Visual Quality Assessment of Covenant University Senate Building Façade

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Obaleye J.Oludare [1], Ezema. I. C[2] and Adeboye A. B[3]

[1,2,3] Department of Architecture, Covenant University, Ota, Ogun State

[1]obaleyeoludare@yahoo.com, [2]isidore.ezema@covenantuniversity.edu.ng, [3]jide_adeboye@yahoo.com

Abstract: Visual quality assessment plays a major role in determining the visual sustainability of the physical environment. Visual sustainability underscores the visual relationship between people and their environment. Several studies have been carried out on the subject of visual quality in architecture from other parts of the world. However, not much is seen on record in the Nigerian context. There are also concerns that there is a decline in the visual quality of university buildings. In the light of foregoing, it is essential to understand in detail the visual quality of university buildings not only from the perspective of built environment practitioners but also from the general public as potential users of the buildings. In this respect, the senate buildings of selected universities in Southwest Nigeria were selected for the study given the central role such buildings play in university administration and interaction with a variety of users. However, the senate building of Covenant University Ota is the focus of this paper. The study was aimed at identifying the architectural elements on the Covenant University Senate Building facade to understand public perception for future applications in architectural education, design, and overall visual sustainability. A cross-sectional survey was adopted for the study, and a stratified random sampling technique used in selecting respondents. In Total, 577 valid responses were collected from respondents in ten selected universities in Southwest Nigeria and analysed descriptively using frequencies, percentages, and mean score on the Statistical Package for Social Sciences (SPSS). Photograph of the Covenant University senate building façade was attached to the questionnaire to aid the visual assessment. Qualitative research involving the use of an interview guide preceded the survey research. The result from the study revealed that façade shape and height were perceived as the most interesting in the Covenant University senate building façade attractiveness. The study implied the need for equipping of designers on the perception of building design elements for adequate facade conceptualisation in designing. This, in essence, will enhance the attractiveness of the university senate building façade and also impact the entire campus visual sustainability.

Keywords: Aesthetics Perception, Covenant University, Senate Building Façade, Visual Sustainability, Visual Quality Assessment

1. Introduction

Visual quality as an indicator of aesthetics can be classified as a social need of man under the subject of sustainability [1]. Visual quality assessment is significant in the appraisal and improvement of the natural and built environment [2]. Visual quality assessment involves different approaches, methods, models, and, ultimately, the basic elements of the physical environment for its understanding. Visual quality, as it affects every other field, plays a critical role in prequalifying a building as a piece of architecture and the level of appreciation by the users and the design professionals. The visual quality assessment of diverse aspects of the natural and built environment is currently on the increase with the quest to find, apply, and establish a generally acceptable vocabulary for an excellent aesthetic appreciation. Studies on visual quality in diverse aspects of the natural and built environment have been carried out in recent years. For instance, [3] evaluated the physical cues in a residential design

façade in Malaysia. In Hong Kong, [4] assessed scenic views as a key factor in the users' satisfaction. In another study, [5] examined the connection between key attributes of plazas and aesthetics response in Bangladesh, while [6] also assessed the relationship between aesthetic evaluation and response in Taiwan. Also, [7] studied visual perception and judgment of urban streetscapes in New Zealand. It was observed that most of the works done were carried out predominantly in the continents of Asia, America, and Europe, with very little from Africa or Nigeria in particular.
Several works have been done on university senate buildings, as observed from literature. They include post-occupancy evaluation; achieving passive control of energy through architectural design [8]; plan evaluation and functionality [9]; Senate building location on a campus master plan and wayfinding [10], among others. However, not much has been done on the assessment of the visual quality of the senate building as the core of the university environment. The architectural elements of the building façade play a significant role in determining its first acceptance and the level of attachment by the public [3]. The façade of the Covenant University senate building was considered for this study as one of the leading private universities in Nigeria. According to [11], the university campus architecture in Nigeria has been characterised by decline both in visual value and spatial organisation. This is against the current trend in university campus architecture, where campus aesthetics is harmonised with academic excellence as a tool for public attraction to the university and overall campus visual sustainability [12]. Furthermore, every product, in general, has distinguishing physical characteristics [13]. The façade of the university senate building as an architectural product has limited empirical data to facilitate its easy identification and visual appreciation.

