotels amongst many others. In all, the hotel is not just another building, as its use is temporary – satisfaction opinion thereby flighty; its use is in exchange for payment – thereby transactional; but more importantly, the hotel offers hospitality, which means all the design effort in a hotel is not just towards standard building use, but essentially towards pleasing the customer (user). Therefore, design quality judgment will have to go beyond the usual dimensions of functionality, build quality and impact, it must also embrace a dimension that is the total of the effort of design in assisting the hospitality function of a hotel, being the core of its essence.

Dzhandzhugazova, *et al*. (2016) outlined the seven sensual notes of hospitality that architectural design quality must strive to address, as listed below with further explanation provided in this study.

1. **Sight** – through exterior and interior visually pleasing forms and aesthetics as well as locating spaces to achieve pleasant views and other visual experiences.

2. **Hearing** - through design for pleasant natural, or produced sounds, as well as quiet which is often the essence of some spaces.
3. **Smell** – through design, incorporating natural aroma from specific materials, or the strategic integration of pleasant aroma and suggestive smells dispensation, as well as the important exclusion of unpleasant smells through effective space planning and design.
4. **Taste** – through the efficacious design support of food presentation and place of presentation with the use of strategic sensory cues, to elicit the right atmosphere for gastric pleasure. The poor quality architectural design may discourage any form of taste pleasure expectation or bring about disconfirmation of satisfaction.
5. **Touch** – through its variety of textures and form as well as shapes and sizes, that design may compose and manipulate in a manner such as to elicit delight.
6. **Intuition** – which is what "enables a person to achieve the necessary understanding of a situation without any logical analysis" (Dzhandzhugazova et al., 2016). The architectural design may reinforce or diminish a guests' feeling of comfort, or privacy, or security, for instance, merely through his experience of the built space.
7. **Impression** – being "the image reflection or trace left in the mind of a person by the surrounding pictures of the world or event" (Dzhandzhugazova et al., 2016). The design of a space in totality may leave a positive or negative impression on a guest through its use of form, space, objects in space and composition.

This study, therefore, adopted "Hotel Atmospherics" as the fourth dimension of Design Quality as that, which accounts for the hotels' hospitality element. Its indicators are Style, Ambiance, Sense of place, Intuition and Overall impression as adopted from Simet al.(2006) and Naqshbandi and Munir (2011).

2.4 Impact of design quality on hotel guests' satisfaction

There have for long been several studies which link the physical environment with users' satisfaction (Ryu and Han, 2011; Amue et al., 2013; Kirima et al., 2017). Beyond this, other studies have been conducted that explicitly prove the effect of the hotel physical environment on hotel Customers' Satisfaction (Thomson et al., 2003; Zemke and Pullman, 2008; Nam and Carnie, 2014). Most studies, however, that evaluate the impact of quality, as a value on customer satisfaction in hotel buildings specifically have been on 'service quality. Such studies have been from business or hospitality literature (Ofobruku and Amagbakhan, 2013; Heravitorbati et al., 2011; Tefera et al., 2018; Minh et al., 2015; Rao and Sahu, 2013). The few studies that have linked the effect of architectural design to hotel customer satisfaction have attended to the issue in pieces, such as a look at an aspect of design - such as circulation design (Onugha et al, 2016), or a design effect on an aspect only, of a hotel - such as the lobby (Naqshbandi and Munir, 2011). In general, the available studies have not explored the effect of design quality as a holistic concept, in its appropriate technical conceptualization, as it impacts customer satisfaction, particularly in hotel buildings which itself is a building of many peculiarities.

2.5 Impact of the various dimensions of design quality on hotel guests' satisfaction

Studies have been conducted to find the predictive relationship of aspects of physical buildings or their design with customer experiences, such as in restaurants (Ryu and Han, 2011), coffee shops (Waxman, 2006), bar atmosphere (Lin 2009), and hotels (Kirima, Makopondo and Mutungi, 2017). These studies found aspects of the built form of architectural design were in correlation with customer satisfaction, but not with, first of all, a comprehensive conception of design quality and certainly not conceived with cogent aspects or dimensions that would aptly capture design quality within the context of architectural design research. There are recent studies that have adopted or adapted the Design Quality Indicator (DQI) tool's philosophical basis of functionality, build quality and Impact as dimensions of design quality, however not

either with respect to hotel building research or not with a view to assessing their impact on hotel guests' satisfaction (Suratkon et al., 2016; Zemke et al., 2017). Furthermore, the hotel is more than just a building, it is a place of hospitality and as such, design has to extended its capacity towards supporting the hospitality essence of a hotel through its participation in the enhancement of the seven sensual cues of hospitality (Dzhandzhugazova et al., 2016) and hence a dimension must ensue that best capture that aspect of design effort, which this study has conveniently named "Hotel Atmospherics".

