PERCEPTION FOR HOUSING INTERIOR SPACE FINISHES

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ABSTRACT
Housing and housing space has been a place for personal development, recreation and self-accentuation. People that live in unhealthy indoor housing environments are most likely to contract diseases as pneumonia, tuberculosis, typhoid fever and the likes. The need for having a conducive interior housing environment is of high premium for the enhancement of place attachment. How the interior housing environment is perceived by the users of this space environment is also equally significant. This paper investigates how prospective house owners in Yola perceive their housing interior finishing of the three dimensions of the housing interior space. The study was conducted within the theoretical and conceptual framework of means-end chain (MEC) research model. Laddering interviewing technique was employed as methodology for data collection and management. The study found several perceptual elements and orientations for floor, walls and ceiling.

Keywords: Housing Interior Space Finishes, Means-End Chain, Laddering Technique, Perceptual Orientation, & Housing Choice and Preference.

INTRODUCTION
Housing interior environment provides the necessary social and physical space to develop and maintain social ties and positive social relations which are powerfully associated with a variety of health behaviours and outcomes (Aidala & Sumartojo, 2007). These health behaviours in the environment can either be negative or positive, depending on the quality status of the housing environment. Aidala and Sumartojo (2007) posited that housing has meaning as well as material dimensions that affect health and wellbeing of the housing user. Lawrence (2006) argued that dwelling settings are an important determinant of the value placed on life and well-being. People that live in unstably housing environments are most likely to have risky health-related behaviours like substance use (as drugs), sex exchanges, etc., which may have effects on the society.

Housing interiors are the environments where most of life's activities take place. The finishing of this housing interior space is of paramount significance, and house owners and prospective house owners perceive the interior is also key to place attachment of the housing user. The choices of finishing materials always provoke and create certain motivations and perceptual orientations while these choice and preference activities are being undertaken. The main elements that define housing spatial characteristics according to Ozsoy *et al.,* (1996) are "needs and requirements of man, and performance requirements of the build-environment". They further explained that the "needs of man" to comprise of basic needs, related to human ergonomics, comfort, security, and health; "psycho-social needs" as relating to the

concepts of privacy, personalization, identity, territoriality, status, social interaction, and aesthetics.

The quality of housing and housing space impacts on the quality of life and wellbeing of the housing user. Taske *et al.* (2005) posited that there is a complex relationship between housing and health. Scottish government housing reports suggest that identifying the independent effect of housing on poor health is particularly complicated due to multitude of implicated factors. However, the report fails to report what these "implicated factors" are. Bluyssen (2009 p.4) argued that 'unhealthy indoor environment' could result to diseases and disorders to the human body. With respect to healthy social relationship among family members, Wilner *et al.* (2009) found that there exists a better personal relation within the family members with conducive housing-related factors. They outlined the housing-related factors that will create better personal family relations as "greater space, general practical and aesthetic improvement of the dwelling unit". These family relations manifest by an increase in mutually shared activities (like routine tasks and leisure-time pursuits), greater feelings of warmth and compatibility, and lessened friction among family members. This paper presents the perceptual orientation with respect to housing interior space finish choices and preferences in Yola, Nigeria.

THEORETICAL AND CONCEPTUAL FRAMEWORK
The Means-End Chain (MEC) Model

The Means-End Chain (MEC) model (Gutman, 1982) originally developed by Jonathan Gutman for merchandized products, which application in the field of architecture and urban design has been very useful and successful in the past few decades (Tania *et al.,* 2006) is the framework within which this research work is anchored. Gutman (1982) first introduced the concept, with a focus on qualitative in-depth understanding of consumer motives. Reynolds and Gutman (1988) made MEC model well-accepted by providing a hands-on description of how to conduct, analyze and use MEC interviews (Weijters & Muylle, 2008). Kaciak and Cullen (2006) asserted that MEC has been a popular and ever-evolving research domain since its introduction. Gutman (1982) defined MEC as a model that seeks to explain how a product or service selection facilitates the achievement of desired end states. The variables or constructs of the original structure of MEC model (Gutman, 1982) are attributes, consequences and values (Fig. 1).

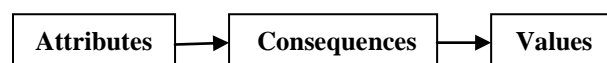| Attributes	→	Consequences	→	Values

Figure 1: Structure of MEC (Source: Gutman, 1982)

This qualitative approach was used to identify and represent the content and structures of consumer models for products and brands. Gutman's MEC theory (1982) was inspired by research from Rokeach (1968), and Yankelovich (1981) who showed that values direct people's behaviour in all aspects of their lives (Boer & McCarthy, 2004). Although MEC original purpose was for linking consumers' values to their choice behaviour in marketing and consumer research, it is becoming

popular in other areas (Tania *et al.,* 2006) like architecture, urban design, advertising, information technology, and organizational management (Rugg *et al.,* 2002).