This research, therefore, was aimed at evaluating the visual quality of the Covenant University senate building facade to identify architectural elements that enhance the visual quality of this building type for future architectural decisions and applications. In achieving the research aim, the objectives considered were: (i) identification of façade elements most significant on Covenant University senate building façade by experts; (ii) identification of façade physical cues by experts considered most suitable for easy assessment by the public based on selections from objective 1, and (iii) examining the public perception of the architectural elements on the Covenant University senate building façade earlier identified by the experts in objective 2. The study adopted the cross-sectional survey research approach, which covered universities in Southwest Nigeria as the cradle of university education in Nigeria [14]. The primary unit of study was the high-quality photograph of the Covenant University senate building façade. The 'façade' in this context represented the approach elevation of the Covenant University senate building. The respondents for this study were drawn from ten selected universities in Southwest Nigeria, and the study was executed in two phases as detailed in the methodology. For a better understanding of the subject of visual quality assessment in general and the Covenant University senate building façade in particular, the next section is dedicated to the literature review.

2. Literature Review

2.1. The Concept of Visual Quality

The subject of visual quality applies to every field of human endeavour as it is to the environment-related disciplines such as urban planning, landscape, architecture, and interior design. The word visual, in a lexical sense, means anything connected to seeing or sight. The sense of sight, also known as visual sense in relation to other senses for human perception, governs over 80% of all impressions [2]. Visual sense, according to [15], gives us up-to-date knowledge of our spatial surroundings and aids identification of all the objects in it to our consciousness. Also, [16] posits that quality is the gap between a client's expectations and services received on a clearly defined subject or object. Visual quality is an essential component of human existence as humans are continually exposed to visual stimuli in the physical world, which in turn helps shape perceptions, attitudes, and general view of life. The visual environment ranges from the natural sceneries to the built environment and has the potential of improving the users' quality of life. Visual quality is the measure of the degree of human perceptions and beautiful views about animate and inanimate objects in a physical world. It is viewed as one of the most complex phenomena that can be examined and measured in habitat due to its perceptual and subjective structure. The complexity of measuring visual quality is tied to the multiplicity of its elements, which have different characteristics [13]. For instance, [5] identified visual quality elements as tangible variables to include enclosure, enclosure height, water feature, vegetation, and monuments; [17] studied visual quality elements such as exterior walls, roof, window openings and entrance among others. In landscape architecture, visual quality is viewed as the aesthetical perfection of the landscape and an outcome of the observer's perception, cognition, or emotional procedure, which interacts with visible landscape attributes [18]. From the preceding, visual

quality is synonymous with aesthetics. In other words, the visual quality of a piece of architecture can best be described as a measure of its aesthetic value.

2.2. Visual Quality Assessment

There is an increasing need to measure the visual quality of the physical environment to enhance its aesthetic value. Enquiries into measuring environmental quality evolved in the last 50years. Researchers have been actively involved in measuring the quality of the environment in diverse locations and producing visual quality diagrams of the urban and rural habitat. The foundation of 'visual quality assessment' studies originated from Kevin Lynch's book "The Image of the City published in 1960. The key factors that determined the production of 'urban images,' listed in Lynch's book, created the path for many types of research in this field. This method focuses on the evaluation of the urban form and the improvement of urban images. It is observed that diverse disciplines such as ecological studies, geography, environmental sciences, and psychology also use visual quality assessment in their research works [2][18].