2.6 Summary of Research Gaps

While there are been various studies that have looked at the relationship of physical built form or design with customer satisfaction, even in hotel buildings, these studies have mostly been through the lens of business or hospitality literature, attempting to export elements of design into their domain, they, however, cannot aptly conceptualize design or design quality in its totality or even its components in the most appropriate of architectural definitions. This study is conducted from the perspective of the User-Centered Theory of the Built Environment, where design quality, (an aspect of) the built environment, is measured against guests' satisfaction, which is a user experience. Also, this study addresses the predictive relationship of not only design quality as a whole but also its various dimensions (components) with guests' satisfaction. this will bridge the gap that has existed in research whereby only fragments of design and physical forms like colour, texture, lighting, cleanliness, aroma, furniture and materials, were often examined, not thereby capturing design quality in its comprehensively descriptive elements. In addition, a dimension to embody designs' effort towards enhancing the hospitality aspect of hotel design is added to bridge the gap of studies, which have hitherto only seen a hotel strictly with the lens of other buildings. Finally, this study addresses the important question of identifying the contributions of various design quality elements in their relationship with guests' satisfaction decisions. This is a gap that when bridged, will point hotel designers, financiers, developers, and managers in the direction of appropriate areas of design and funding focus.

2.7 Conceptual Model

A look at the study conceptual model reveals design quality and its various dimensions, each which in turn embodies its various indicators, identified from the literature, and all in a direct relationship with guests' satisfaction (as a whole).