The conceptual model of MEC theory can be abridged in the following suggestions (Pieters *et al.,* 1991): firstly, that the subjective familiarity about consumers' goods and services is ordered in associative set of connections; secondly, that the ideas in these set of connections that are pertinent for consumer decision-making are characteristics of products, benefits from these products after use, and consumers' values; thirdly, that characteristics of products, benefits from these products and values are ordered hierarchically; and fourthly, that the cognitive structures of consumers about products and services determine appropriate consumer behavioural actions (Pieters *et al.,* 1991; Coolen & Hoekstra, 2001). MEC utilizes the laddering technique for data collection, analysis and interpretation (Jusan, 2007a; Coolen & Hoekstra, 2001).

Laddering Technique

Laddering refers to an in-depth one-on-one interviewing technique used to develop an understanding of how consumers translate the attributes into meaningful associations with respect to self, following means-end theory (Gutman, 1982; Reynolds & Gutman, 1988). Reynolds and Whitlark (1995) describe it as an interviewing technique that can be used to elicit means-end connections and attribute-consequence-value networks people use when making decisions about life's endeavours. It is qualitative in nature – utilizing a semi-structured interviewing tool aimed at eliciting responses from respondents' perception on the attribute-consequence-value (A-C-V) elements (Jusan, 2007a). Reynolds and Gutman (1988) assess that laddering involves a tailored interviewing format using primarily a series of directed probes, typified by the "why is that important to you?" question, with the express goal of determining sets of linkages between the key perceptual elements across the range of attributes (A), consequences (C), and values (V). Costa *et al.,* (2004) describe it as face-to-face, individual, in-depth, semi-structured interviews aiming at the elicitation of the attribute-consequence-value associations consumers hold regarding the object(s) under study (Costa *et al.,* 2004).

Laddering technique was first introduced in the 1960s by clinical psychologists as a method of understanding people's core values and beliefs (Hawlev, 2009). Various researchers, Tania *et al.* (2006), Costa *et al.* (2004), Grunnet and Grunnet (1995), and Reynolds and Gutman (1988), agreed that the laddering technique was developed by Dennis Hinkle in 1965 (PhD dissertation), as a means of modelling people's belief structures; and the term "laddering" was coined by Bannister and Mair (1968) who extensively used the technique in their research. Laddering, which is unquestionably a useful technique for identifying the relevant attributes and life values in a particular product domain, and for studying the complexities of consumers' cognitive structures with respect to that domain, can fruitfully be combined with a questionnaire technique in eliciting responses from housing users to establish their choice behaviours (Zinas, 2012).

Several researchers (Jusan, 2007a; Tania *et al.,* 2006; Costa *et al.,* 2004; Coolen & Hoekstra, 2001; Gengler & Reynolds, 1995; Reynolds & Gutman, 1988) are

unanimous that content analysis tool is the core of the analytical procedure in a means-end study.

METHODOLOGY
Elicitation of Housing Attributes
Eighteen sets of interior finishes attributes were compiled and profiled under three attributes segments of floor, walls and ceiling, in a matrix of a structured questionnaire and distributed to 150 randomly sampled prospective house owners in the city of Yola, Nigeria. To make informed responses, a supporting demonstration 3D technical model of a one bedroom bungalow house was shown to each of the respondents that are not technically inclined to clarify the technical terms of the interior finishes elements. The questionnaires were collated, and a semi-structured interview called 'laddering' was conducted with 15 of the respondents. The selection criteria for the fifteen respondents were on four levels: firstly, desire of respondent to build own housing; secondly, development stage of proposed housing below occupational stage; thirdly, frequency of preferred sets of interior housing finishes; and fourthly, willingness to oblige an interview. The laddering interview with each of the respondents was conducted either in the respondent's house or office depending on respondent's convenient venue and time. Each of the interviews was digitally voice recorded. These free responses voice recorded interviews were transcribed and content analyzed.

Data Analysis
Content analysis was used as the method for analyzing the data generated from the laddering interview. Neuendorf (2002 p. 1) defines content analysis as the systematic, objective, quantitative analysis of message characteristics; which involves the careful examination of human interactions. Weber (2004) describes content analysis as a research method that uses a set of procedures to make valid inferences from texts. The content analysis of the transcribed data was done within the context of that outlined by the traditional MEC methods (Reynold & Gutman, 1988) and Weber's (2004) methods. The basic element of analysis of the study is "word", "sense of sentence" and "sense of phrases" as posited by Jusan (2010).