2.3. Approaches to Visual Quality Assessment

Visual quality assessment is tied to human experience and judgement [2].To this end, different approaches have been employed in studies on visual quality assessment. For example, in the review of landscape visual quality assessment, [19] identified the expert and perception-based approaches. A common characteristic of the two approaches is that both deal with the physical environment and human perception. A third approach, which is a combination of the expert and the perception based approaches, was added by [18]. In summary, [2] in the same vein identified three approaches, which are the expert, public, and expert/public approaches (Table. 1).

Visual quality study addresses the public as the end-users of the architectural product. Therefore, designers must take into cognisance the public opinion and collaborate efficiently with them as it creates a positive impact on the decision-making process for more objective results [2].

Table 1: Approaches in visual quality assessment studies

	Approaches	Application Areas
1	Experts' (Objectivist Paradigm)	Applied more in Environmental management applications; It is based on opinion and judgement of expert, and It is deficient in sensitivity and incompatible with government policies which are expected to be people-oriented
2	Public (Subjective Paradigm)	Applied more in research projects, academic works; It employs sensory perception indices by engaging the public through written, or photographic surveys and It has achieved a generally higher percentage of reliability.
3	Expert/Public (Psychological Paradigm	Applied more extensively in environmental management applications, research projects, and academic works. It is a combination of both approaches which gives a better outcome void of researcher's bias

Source: Adapted from [2]

2.4. Visual Quality Assessment Method and Models

Based on the approaches identified in Table 1 for visual quality assessment, diverse models have been formulated by different researchers for the evaluation of the physical environment. The diverse methods, according to [20], can be broadly classified as either quantitative, qualitative methods, or mixed methods. The quantitative methods include Correlational Methods [21], Brunswik's Lens Model [22], and Scenic Beauty Estimation Method [23]. The qualitative methods are Aesthetic Control [20], Visual Survey [20], Image Mapping of Cities [24], Identification of meanings[25], Critical Approaches[26]. Other mixed methods of visual quality assessment from the literature include Circumplex Aesthetic Model and Aesthetic Discrepancy Model [27], Analytical Method [7], Probabilistic Model of Aesthetic [6][5], Fuzzy Logic Model [4], Mallot Graph Model [16] and the Broudy Aesthetic Model [28]. The quantitative and qualitative methods, according to [20], were applied more to landscape and urban planning visual studies. In contrast, the mixed methods, which are a combination of both, are applicable more to all aspects of the built environment. However, for this study, the Broudy Aesthetic Model [28] was adopted. It was observed that minimal record exists of its application in assessing a piece of architecture.

2.5. Visual Quality Elements

Visual quality was earlier described as the aesthetic perfection of the physical environment. This invariably implies that visual quality elements can be referred to as aesthetic elements. Visual quality appreciation of a building, as an architectural piece, is made easy to identify and evaluate if the "façade" or views of the building is treated as an artistic work of painting. This can be broken further into aesthetic elements for easy comprehension and visual analysis. These elements are the primary focus in the assessment of aesthetics. For example, [6] identified ten aesthetic elements that can be used for aesthetic evaluation and aesthetic response to architectural space. These are ratio and scale, shape and format, complexity, style, order, colour, spatial perception, texture, shadow and lighting, and marvel and originality. A more elaborate view was held by [28] in the Broudy aesthetic model, which established four broad categories of aesthetic elements similar to environmental aesthetics types. They are the sensory, formal, technical, and expressive elements.

Other studies by [17] identified exterior walls, roof, window openings, entrance, and other large elements, while [29] identified the classification of aesthetic elements as physical cues and conceptual properties. Lastly, [30] asserts that aesthetic qualities for easy identification, analysis, and application are unity, proportion, scale, balance, symmetry, and rhythm. All the aesthetic elements individually or collectively have been used for visual studies in diverse fields for product identification and improvement. The next section discusses some visual studies carried out in environmental studies.

