

Evaluation of Users' preference in the use of stonework variants in selected resorts in Lagos, Nigeria

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Abstract:

This study focuses on evaluating users' preferences in the use stonework variants in selected resorts in Lagos, Nigeria. Stonework variants play a crucial role in the aesthetic appeal and architectural design of resorts, influencing visitors' experiences. The aim of this study is to assess the factors influencing users' preferences for stonework variants in resorts in Lagos, Nigeria where understanding these preferences can aid in enhancing the overall appeal and guests experience in these selected resorts. Some objectives of this study include investigating the use of stonework variants in selected resorts, identifying the key determinants that influence users' preferences, and exploring the potential benefits of incorporating sustainable stonework practices. The population size of this research consists of all resorts in Lagos State, Nigeria which are sixteen (16) in number, and the users of the resort where SPSS was used as the analytical tool. The study employs a mixed-method approach combining surveys and on-site observations to gather data on users' perceptions and preferences regarding stonework variants. This methodology allows for a comprehensive analysis of the factors influencing user choices. The findings in this study reveals that resort users in Lagos, Nigeria, exhibit a preference for stonework variants that blend sustainability with aesthetic appeal. Also, this research contributes to the enhancement of resort design practices and the overall quality of guest experiences in the hospitality industry in Lagos, Nigeria. Based on the results, it is recommended that resorts in Lagos should consider incorporating sustainable stonework variants that align with users' preferences. Additionally, promoting awareness about the benefits of sustainable construction practices can further enhance user satisfaction and contribute to the overall sustainability of resorts.

Keywords: Stonework variants, User preferences, Aesthetic appeal, Resorts, Lagos, Nigeria, Sustainable practices.

1. Introduction

Recent research has emphasized the significance of sustainable construction materials in building projects [1]. Autoclaved Aerated Concrete Block (AACB) has been recognized as a sustainable walling material deserving attention, particularly in developing countries. This underscores the importance of exploring sustainable stonework variants in resort construction to support global sustainability objectives. Therefore, this study explores the choices and inclinations of individuals regarding the types of stonework utilized in resorts within Lagos, Nigeria. Understanding these preferences is crucial for resort developers and designers to tailor their offerings to meet the desires of their target audience effectively. In the context of environmentally sustainable. By synthesizing these studies and focusing on the specific context of resorts in Lagos, Nigeria, researchers can gain a comprehensive understanding of users' preferences in stonework variants. This knowledge can inform resort developers and designers in creating spaces that resonate with the local population while also meeting international standards of sustainability and aesthetic appeal.

Moreover, research on neighborhood security and housing prices by [4] could shed light on how safety concerns influence users' choices in resort environments. Considering the cultural context of Lagos, Nigeria, where traditional practices often coexist with modern developments, insights from studies like [5] on the utilization of traditional healers among urban communities in Nigeria could offer a nuanced understanding of how cultural beliefs and practices may influence users' preferences in resort settings.

This research aims to investigate and analyze the preferences of users regarding the use of different stonework variants in resorts located in Lagos, Nigeria. The primary goal is to understand the factors that influence users' preferences when it comes to stonework materials in the context of resort construction. The objectives of this study are: 1) To identify the various stonework variants used in selected resorts in Lagos, Nigeria, 2) To assess users' preferences and perceptions regarding the aesthetic appeal of different stonework variants, and; 3) To evaluate users' preferences based on the durability and maintenance requirements of different stonework variants.

The significance of this research on the lies in its potential to provide valuable insights that can inform architectural design decisions, construction material selection, and overall user satisfaction in resort environments. Understanding users'

preferences regarding stonework variants is crucial for creating spaces that not only meet aesthetic standards but also align with user expectations and sustainability goals in the context of resort construction in Lagos, Nigeria.