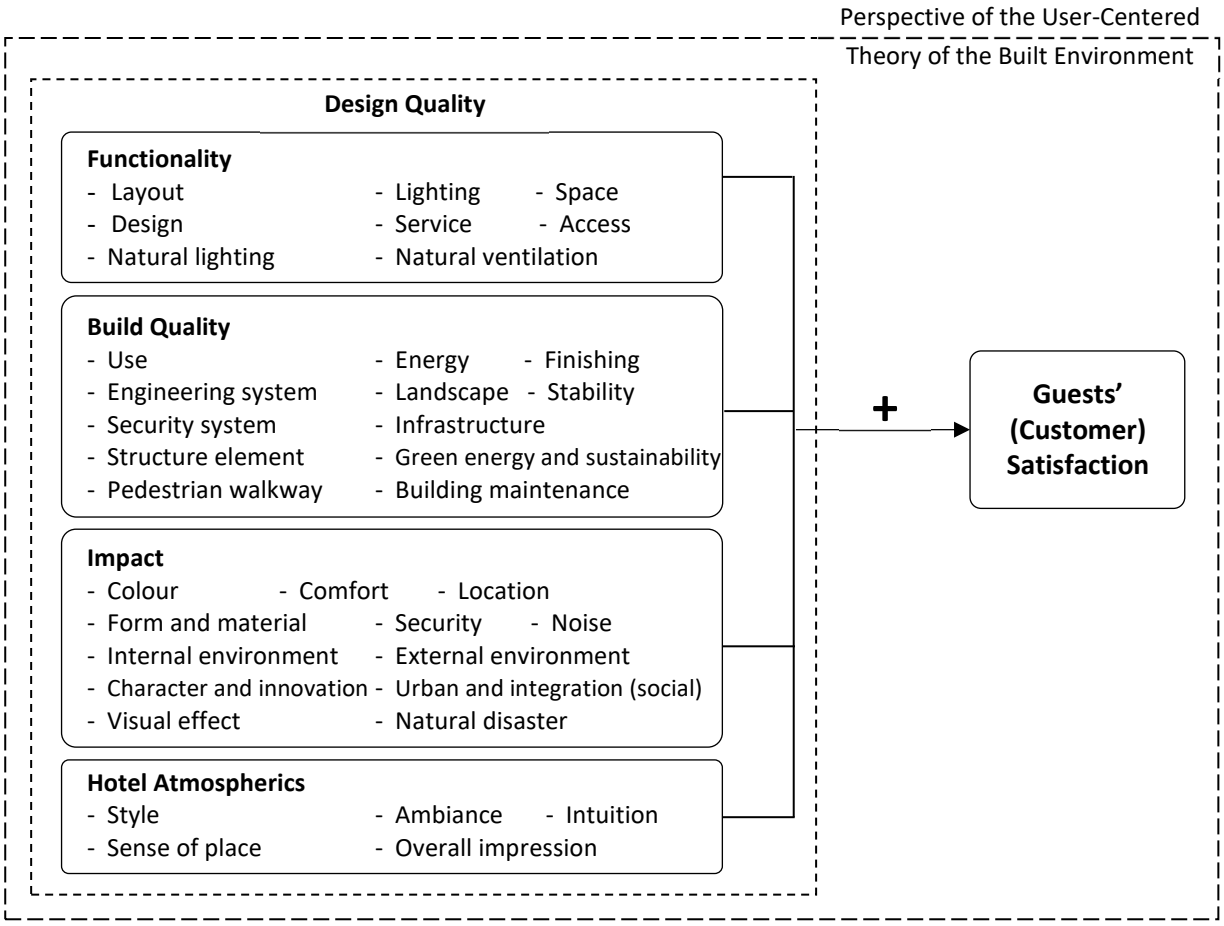

Figure 1. Study Conceptual Model

3. METHODOLOGY

This study aimed to examine guests' perspectives of hotels design quality assessment through its impact on their satisfaction with the hotels. The research questions were as follows:

Question 1 – To what extent does the design quality of local hotels impact guests' satisfaction in the Lagos metropolis?; Question 2 – To what extent does each of the various dimensions of design quality of local hotels impact guests' satisfaction?; and Question 3 – What dimension(s) contributes most towards predicting guest satisfaction with the hotels?. A methodological analysis of the three research questions revealed the questions require a large and well representative data of guests' opinions, and statistical analysis to establish degrees of relationships as well as degrees of predictability. To this end, the appropriate method adopted for this study was Quantitative Survey Research, using Survey Questionnaires as the instrument of study.

3.1 Research Setting, Population of Study and unit of analysis

The target of this study were 2, 3 and 4-star local hotels in the Lagos metropolis, because of their propensity to match the parameter of the study. That is, hotels studied should be such that will offer their guests basic comfort as well as good hospitality experience and aspire towards improving the quality of their delivery. They should not, however, be too big that their size and scope will obscure the clarity of the purpose of the study. Also, only local hotels were studied because global hotel chains come with physical content, brand identities and culture that are already too form–specific for guests to have a clear satisfaction opinion. Their satisfaction is already based on a premise of what to expect and usually simply

met by the hotel chain's usually generic and specific delivery. Brand culture influences the perceived value of hotel offerings (Dirisu et al., 2018). In this study, the hotel guest is the unit of analysis, therefore the study population was all guests staying for one night or more at every 2, 3 or 4-star hotel within the Lagos metropolis at the one week designated time of the study, which was between Monday 13th to Sunday 19th of January 2020.

3.2 Study Sampling

For the research sampling, the study population was stratified into strata based on geographical location. All hotels within the Lagos metropolis were grouped according to their various local government areas which resulted in sixteen, being the number of local government areas within the Lagos metropolis. One hotel was chosen from each group through a random selection process. Survey questionnaires were administered to randomly selected thirty (30) guests of each of the selected sixteen (16) hotels within the study period, amounting to a total of 480no administered questionnaires. 333 questionnaires were however retrieved and which is an acceptable response rate of 69.375%. All these 333 questionnaires were deemed satisfactory and thus constituted 333 respondents in this study, that is the study sample.

3.3 Data Collection

This research is purely based on primary data from the completed survey questionnaires. The questionnaire had three sections: section 1 – guests' responses to questions on the design quality of the selected hotels with four subsections questions of functionality, build quality, impact and hotel atmospherics based on a seven-point Likert scale ranging from 1 – "strongly disagree" to 7 – "strongly agree"; section 2 – guests' responses to questions on customer satisfaction with the hotel also based on the same seven-point Likert scale as well as section 3 – guests' characteristics, mostly based on a 3 – point nominal scale.

The questionnaire used for this study contained scale instruments that were adapted from tested variables and scales in literature. The first three components of the design quality aspect namely functionality, build quality and impact were from a previous design quality empirical study by Suratkon et al. (2016) while the last being hotel atmospherics was so conveniently named but adapted from another study from Naqshbandi and Munir (2011). The customer satisfaction indicators and scale were from Olorunniwo, et al. (2006). In addition, a Cronbach alpha internal reliability test on the first set of data from the first hotel yielded a score of 0.972 which meant the questionnaire was reliable and the study could proceed.