2.6. Related studies on Visual Quality Assessment

In Kuala Lumpur, Malaysia, [31] studied the influence of building façade visual elements on its historical image. The study identified the visual elements that influence the images of historic building facades, based on public evaluations. The study was a quantitative survey with a questionnaire as a means of data collection. Ten historical building facade images were used to elicit a response from the participant. The 220 participants involved in the study evaluated the relevance of facades' visual elements by asking them how important the building frontage elements are to influence the historical image of the study area. Data analysis on SPSS soft-ware by mean ranking and Pearson correlation analysis were used to identify the influence of visual elements of historical facades on visitors' evaluation. Visual elements considered are architectural style of building frontage, the shape of building frontage, decoration of building frontage, the material of building frontage (brick, concrete, marble), colour of building frontage, texture of building frontage, and the dimension of building frontage such as height, and width.

In another study, [32] investigated the architectural attributes most preferred for police station facades in Ankara, Turkey. The study was based on three independent variables (approachability, professional outlook, and prestigious outlook of police station facades) and one dependent variable (appreciation). The study was divided into two stages of the preliminary stage and the main study. The preliminary study involved a group of 5 professional architects to screen 60 images in relation to 14 architectural characteristics on a 5-point Likert scale. The images judged included facades of existing police station buildings, official buildings, and museums. A total of 133 respondents were involved from three distinct interest groups of 32 architects, 51 teachers, and 50 police officers. The analyses were done by engaging ANOVA test, Pearson correlation, and Regression.

In a visual assessment of academic buildings, [33] carried out a study on library buildings' aesthetic judgement and visual impact of architectural forms in India. The study focused on the identification of intentionally used parameters for the aesthetic appraisal of buildings' external form. This was achieved by analysing literature and formulation of an index for theses parameters by carrying out a questionnaire survey. Aesthetic parameters adopted for the study by the researchers in shaping the questionnaire are summarised as shape or geometry, form complexity, material usage, colour of façade finishes, and functional character. Furthermore, the selection criteria for library building type adopted for the study were based on building under the public building category; it must be functionally significant to the present generation and wide availability of building type. In line with these criteria, the online survey was conducted among 125 students of Rajiv Gandhi Institute of Technology as the library buildings are academic. To diminish the 'building familiarity' factor, the researcher utilised sixteen colour photographs of library buildings. The study identified colour as the primary determinant of aesthetic judgement, followed by material features, element composition, then shape. The study also established differences were recorded in the aesthetic preferences of architecture and non-architecture students in their ranking of the aesthetic appeal of buildings.

In another visual study, [3] investigated the difference in aesthetic preferences between architects and non-architects by evaluating the differences of physical cues in a residential building facade designs.

The two group respondents were students and staff from Universiti Teknologi Malaysia. The quantitative survey assessed 36 physical cues with the questionnaire as a tool for data collection from both groups. The 36 physical cues, also referred to as architectural elements, were divided into six categories, are wall material, wall appearance, wall form, and wall texture. Others are window size, form and balcony size, and extra decorations. The respondents were asked to imagine being the designer of a 6 to 7-floor residential apartment façade. They were requested to imagine their most ideal design and score the physical characteristics of the preferred façade. Data were analysed by using an independent t-test for comparison between the mean score of the architect and non-architects.

2.7. Overview of Covenant University Senate Building

Covenant University (CU) is a dynamic vision-birthed, Christian institution established in the year 2002 and situated at Kilometer 10, Idiroko Road, Ota, Ogun State. In the choice of an institution of study, Covenant University Ota readily comes to mind based on the award won on 13th December 2012, as the Best Maintained Educational Institution in Nigeria, organised by the Nigerian Chapter of International Facility Management Association. Also, the 2020 webometric ranking of Nigerian Universities, places Covenant University top above other private universities. This is not an architectural index for assessment justification but a pointer to the overall standard of the institution. This brings the institutions to a point where higher levels of acceptable standards are set. However, considering the multiplicity of structures on the Covenant University campus, the façades of the Senate building was chosen based on its function as the "heart" of the institution and its number one physical structure symbol. Covenant University, according to [34][35][36][37], is observed to be making a bold statement not only in its academic conquest but also in redefining the built environment. This engenders an outstanding mental capacity development through the use of continual improvement in her architectural vocabulary of scale, materials, colours and overall form combination of buildings for robust visual sustainability.