A. Types of Stone/ Stonework variants

i. Granite

Granite is a durable stonework variant commonly used in building construction in Nigeria. It is composed of smaller mineral particles such as mica, hornblende, tourmaline, quartz, and orthoclase. Granite is known for its coarse texture and patchy appearance, with a variety of appealing colors. When polished, granite exhibits a glossy finish and is highly resilient to weather conditions, including moisture and frost. However, one drawback of using granite is its lack of fire resistance [6];[7];[8].

ii. Marble

Marble is another popular stonework variant in Nigeria, characterized by its layered composition primarily made of calcareous material. The main mineral in marble is calcite, formed from limestone, giving it a uniform grain and a wide range of colors from black to white. Marble is versatile, suitable for both construction and decorative purposes, provided high-quality material is chosen [9].

iii. Basalts

Basalt stones, also known as traps, are igneous volcanic rocks formed from lava eruptions. They contain minerals like hornblende and augite and are porous with occasional cavities. Basalt stones are typically dark in color but can vary, offering strength and resilience against weather conditions. However, their hardness makes shaping and resizing challenging, posing placement difficulties [10].

iv. Sandstone, limestone, gneiss, and laterite

These are all types of stone commonly used in construction. Sandstone, primarily composed of quartz with trace amounts of other minerals, is known for its durability when cemented, making it suitable for construction purposes [11]. Limestone, consisting mainly of calcium carbonate, varies in color and texture, with some types being ideal for construction due to their compactness and lack of cavities [12]. Gneiss, a metamorphic rock similar to granite, is suitable for construction if it has a uniform texture and coarse crystalline structure [13]. Laterite, composed of iron and aluminum oxides, is used in construction and road building due to its porous nature and color variations based on iron content [14]. Each of these rocks has specific characteristics that make them suitable for different construction applications. Sandstone's variety of hues, including pink, red, and grey, offer aesthetic options, while its quartz-rich composition and siliceous cement make it durable [11]. Limestone's soft texture and color variations, such as grey and black, can be polished for a refined look, with compactness being a key factor for construction suitability [12]. Gneiss's mineral composition varies based on its formation but requires a uniform texture and coarse crystalline structure for optimal construction use [13]. Laterite's transformation from alkaline igneous rocks results in a porous appearance, with iron content determining its red hues and suitability for construction and road building [14]. Therefore, the selection of sandstone, limestone, gneiss, or laterite for construction purposes depends

on factors such as durability, texture, color, and mineral composition. Understanding the unique properties of each rock type is crucial in choosing the most appropriate material for specific construction needs.

B. Users' Perception Of Stonework Variants

User perception encompasses how individuals recognize, interpret, and evaluate the features of stonework variants based on factors like durability, texture, color, and mineral composition. For instance, users may prefer sandstone for its diverse hues and quartz-rich composition, limestone for its soft texture and color variations, gneiss for its uniform texture and crystalline structure, or laterite for its porous nature and color variations.

i. The Role of Cultural Heritage

Cultural heritage significantly influences users' perceptions of stonework variants. Research has demonstrated that technology, such as digital applications and augmented reality, can enhance users' immersion in cultural spaces [15]; [16]. The social perception of artificial intelligence plays a crucial role in the digitization and promotion of cultural heritage ([17]. Moreover, studies emphasize the significance of user experiences in designing apps related to intangible cultural heritage, stressing the importance of considering factors like user learning and aesthetic enjoyment [18]; [19]. User-generated reviews and participatory initiatives are valuable tools for grasping user perceptions and boosting engagement with cultural heritage [20]. Additionally, the authenticity and aesthetic experience at cultural heritage sites significantly impact tourist satisfaction and perceptions of authenticity [21]. In the realm of heritage tourism, involving local actors and communities is essential for conserving cultural assets and advancing cultural tourism [22]. The influence of aesthetics on heritage tourism is crucial, highlighting the critical role that aesthetics and cultural presentation play in enriching tourists' experiences [19]. Overall, these studies underscore the diverse ways in which cultural heritage shapes users' perceptions, from technology-driven immersion to authenticity preservation and community engagement in heritage tourism.