4. RESULTS

A Summary of respondents' personal profiles reveals that the majority (83%) of guests were above 25 years of age, just above half (58%) were males meaning that there was a significant representation of females (42%) represented in the study. The most prominent educational qualification was HND/Bachelors degree (53%) and Masters degree and above at 22%. Well, above half (59%) have not frequented foreign hotels and also 38% do not have frequent patronage of local hotels. Purpose of travel was almost evenly distributed at 31% for business 30% for pleasure and 39% for mixed. The result showed that respondents were in general, of mature age and have stayed in hotels long enough to determine their answers to the survey questionnaire.

4.1 Factor Analysis

While the dimensions and indicators used in this study were adopted or adapted from previous empirical studies, it was however still necessary to carry out a factor analysis and reliability test of the variables to test the internal validity of the instrument. The Cronbach alpha test figures of 0.880 for functionality

dimension, 0.879 for build quality, 0.901 for impact and 0.854 for hotel atmospherics were all above the 0.50 threshold, thereby implying reliability of the factors (dimensions) used in the study.

4.2 Design Quality Impact on Guests' Satisfaction

The first research question is to what extent does the design quality of local hotels impact guests' satisfaction in Lagos metropolis? To this end, Pearson correlations were first of all calculated among the four predictive variables of design quality. The result revealed that the assumption of no multicollinearity amongst the variables have been met, as none of the correlations reached the 0.80 thresholds. In order to obtain the answer for the first research question, multiple regression of design quality variables and guests' (Customer) satisfaction was carried out using functionality, build quality, impact and hotel atmospherics as predictor variables against customer satisfaction as dependent variables. The result revealed that design quality emerged as a significant predictor of customer satisfaction with its R square of 0.505 (or 50.5%) or 50.5 of the variance in the dependent variable customer satisfaction explained brought about by design quality, (having established its p-value less than 0.05. the predictive model is F = 85.611; df = 4,328; p = 0.000 (or p < 0.05) as shown in tables 1 and 2.

Table 1. Design Quality Model Summary

Model Summary[b]									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.715[a]	.511	.505	.798	.511	85.611	4	328	.000
a. Predictors: (Constant), Hotel Atmospheric, Functionality, Build Quality, Impact									
b. Dependent Variable: Customer Satisfaction									

Table 2. Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	218.085	4	54.521	85.611	.000[b]
	Residual	208.888	328	.637		
	Total	426.973	332			
a. Dependent Variable: Customer Satisfaction						
b. Predictors: (Constant), Hotel Atmospheric, Functionality, Build Quality, Impact						

4.3 Varying Impact of Dimensions of Design Quality on Guests' Satisfaction

Research question two is to what extent does each dimension of design quality impacts guests' satisfaction in Lagos metropolis local hotels. This question was sorted in two ways. First was a multiple regression analysis of each of the variables (dimensions) of design quality as predictive variables, against guests' satisfaction as the dependent variable was conducted to test the unique contributions between the predictive variables and the dependent variable by assigning coefficients to each predictive variable and Table 3 shows the beta weight and statistical significance of each variable that resulted in the analysis. Based on this result, only one variable, which is hotel atmospherics, out of the four, showed statistical significance, with B = 0.547 (p = 0.000) while other variables namely functionality, build quality and impact have statistically insignificant relationships with guests satisfaction with p values greater than 0.05, values for build quality were B = 0.120 (p = 0.79), impact was B = 0.97 (p = 0.163) and functionality was B = 0.002 (p = 0.977)

Table 3. Design Quality Variables Model Summary

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.889	.283		3.143	.002
	Functionality	.002	.066	.002	.029	.977
	Build Quality	.141	.080	.120	1.761	.079
	Impact	.116	.083	.097	1.398	.163
	Hotel Atmospheric	.592	.067	.547	8.869	.000
a. Dependent Variable: Customer Satisfaction						

In addition, individual linear regressions for each variable (dimension) using its indicators as predictive variables against a guests' satisfaction as the dependent variable, tables 4, 5, 6 and 7 revealed that each dimension of design quality emerged as a significant predictor of guests' satisfaction, with p-values of each less than the 0.05 threshold. This means that functionality, build quality, impact as well as hotel atmospherics each have a significant singular predictive relationship with guests' satisfaction. That is each of the dimensions on its own directly impact guests' satisfaction with values in the above tables showing adjusted R square values of 0.535 for hotel atmospherics; 0.396 for impact; 0.393 for build quality and 0.264 for functionality each with $p< 0.05$.