The senate building is an administrative building with the traditional inherent function of administration in an academic environment. Considering the strategic nature of the senate building, diverse universities are seen to give it, especially the façade an outstanding identity in relation to other buildings on campus. An administrative building can be described as one of the most outstanding icons of the twentieth century, built to dominate the skylines of their immediate physical environment [38]. The senate building of Covenant University was designed by PS Consultants and built by Dutum Nigeria Limited in the year 2013. The eight-storey building exhibits a good combination of dominant cream coloured masonry walls with brown window hoods and sky blue coloured reflective glazed windows and curtain walls. The shape constitutes a combination of rectangular shapes in straight lines and right angles which according to [39] symbolises discipline, strength, courage, reliability and stability. The symmetrical semi-circular spine of the building directly above the entrance canopy shows glass curtain walls from the second floor level to the seventh floor. The building shows three distinct sections synonymous with tall buildings according to [40]. The sections are base, shaft and top. The ground and first floors constitute the base, while the shaft which is slimmer than the base starts from the second-floor level extending to the seventh floor. Both segments with distinct window styles, as shown in Figure 1, combine to give a balanced proportion relative to the surrounding environment and human scale.

Figure 1: Covenant University Senate Building Façade

3. Methodology

The still photograph of covenant university senate building façade was used to elicit a response from respondents in this study. The study was done in two phases. The first phase adopted the qualitative approach of observation of façade by the researcher and shortlisting of façade architectural elements in line with the Broudy Aesthetic Model [28]. This was done by using an interview guide to elicit information from 10 professional architects drawn from the Department of Architecture, Caleb University, Imota, Lagos for further scrutiny of shortlisted elements for appropriateness in the inclusion of actual visual quality assessment. The ten professional architects were selected from the study area using the purposive sampling method based on the criteria of being a professional architect, a lecturer, a researcher, and being a staff with direct interaction with building type. The second phase was a quantitative assessment of façade elements based on the result from the first phase.

The study population for this study cuts across the three categories of university based on ownership. This includes all the 54 Universities found in Southwest Nigeria which comprises of 7 Federal universities, 11 State universities and 36 Private owned universities. The sample frame from the study population comprised of 34 universities that met the expected requirements of been established between 1948 and 2015 (2015 being the commencement of the study); having a senate building above one-floor height; building solely dedicated to administrative purpose and having the senate chamber within it. The 34 universities in the sample frame consist of 7 federal, ten state and 17 private owned universities, respectively. A total of 10 universities were selected from 34 within the sample frame. In selecting the required ten universities, the stratified random sampling method (proportional random sampling) was applied to the sample frame along ownership line and a proportion of 2:3:5 were arrived at. These implied two federal universities, three state universities and five private owned universities within the study area. The sample size for the respondent was calculated using the Yemane formula for calculating a finite population:

$$n = \frac{N}{1+N\,(e^2)}$$

Where, "n" is the minimum sample size for the sample, "N" is the population size which is 164,622 for student users and 15,327 for staff users. "e" is the precision level which is 0.05 at a confidence level of 95%.

Sample size for students: n = 399.03 (approximately = 399), while sample size for staff: n = 389.83 (approximately = 389). Therefore, the minimum sample size for the student users was 399 and 389 for staff users, respectively. The sample size distribution of students and staff across the ten selected universities for the study is shown in Table 2, adopting the proportionate sampling strategy. Consequently, a total of 788 questionnaires were distributed; while 654 were retrieved. However, 577

questionnaires representing about 73% of the distributed questionnaire were found to be valid and were used for the analyses.