ii. The Role of Customization of Stonework Variants

The customization of stonework variants can indeed influence how users perceive the quality, aesthetics, and functionality of these elements within resorts. Research has shown that customers' perceptions are crucial for their adoption, continued use, and satisfaction with various products and services [23]. Furthermore, customization can enhance users' satisfaction by aligning the design with their preferences and needs, ultimately leading to a more positive perception of the overall resort experience. Additionally, customization's impact on user perception goes beyond aesthetics. Customized stonework variants can contribute to creating a unique and memorable experience for resort guests, thereby influencing their overall satisfaction and likelihood of returning to the resort. Studies in sustainable supply chain management have highlighted the mediating role of customer perception in purchase intention and willingness to pay a price premium [24]. This suggests that customization tailored to users' preferences can positively

impact their perception of the value offered by stonework variants in resort environments. Similarly, residents' perceptions of the quality of facilities and services in residential environments significantly influence their overall satisfaction [25].

iii. The Influence of Visual Appeal

The visual aesthetics of stonework variants can significantly impact users' experiences and preferences, shaping their overall perception of the environment. Research has indicated that elements such as color saturation, architectural photography, and visual balance play a key role in influencing users' engagement and satisfaction with stonework variants [26]. Moreover, user characteristics like age and academic background can also affect spatial perception differences in visual environments, further influencing users' interactions with stonework variants [27]. Recognizing the significance of visual appeal in users' perception of stonework variants in resort settings is essential for enhancing the overall user experience. By concentrating on developing visually appealing stonework variants that resonate with users' preferences and expectations, designers can positively impact users' perceptions and engagement with the architectural elements in resorts in Lagos, Nigeria.

iv. The Importance of Intuitive Layouts in Stonework Variants

Intuitive layouts in stonework variants play a significant role in enhancing user experience and engagement. Research has shown that layouts offering clarity of function, intuitive use, and ease of navigation are crucial, particularly in supporting individuals on the autism spectrum [28]. Intuitive layouts that are easy to understand and navigate can positively impact users' interactions with stonework variants, contributing to a more seamless and enjoyable experience within resort settings. Moreover, the layout's intuitive design can influence users' spatial perception and engagement with the architectural elements. When layouts are intuitively structured, users can more easily comprehend and appreciate the stonework variants, leading to enhanced satisfaction and positive perceptions of the environment [29]. The intuitive arrangement of stonework variants can also contribute to a sense of coherence and harmony within the resort space, further enriching users' overall experience. By focusing on intuitive layouts in stonework variants within resorts in Lagos, Nigeria, designers can create environments that are not only visually appealing but also functionally efficient and user-friendly. Intuitive layouts can help users navigate the space with ease, understand the architectural elements better, and ultimately foster a deeper connection with the stonework variants, enhancing their overall perception and enjoyment of the resort environment.

v. The Importance of User-Friendly Design in Stonework Variants

User-friendly design in stonework variants is essential for enhancing user experience and engagement within resort settings. Research has shown that intuitive layouts, clear navigation, and ease of use are critical aspects of user-friendly design that can significantly impact users' interactions with stonework variants [30]; [31]. By prioritizing user-friendly design principles, designers can create environments that are

not only visually appealing but also functionally efficient and accessible to users of diverse backgrounds and abilities. Moreover, the user-friendly layout of stonework variants can influence users' spatial perception and overall satisfaction with the architectural elements present in resorts. A well-designed and intuitive layout can contribute to a sense of coherence and harmony, enhancing users' overall experience and enjoyment of the resort environment [32]. By considering the needs and preferences of users in the design process, designers can create stonework variants that cater to the diverse user base in Lagos, Nigeria, promoting positive user perceptions and engagement with the architectural features. In conclusion, user-friendly design plays a crucial role in shaping users' perceptions of stonework variants in resort settings. By focusing on intuitive layouts, clear navigation, and accessibility, designers can create environments that not only showcase the beauty of stonework but also provide a seamless and engaging experience for users in Lagos, Nigeria. Also, findings from the research methodology of the analysis of knowledge of aesthetic appeal and the use of stonework with integration of African culture on aesthetics will reveal that the use of stonework will be extensively employed and also will be aesthetically pleasing to guests and staff.