Table 4. Regression for Functionality

Model Summary[b]									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.535[a]	.286	.264	.973	.286	12.879	10	322	.000
a. Predictors: (Constant), Natural ventilation, Lighting, Pedestrian walkway, Service, Open space, Space, Use, Natural lighting, Access, Layout									
b. Dependent Variable: Customer Satisfaction									

Table 5. Regression for Build Quality

Model Summary[b]									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.641[a]	.411	.393	.883	.411	22.507	10	322	.000
a. Predictors: (Constant), Building maintenance, Landscape, Engineering system, Green energy sustainability, Building stability, Energy, Road width, Finishes, Structure element, Security system									
b. Dependent Variable: Customer Satisfaction									

Table 6. Regression for Impact

Model Summary[b]									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.646[a]	.418	.396	.881	.418	19.135	12	320	.000
a. Predictors: (Constant), Noise, Design, Internal environment, Visual effect, External environment, Comfort, Form and material, Location, Character and innovation, Security, Urban and social integration, Colour									
b. Dependent Variable: Customer Satisfaction									

Table 7. Regression for Hotel Atmospherics

Model Summary[b]									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.736[a]	.542	.535	.774	.542	77.278	5	327	.000
a. Predictors: (Constant), Overall impression, Ambience, Sense of place, Intuition, Style									
b. Dependent Variable: Customer Satisfaction									

4.4 Design Quality Dimension that Contributes mostly to predicting guests' satisfaction

Research question 3 is what dimension(s) contribute most towards predicting guests' satisfaction with the hotels. Table 3 which is the design quality variables model summary from the regression analysis where the variables were the predictive variables with guests' satisfaction as the dependent variable, reveals that hotel atmospherics aside from emerging as the only statistically significant predictor of guests satisfaction in the model is also shown to have made the major contribution towards design quality predicting guests' satisfaction with its high beta value of 0.547 compared to the others of build quality which is 0.120, impact with 0.097 and functionality with 0.002.

In addition to this tables 4, 5, 6 and 7 which are regressions of each design quality dimension (variable) using its indicators (variables) as predictor variables against guests' satisfaction as the dependent variable, also show that hotel atmospherics emerged as the variable with the strongest predictive strength with adjusted R square value of 0.535, compared to those of impact with 0.396, build quality with 0.393 and functionality with 0.264. The result shows in summary that design quality as a whole concept emerged as a significant predictor of guests' satisfaction being responsible for 50.5% of explained variance in total. Hotel atmospherics variable (dimension) emerged as the only significant predictor of guest satisfaction in the design quality – guest satisfaction model. However other dimensions along with hotel atmospherics ranking strongest also emerged as statistically significant predictors of guests' satisfaction when considered in an individual relationship with it.

4.5. Discussion of Findings

This study evaluated the impact of various elements of design quality of local hotel buildings, on their guests' satisfaction, intending to investigate guests' perspective(s) of the local hotels' design quality assessment. The objectives were identified as firstly examining the extent to which the design quality impacts guests' satisfaction in the hotels. Secondly, evaluating the extent to which various dimensions of design quality impact guests' satisfaction, to ultimately determine the dimension(s) that contributes most towards predicting guests' satisfaction with the hotels.

In respect of the first objective, the results revealed that design quality, as a holistic construct, emerged as a significant predictor of guests' satisfaction with the local hotels in general. This is in line with previous

studies which connected design quality with customer satisfaction in most built forms generally (Ryu and Han, 2011; Amue et al., 2013; Kirima et al., 2017) and specifically in hotels or other hospitality buildings (Thomson et al., 2003; Zemke and Pullman, 2008; Naqshbandi and Munir, 2011; Nam and Carnie, 2014; Onugha et al., 2016). As regards the second objective, Hotel Atmospherics emerged as the only dimension which is a statistically significant predictor of design quality, amongst others which are functionality, build quality and impact which did not show a statistically significant relationship, as the variable of design quality, with customer satisfaction. however, when each dimension is in individual linear regression with customer satisfaction, using its various sub-elements as variables, the result revealed that each of these dimensions of design quality emerged as a significant predictor of guests' satisfaction, which simply means that each of functionality, build quality, impact and hotel atmospherics have a significant singular relationship with guests' satisfaction in hotels. This result supports outcomes of various studies which have tied each of these elements of design quality with guests' satisfaction, which prompts their identification as major dimensions of design quality in the first place. It supports their identification as the key viewpoints through which the quality of design should be viewed from the Vitruvian proposition to the numerous adaptations, up till their adoption as dimensions of design quality in the Design Quality Indicator (DQI) tool. It also validates the addition of Hotel Atmospherics as a dimension in this study.