Table 2: Universities in Southwest Nigeria within the sample size

S/N	University	Student (Approx')	Staff (Approx')
01	University of Ibadan, Oyo State	33,481 **(81)**	5,000 **(127)**
02	University of Lagos, Lagos State	49,179 **(119)**	3,622 **(92)**
03	Tai Solarin University of Education, Ijebu Ode, Ogun State	21,200 **(51)**	874 **(23)**
04	Ladoke Akintola University of Technology, Ogbomoso, Oyo State	25,000 **(61)**	3,000 **(75)**
05	Adekunle Ajasin University, Akungba, Ondo State	20,500 **(49)**	1,125 **(27)**
06	Covenant University Ota, Ogun State	10,000 **(24)**	1,150 **(30)**
07	Adeleke University, Ede, Osun State	3,000 **(8)**	260 **(7)**
08	Augustine University, Epe, Lagos State	150 **(1)**	50 **(1)**
09	Fountain University, Oshogbo, Osun State	1,112 **(3)**	139 **(4)**
10	Elizade University, Ilara-Mokin, Ondo State	1,000 **(2)**	120 **(3)**
	TOTAL	164,622 **(399)**	15,327 **(389)**

Note: The values outside the bracket are the students and staff population within the universities, while the values within the bracket are their sample sizes respectively. Source: Author's Survey (2018)

4. Results

4.1. Interview on Adoption of Architectural Elements in Broudy Aesthetic Model

The first phase of the qualitative study involved the observation of the covenant university senate building façade to shortlist visible architectural façade elements by the researcher as an addition to elements identified in Broudy Aesthetic Model as presented in Table 3. The Broudy Aesthetic Model has 24 elements under four categories, while the additions by the researcher based on observation of the façade photograph were 6 in number (these are height, fenestrations, parapet wall at roof level, entrance design, foreground and services. A total of 29 architectural façade elements were presented to 10 experts to assess the suitability of the element for inclusion in the questionnaire for aesthetic assessment by respondents. The individual assessment was done independently in an interview session aided by the still photograph of the senate building approach façade. The 29 architectural elements, frequency of mention by experts and recommendation on inclusion are presented in Table 3.

Table 3: Interview on Architectural Elements for Assessment

Adaptation of Broudy Aesthetic Model and Observation of façade Images			INTERVIEW	
Categories (Elements)	S/No	Element	Frequency of Mention (%)	Recommendation for inclusion in assessment
Sensory	01	Shape	10	√
	02	Line	3	x
	03	Light and darkness	0	x
	04	Space	0	x
	05	Texture	3	x
	06	Colour	10	√
	07	Height*	10	√
	08	Fenestrations*	10	√
	09	Parapet wall at roof level*	8	√
	10	Entrance Design*	10	√
	11	Foreground*	6	x

	12	Services (Ducts, outdoor AC units, pipes etc) *	0	x
Formal	13	Patterns and repetition	4	x
	14	Rhythm	3	x
	15	Symmetry /Asymmetry	5	x
	16	Balance	5	x
	17	Contrast	0	x
	18	Proportion/Scale and size	4	x
	19	Theme and Variation	0	x
	20	Coherence	0	x
	21	Unity in Variety	4	x
Technical	22	Creativity of designer	10	√
	23	Technical skill of designer	3	x
	24	Builders' Craftsmanship	3	x
	25	Use of material	5	x
	26	Quality of execution	0	x
Expressive	27	Mood properties	0	x
	28	Emotional state	0	x
	29	Character and Dynamic qualities	0	x

*= Elements added based on researchers observation of façade, √ = To be included in assessment, X =Not to be included.