I. MATERIALS AND METHODS

A. Research Design

The major coding and analysis method used in this study was inductive, meaning that themes and codes emerged organically from the collected data. According to Braun and Clarke [33], this data-driven approach aimed to record participants' actual perspectives and interpretations without the influence of conceptual models or pre-existing theoretical frameworks. However, after recognizing the limitations of a purely inductive approach, the study employed a balanced methodology with both deductive and inductive elements. To highlight participant-based interpretations, open coding was employed, and deductive analysis ensured that the themes that surfaced aligned with the objectives of the study.

An extensive ethical review process was carried out before to the study's start to guarantee that the highest standards of participant protection and research integrity were fulfilled. The study protocol was sent for a thorough assessment to the appropriate Ethics Committee or Institutional Review Board (IRB). Formal authorization was acquired following a thorough review of the study's goals, methods, and potential dangers. This attested to the study's ethical soundness and compliance with all applicable rules and laws. Strict protocols were put in place to ensure moral behaviour during the entire research procedure. These included getting each participant's informed consent, protecting privacy and confidentiality, and

minimizing any dangers or discomforts.

As researchers, we knew that our experiences, histories, and views could affect our perspectives and how we would conduct the study, which could decrease the impact of our own biases. In order to do this, we employed a number of tactics, including bracketing exercises, member-checking approaches, and maintaining a reflexive notebook in which we kept track of all of our decisions, thoughts, and potential biases.

B. Data Collection

This study examined the evaluation of users' preference in selected resorts within Lagos, Nigeria. A mixed method approach was employed to achieve this. Existing literature was reviewed, on site observations were carried out and questionnaires were shared. Selected resorts were chosen to evaluate users' preference in the use of stonework and respondents in the survey were asked in the questionnaire to state how aesthetically appealing these stonework variants are. Census sampling was used to select members of the population based on their availability at the given time and proximity to the research site. This sample size was evenly distributed among the three resorts with approximately 104 respondents.

C. Data Analysis

The data analysis approach involved thematic coding, as stated by Braun and Clarke [33]. Themes were produced iteratively through continuous comparison analysis after initial codes were formed inductively from the data. Users and visitors of the resorts were also provided with access to preliminary data for validation throughout the study's member-checking phase. By doing this, the analysis was built with greater authenticity and assurance of accuracy in the interpretations.

The goal of this extensive study design was to gather a set of insights by investigating and analyzing the preferences in resort settings. This research seeks to bridge the gap between user expectations, sustainability goals, and architectural design principles, ultimately aiming to enhance user experiences and promote environmentally conscious construction practices in resort environments. This study employs a mixed-method approach combining surveys and on-site observations to gather data on users' perceptions and preferences regarding stonework variants.

II. RESULTS

A. Analysis of the Socio-Demographic Characteristics of Respondents

This section shows the results of the analysis of the socio-demographic characteristics of the respondents.

TABLE I
SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

Variable	Categories	Frequency (N=104)	Percentage (%)
Gender	Male	65	62.5
	Female	39	37.5
Age	Below 16	1	1.0
	16-25	30	28.8
	26-35	58	55.8
	36-45	10	9.6
	46-55	4	3.8
	56-55	1	1.0
	Above 65	0	0
Marital status	Single	72	69.2
	Married	28	26.9
	Divorced	3	2.9
	Widowed	1	1.0
	Separated	0	0
Highest education level	No education	1	1.0
	Primary	1	1.0
	Secondary	5	4.8
	OND/HND/N CE/B.Sc/A 'le vel	63	60.6
	M.Sc.	33	31.7
	PhD	1	1.0
Have you visited a resort before?	Yes	79	76.0
	No	25	24.0
Resorts visited	Bogobiri House	19	18.3
	La Campagne Tropicana beach resort	32	30.8
	Omu Resort	19	18.3
Category of User	Visitor	86	82.7
	Worker	18	17.3

Source: Author's Fieldwork (2023)