With respect to determining the dimension(s) that contribute(s) most towards predicting guests' satisfaction with the hotels, the result revealed the emergence of Hotel Atmospherics as the only significant predictor of guests' satisfaction and also shows it to have made the major contribution towards design quality predicting guests' satisfaction. In addition, hotel atmospherics emerged as the variable with the strongest predictive, strength when in a singular relationship with guests' satisfaction. This result validates studies by Naqshbandi and Munir (2011) and Sim et al. (2006) which proposes the hotel as a place of hospitality and attempts to examine the role of architectural design in such context.

The emergence of Hotel Atmospherics as having the dominant relationship with guests' satisfaction in either singular relationship of each of the dimensions of design quality or as the dominant contributor to the predicting strength, as a variable of design quality amongst others, is indeed a significant finding. It simply means that hotel guests' assessment of hotels' design quality is through the lens of the elements of hotel atmospherics – which are style, ambience, sense of place, intuition and overall impression. They are the indicators that capture architectural design's attempt to meet the sensory cues of hotels' hospitality requirements. To further support this argument is the emergence of four out of five variables of hotel atmospherics namely – style, ambience, intuition and overall impression, in a pool of 37 variables of the dimension of design quality, as only the variables having a positive statistically significant relationship with guests' satisfaction. it is no wonder that according to Watson et al.(2016), the subject of atmospherics dominates hotel design quality literature.

5. Conclusion

This study aimed to examine guests' assessment of the design quality of local hotels in the Lagos metropolis, through its impact on their satisfaction with the hotels. Based on its set objectives, the study revealed that design quality was indeed a significant predictor of guests' satisfaction with an R square of 0.505; $P < 0.05$. Predictive model being $P = 85.611$; df = 4,328. Hotel Atmospherics, as a variable of design quality, emerged as the only significant predictor of guest satisfaction and also had the strongest singular relationship out of four dimensions of design quality with guests' satisfaction. This thus reveals that guests view the design quality of a hotel through the lenses of the elements of the hotel atmospheric dimension – such as style, ambience, intuition and the overall impression which also significantly are the only four indicators/variables out of the 37indicators of all dimensions of design quality that emerged as significant predictors of guests' satisfaction in the hotels. Implications are for architects, designers, hotel managers

and developers, for whom the results of this study present areas of focus for hotel design efforts and focus, funding and management plan and focus, as well as reference points in research in hotel architecture, design quality, customer satisfaction and hotel experiential design.

5.1 Contribution to Knowledge

The result of this study has several research and practical implications for hotel owners and developers, financiers, managers, architects, designers and builders as well as researchers in the hotel and other hospitality design, design quality, customer satisfaction.

5.2 Practical Implications

1. The result has revealed the general importance of design quality as a factor in improving guests' satisfaction which shows the larger role of architectural design as a driver of hotel business outcomes.
2. The revealing of the various levels of the impact of the four dimensions of design quality on guest satisfaction brings design, managerial and financial focus into the right aspects if the hotel, which saves money and time and hence better business outcomes.
3. Hotel architects, designers, managers and developers will better appreciate the hospitality requirement of architectural design, with the emergence of Hotel Atmospherics as the dominant viewpoint of guests' assessment of hotel design quality, and hence drive architectural design towards more experiential design direction.

5.3 Research Implications

1. The revealing of the statistically significant and positive predictive relationship of design quality with guests' satisfaction with values of predictive variances explained, forms a reference point for future studies in the relationship of the two concepts which are very important in design practice and research.
2. The revealing of Hotel Atmospherics as the dominant and single predictor of guests' satisfaction and also the strongest singular relationship with guest quality presents a clear direction as to which architecture of hotel must begin to focus. That Architecture must participate in enhancing hospitality experience in hotels. This will lead hotel architecture into the realm of experiential design.
3. This study also supports the use of the Design Quality Indicator (DQI) tool as an instrument of academic research, applying its philosophy and dimensions of the Design Quality as well as revised indicators.
4. The research is a user-centred one that embraces and furthers the application of the user-centred Theory of the Built Environment in its postulate of the relationship between (aspects of) the built environment – design quality, and user experience – guests' satisfaction.

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