A record of the frequency of mention of acceptance of elements in Table 3 revealed that the sensory elements with a total of 12 elements have 6 of its elements scoring between 0 and 6. In contrast, six of its elements scored between 8 and 10 (these are shape, colour, height, fenestrations, parapet wall at roof level and entrance design). The formal and expressive elements all scored between 0-5. The technical elements have four elements scoring between 0-5, while the creativity of designer scored 10. The elements with a good score between 8 and 10 were argued by the ten professional architects to be easy to understand and assessed by the respondents by observation of photographs. In contrast, elements below the score of 6 may be challenging to understand and assess generally by a large percentage of respondents. The seven elements with the frequency of mention of between 8 and 10 were conclusively suggested to be assessed by the laypersons in the second phase of this study.

4.2. Respondents Independent Assessment of Selected Architectural Façade Elements

Consequent upon the result of the interview of professionals, Table 4 presents the independent aesthetic perception of the seven façade architectural elements by respondents based on a five-point Likert scale ranging from 1-5 of not attractive, less attractive, undecided, attractive and very attractive. The independent assessment implies assessing the selected approach façade elements as separate entities by respondents. The percentages of perception, mean score and ranking were presented.

Table 4: Independent Assessment of Selected Façade Architectural Elements

	Not Attractive (%)	Less Attractive (%)	Un-Decided (%)	Attractive (%)	Very Attractive (%)	Mean Score	Rank	Description
Façade Height	0.5	2.6	3.3	28.6	65	4.55	1st	Eight
Façade shape	0.3	2.9	3.3	28.9	64.5	4.54	2nd	Rectangular, symmetrical with vertical orientation
Façade Colour	0.9	2.4	5.7	40.4	50.6	4.37	3rd	Cream
Entrance Design	1.7	2.8	4.9	40.4	50.3	4.35	4th	Perspex on steel frame

								entrance canopy at recess.
Fenestration	1.7	1.4	8.5	42.3	46.1	4.30	5th	Uniform symmetrical
Parapet at Roof Level	3.3	4.5	7.6	50.4	34.1	4.08	6th	Roof concealed by concrete parapets walls.

The study in Table 4 revealed that the six sensory elements assessed by respondents were rated high, with a mean score between 4.08 and 4.55. Façade colour rated highest with a mean score of 4.55, while the façade shape followed closely with a mean score of 4.54. Next are façade shape, entrance design and fenestration with high mean scores of 4.37, 4.35 and 4.30, respectively. The least ranked element was parapet wall at roof level with a mean score of 4.08, which is equally a very good rating. The result indicates that all the elements assessed were perceived as very attractive by the respondents. However, in the percentage rating of very attractive elements, façade height was rate by 65% of respondents as being very attractive. In comparison, façade shape with 64.5% similar to façade height was rated very attractive by the respondents. Façade colour was rated very attractive by 50.6% of respondents, while entrance design was rated very attractive by 50.3% of respondents. Fenestration was rated a little below average as being very attractive by 46.1% of respondents, while parapet wall at roof level was rated lowest as being very attractive by 34.1% of the respondents. The result indicates that façade height and façade shape were the most preferred elements on the approach façade of the university senate building.
Further, the overall creativity of the designer was considered. This encompasses all the sensory elements assessed together as one in the overall aesthetic perception of the senate building approach façade. The perception revealed a high mean score of 4.38, which indicates that the façade was considered very attractive.

4.3. Comparative Assessment of Most Preferred Façade Element

Further to the assessment of aesthetic elements in this study, Figure 1 presents a comparative assessment of the top five sensory elements in Table 5 to affirm the most preferred element on the façade. The comparative assessment was conducted to compare the respondents' most preferred approach façade elements in direct relation to one another and not independently as done in the previous section.