Identifying unique pathways linking main attributes to user values provides the interpretive observation for the hierarchical value map (HVM) as revealed by Jusan (2007b). Reynolds and Gutman (1988) assess that identification of unique pathways permits a more meaningful identification of the important attributes, consequences (or functional affordances), and motivating user values. This is usually done by tabulating the items or elements integrated in the pathways and calculating the frequency of direct and indirect relation of linkages among them. These pathway linkages are derived from the summary of implication matrix (SIM). The higher the relation score of the pathway, the more important the items in the pathway are of significance to the choice and preference processes for interior finishes to the respondents.

RESULTS
Housing Interior Finishes Abstract Attributes Choice
Several abstract attributes were linked to the concrete attributes that were preferred, covering the housing three-dimensional interior space of floor, walls, and ceiling. These findings are being segmented in these three different dimensions of the interior space.

Floor Finishes Attributes
The MEC results show that ceramic tiles floor finishes were most preferred; and the emphasized abstract attributes linked with this floor finish are "beauty", "hygienic", "durability", "affordability", "environmental friendly", and "availability"; with a cumulative mentioned elements of 106 (Table 1).

Table 1: Abstract Attributes Linked to Ceramic Tiles Floor Finish

Code	Floor Finishes Abstract Attributes	Frequency of Mention (Elements)
B	Beauty	34
HG	Hygienic	30
D	Durable	07
AF	Affordable	11
EF	Environmental Friendly	12
AV	Available	12
Total		**106**

Source: Zinas 2012

The attribute, attribute "beauty" of 34 cumulative elements was associated with the attribute elements such as "beautiful", "appealing" and "attractive". Attributes elements mentioned linking "hygienic" (30) characteristic of ceramic tiles are "easy to clean/maintain", "easy to clean and wax", "easy to maintain", "it is clear", "free of dust", "does not hide dust", and "hygienic". "Durability" (7) elements linked to ceramic tiles floor attribute are "can last long", "it lasts long", and "its durability". "Affordability" (11) attribute was linked to the following attribute elements: "it's affordable", "it is cost effective", "it is moderate cost wise", and "they are cheap". "Environmental Friendly" (12) attribute category was linked by attributes elements of "poor conductor of heat", "it's cool and soft", and "has harmony with the environment". "Available" (12) attribute category is linked to attribute elements of "they are available", "readily available", "commonest floor here", "they are locally sourced", and "it is done faster".

Interior Walls Finishes Attributes
The results show that one hundred and twelve (112) finishes attribute elements mentioned linked to either of the six (6) categorized interior walls finishes abstract attributes. Plywood walls finishes attribute has only three (3) categories of attributes of beauty, environmental friendliness, and availability, with eleven (11) attribute elements linked to them. Stone-pitched walls finishes attribute is categorized into four (4): beauty, durability, affordability, and availability, with a total of fifteen (15) attribute elements linked to them. All the six (6) attributes categories outlined in table 2 are identified for the cement-sand screed walls finishes, made of a total of fifty (50) mentioned attributes elements linked to them (not included in this paper).

Table 2: Abstract Attributes Categories Linked to Interior Walls Finishes

Code	Walls Finishes Abstract Attributes	Frequency of Mention (Elements)
B	Beauty	26
HG	Hygienic	15
D	Durable	11
AF	Affordable	26
EF	Environmental Friendly	12
AV	Available	22
	Total	**112**

Source: Zinas 2012

Only three (3) attributes categories of beauty, hygienic, and affordability, can be identified for Terralyn walls finishes of only eight (8) linked attribute elements; while twenty eight (28) elements linked to ceramic tiles walls finishes is categorized into six (6) as in table 2. The cumulative beauty (26) attribute of the interior walls finishes is linked to elements attributes as "it's beautiful", "comes out nice when painted", "it captures the eyes", and "it's aesthetically beautiful". These beauty attributes elements are linked to painting the walls finishes (cement-sand screed and Terralyn) in desired colour paints to beautify the interior space.

Ceiling Finishes Attributes

A total of one hundred and fourteen (114) attributes elements, e.g. "it's beautiful"; "it is flexible to manage; "more attractive"; "it is environmentally harmonious" (details no included), were linked to the four ceiling finishes attribute levels (Table 3). An interesting point that needs commentary is the elements linkages with respect to hygienic attributes of only five (5) attributes elements e.g. "promotes clean environment"; "neat"; "it is neater"; which are a significant departure from the other space dimensions of floor and walls. Hygienic attribute of ceiling finishes is not being emphasized by the respondents. This may not be unconnected with the fact that no daily contacts are made with this space dimension because of its height of location, which could be a major determining factor with this attribute. This argument can be reinforced by the elements' linkages trend with respect to hygienic attributes elements for the three space dimension of floor, walls and ceiling.