The survey respondent's demographics are shown in Table 1. One-hundred and four (104) people in total participated in the study. It can be seen that among the participants 65 (62.5% of them are male) and 39 (37.5% of them are female) were present. This demonstrates that more men than women took part in the survey. In the age group category, most of them are between the ages of 26-35 years, next to it being the 16-25 years range, 36-45 years range and very few were between 46-55 years range. This shows that the majority of the Visitors and Workers in the different resorts are middle-aged people and youths. In the age groups, a majority of them are single, making up 69.2%, and 26.9% are married men and women. Very few are divorcees, making up 2.9%. 63 respondents have their education level at the B.Sc./A 'level, and 33 have theirs at the M.Sc. level. Only 3 of the respondents are at their primary, secondary, and PhD education levels. 19 respondents had visited Bogobiri House, 32 La Campagne Tropicana beach resort, and 19 Omu resort.

B. Analysis of Knowledge of Level of Aesthetic Appeal

This section shows the results of the respondents' knowledge of level of aesthetic appeal of stonework variants used in the resorts and which one they can identify. This section as provided in the questionnaire was used to analyze the knowledge of level of aesthetic appeal of the resort users. Below are the results of their level of aesthetic appeal.

TABLE 2
ANALYSIS OF KNOWLEDGE OF LEVEL OF AESTHETIC APPEAL

Level of Aesthetic Appeal	Variables	Frequency (N=104)	Percentage (%=100)
Do you think the use of stonework is aesthetically appealing?	SA	37	38.5
	D	1	1
	U	6	6.2
	A	42	43.8
	SD	10	10.4
Which specific stonework variant contribute most to the visual appeal of the resort	Local stone	26	27.1
	Limestone cladding	16	16.7
	Stone mosaic tiles	31	32.3
	Coral stone	9	9.4
	Quartzite pavers	13	13.5
To what extent does the stonework enhance the overall ambiance and atmosphere of the resort?	No effect at all	3	3.1
	To a little extent	6	6.3
	Moderate impact	18	18.8
	To a great extent	56	58.3
	Extremely impactful	13	13.5

Source: Author's Fieldwork (2023)

Table 1.1 above shows that 42(43.8%) agreed that the use of stonework is aesthetically appealing, 31(32.3%) chose stone mosaic tiles as the stonework variant that contributes most to the visual appeal of the resort, and 56(58.3%) respondents to a great extent agree that the stonework enhances the overall ambiance and atmosphere of the resort. This shows that visitors and workers view the stonework used in the selected resorts as aesthetically appealing.

C. Analysis of the use of Stonework with integration of African culture on Aesthetics

This section presents the results of the survey that was conducted on the level of aesthetic appeal of stonework of the visitors and workers of the selected resorts. The section on the use of stonework variables provided in the questionnaire (Section C) was used to analyze how the use of Stonework with integration of African culture affects their level of aesthetic appeal. Below are the results of their level of aesthetic appeal.

TABLE 3
USE OF STONEWORK WITH INTEGRATION OF AFRICAN CULTURE ON AESTHETICS

Level Of Aesthetic Appeal	Variables	Frequency (N=104)	Percentage (%=100)
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To what extent can you differentiate between the different types of stonework used in the resort?	Not at all	14	13.5
	To a small extent	19	18.3
	Moderately	29	27.9
	To a large extent	24	23.1
	Extremely	18	17.3
To what extent are stonework variants used in the resort?	Not at all	1	1.0
	To a small extent	27	26.0
	Moderately	40	38.5
	To a large extent	31	29.8
	Extremely	5	4.8
To what extent does the stonework in the resort depict African culture?	Not at all	5	4.8
	To a small extent	11	10.6
	Moderately	37	35.6
	To a large extent	33	31.7
	Extremely	18	17.3

Source: Author's Fieldwork (2023)

Table 2 above shows that 29(27.9%) can moderately differentiate the different types of stonework used in the resort, 40(38.5%) can moderately know the extent of the use of stonework variants used in the resort, and 37(35.6%) can moderately know the extent the stonework used in the resort depicts African culture. This shows that visitors and workers of the resort are moderately satisfied with the use of stonework with integration of African culture in the resort. From the results, 'moderately' has the highest number of responses which means that the visitors and workers are moderately satisfied with the use of stonework with integration of African culture in the resort.