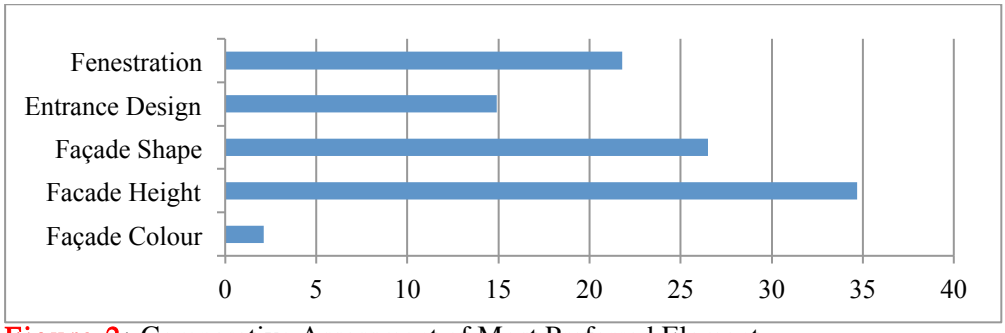

Figure 2: Comparative Assessment of Most Preferred Element

The comparative assessment presented in Figure 2 revealed that 2.2% of respondents perceived façade colour as the most preferred element in the overall aesthetic perception of the senate building approach façade, while 34.7% considered façade height as the most preferred element on the façade. Furthermore, 26.5% and 14.9% of users' preferred façade shape and entrance design respectively, while the remaining 21.8% of users preferred fenestration of building facade as the most preferred aesthetic element contributing to the overall aesthetics perception of the façade. The result of this study indicates that the façade height was the most preferred element of the covenant university senate building, followed by the façade shape and fenestrations. Consequently, the façade colour was the least preferred.

5. Discussions

A test of the Broudy Aesthetic Model by ten architects implies that not all aesthetic elements can be well understood by non-professionals. As such, limiting assessment to more of sensory elements or physical cues guarantees better results from respondents who are not professionals in the built environment studies with minimal explanation. This can be achieved effectively by the simple administration of a self-administered questionnaire to the respondents. However, professionals in the built environmental studies can assess building facades better on all four counts of sensory, formal, technical and expressive elements through direct observation or high quality, well magnified photographic materials. It is evident from Table 4 and Figure 2 that the two most important elements in the approach façade of the covenant university senate building from this study are façade height and façade shape.

The height preference is typical of A-class administrative buildings, the dominance of its immediate environment and in relation to human scale as stated by [35]. This study confirms [34] assertion of the taller a building, the wider the influence, and also [36] position of buildings above five floors being most interesting. However, in the assessment of library building facades by [33] height was not even considered as an important element. The importance of shape in this study confirms the description of shape by [6] as one of the primary distinguishing factors of objects in the physical environment. This also confirms visual assessment studies by [31] that rated shape of building frontage as the second most important façade visual element in a list of eight other façade elements in the historical building façade. The importance of shape in this study can be linked to possibly its psychological attribute according to [37] of symbolising strength, stability and reliability. These are intrinsic qualities of the rectangular vertical shape of the CU senate building façade. However, contrary to the findings of this study, façade shape was ranked 4th in a list of five elements by [33], which included colour, form complexity, material usage, and functional character. This difference can be as a result of the differences in the building type or the socio-economic characteristics of the respondents.

6. Conclusion

Consequent upon the visual quality assessment procedures observed in this study, façade height and façade shape emerged as the primary finding for CU senate building façade identification in Southwest Nigeria. The findings of this study imply that there is a need for policymaking and regulating authorities such as the town planning boards and the architects' regulatory groups to engage the public more in visual studies. Furthermore, architects in training and practice should be educated more on the understanding of the various façade aesthetic elements and also the need for more studies on the visual quality of different building façade types by engaging the users or non-professionals. This, in essence, will create a template for a built environment that meets the ultimate goal of all-round sustainability. For further studies, a similar procedure carried out in this study can be repeated on a collection of more university senate building facades. This can be done comparatively or within respondents from another geopolitical zone in Nigeria. This study assessed only physical cues by respondents; this can be improved upon by an in-depth study of Façade conceptual properties.

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