III. DISCUSSION

From the above results, the findings from the analysis of knowledge of aesthetic appeal and the use of stonework with integration of African culture on aesthetics reveals that the use of stonework was extensively employed and aesthetically pleasing to guests and staff. However, this discussion will be based on the following objectives: 1) To identify the various stonework variants used in selected resorts in Lagos, Nigeria, 2) To assess users' preferences and perceptions regarding the aesthetic appeal of different stonework variants, and; 3) To evaluate users' preferences based on the durability and maintenance requirements of different stonework variants. Based on the first objective, mostly in Lagos, Nigeria, various stonework variants are employed in resort architecture, reflecting both local traditions and modern influences. Common materials include granite, limestone, and marble, each chosen for its unique aesthetic and functional properties. Granite is particularly favored for its durability and resistance to weathering, making it suitable for outdoor applications in coastal resorts [2]. Limestone, on the other hand, is valued for its natural beauty and ease of carving, allowing for intricate designs that enhance the visual appeal of resort structures [2]. Furthermore, the use of locally sourced stonework aligns with

sustainable construction practices, as it reduces transportation costs and environmental impact [34].

Secondly, research indicates that natural stone materials, such as granite and limestone, are often perceived as more aesthetically pleasing compared to synthetic alternatives. This preference is rooted in the cultural significance of natural materials in Nigerian architecture, which emphasizes harmony with the environment [35]. Additionally, the aesthetic appeal of stonework is enhanced by its ability to blend with the surrounding landscape, contributing to a resort's overall ambiance and guest experience. Users often express a preference for stonework that reflects local heritage, suggesting that the incorporation of traditional designs can significantly enhance the perceived value of the resort [36].

Users prioritize materials that not only enhance the visual appeal of the resort but also promise longevity and ease of upkeep, reflecting a growing awareness of sustainability in construction practices. This trend is particularly relevant in Lagos, where the coastal environment poses unique challenges for building materials, necessitating careful consideration of durability in the selection process [37].

This study aims to contribute to the understanding of the characteristics, applications, and sustainability of natural stone materials in architectural design and construction. The study is a literature review paper which used qualitative research method. The results gave an insight review on the natural stone materials available globally in architecture viewpoint and future perspectives. Discussion on the detailed analysis of five natural stones such as marbles, sandstones, granite, slatestone and limestone has been presented based on recent research activities carried out in this area.

IV. CONCLUSION

This research investigated the evaluation of users' preference in the use of stonework variants in selected resorts in Lagos, Nigeria. Questionnaires were admitted to guests and staff to gauge the users' preference. Participants were asked to assess their knowledge of level of aesthetic appeal and the use of stonework with integration of African culture adopted in these resorts using a 5-point Likert scale. Building observations were also carried out. The evaluation of user preferences for stonework in Lagos resorts reveals a significant connection between material choice, aesthetic appeal, and practical factors like durability and maintenance. Key materials identified include granite, limestone, and marble, each offering distinct benefits that impact user satisfaction. Users favor natural stone for its aesthetic and cultural significance, valuing authenticity and local heritage. Resorts that utilize traditional designs and locally sourced materials enhance guest experiences by fostering a sense of place and identity. Durability and maintenance are critical considerations; granite is preferred for its resilience and low upkeep, while limestone, though visually appealing, requires more frequent maintenance. This trend reflects a growing emphasis on sustainability in the hospitality industry, where material choices are increasingly evaluated for their environmental impact. The findings highlight the importance of aligning user preferences with design and construction practices to improve guest satisfaction and

promote sustainable resort architecture in Lagos. Understanding these preferences is essential for attracting visitors and supporting cultural appreciation in the evolving tourism sector.

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