Table 3: Abstract Attributes Linked to Ceiling Finishes

Code	Ceiling Finishes Abstract Attributes	Frequency of Mention (Elements)
B	Beauty	35
HG	Hygienic	5
D	Durable	16
AF	Affordable	9
EF	Environmental Friendly	42
AV	Available	7
	Total	**114**

Source: Zinas 2010

DISCUSSION

A cursory comparative summary look at the findings of these attributes finishes space dimensions (floor, walls, and ceiling) reveals interesting scenarios (Table 4). A pattern

for some of these finishes attributes can be established. Cumulatively, a gentle incremental pattern with increase of the height of location of these space interior finishes attributes can be observed. The elements mentioned linking floor finishes attributes increased slightly when associated with elements for walls finishes dimension, as well as for the elements linked with ceiling finishes space dimension. The interpretation of this can be advanced from the domain of height of location of these finishes and frequency of daily contact and use of the housing user.

Table 4: Comparative Linked Abstract Attributes Finishes

Code	Finishes Abstract Attributes	Frequency of Mentioned Finishes Elements			Interpretive Pattern
		Floor	Walls	Ceiling	
B	Beauty	34	26	35	Uniformity
HG	Hygienic	30	15	5	Decremental
D	Durable	7	11	16	Incremental
AF	Affordable	11	26	9	Unclear
EF	Environmental Friendly	12	12	42	Incremental
AV	Available	12	22	7	Unclear
Total		106	112	114	Incremental

Source: Zinas 2012

"Beauty" attributes elements linked to a given indoor space for all the dimensions have a fairly uniform distribution pattern. Height of location of these finishes attributes and frequency of user contact do not seem to be the determining factors for the attributes elements. Visual and body perception may be determinants for the beauty elements pattern for the indoor space dimensions of the elements attributes linked. Beauty and aesthetic pleasant indoor environment can be visually experienced by those in the space. This experience can create the desired feeling for the space user, and create a feeling of belongingness and acceptance which Bluyssen (2009, p.155) posited may come from a larger social network or a smaller social connection. These "larger social network or smaller social connection" may be derived from visiting guests and friends that come to your house and experience your indoor space. Beauty and pleasant indoor environment have a way of generating acceptability from these social networks and connections. Skjaeveland and Garling (2002, p.193) also argued that attractive environments affect evaluations of persons and behaviors within the environment, enhancing both options for social interaction and positive attributions. This belongs to the human need of belongingness and love as well as the esteem need of the Maslow's model. For this beauty attributes linkages to be fairly uniform for all the space dimensions reinforces the argument that prospective house owners in Nigeria attach importance to having a beautiful and an aesthetically pleasant housing indoor environment; which they consider as a place for stage setting and self-imaging.

The "hygienic" attributes elements linkages decreased significantly with increase in height of location of the finishes attributes. The number of the elements for floor finishes has more linkages as compared to the elements linked to the walls and ceiling finishes. In the same vein, walls finishes linkages are more in number compared to those linked for ceiling finishes. As argued earlier, positioning location and frequency of user contact could be the factors responsible for this. This is

premise on the fact that the lowly located these finishes are, the likely frequent contacts are made with them by the user on a daily basis, the more likely dirty they get, thereby requiring more hygienic attention they attract from users. Floor finishes have more user contact because of their location and therefore attract more hygienic attention than for walls and ceiling finishes. Walls finishes on the other hand have more user contacts that ceiling finishes which also require more hygienic attention than for ceiling finishes. This is significant for designers and architects to propose interior finishes materials that require ease for hygienic maintenance, especially when they have structural location that warrant frequent daily contact and use by the housing occupants.

"Durability" attributes elements linkages have incremental pattern with increase of height of location of the finishes attribute. This is an interesting discovery of this finding, because instead of durability considerations to be with frequency of user's daily contact, the opposite is the case. The argument advanced is that of exposure to the impact of the external environmental elements like wind storms, rains and heat from the sun rays. These external elements have a tendency to have destructive effect to the finishes materials as a result of vibrations from these elements. These vibrations may have more effect on the ceiling finishes than on any other dimensions of the interior space finishes because of its location height. Besides consideration for external environmental elements effect, the consideration against fires outbreaks through electrical installations and services housed in the roof void covered by the ceiling finishes is also a factor. So the durability ceiling finishes characteristic becomes a high consideration to contain or resist the effects of any fires outbreaks.

"Affordability" and "availability" finishes attributes both have unclear and undefined patterns, probably owing to the costs variables associated with these finishes attributes. Effects of location have no consequence as determinants for these attributes. "Environmental friendly" finishes attribute has an incremental pattern in the finishes elements linkages. Although the first two dimensions have the same elements linkages but a difference occurred with respect to the ceiling dimension elements linkages. Again, location height could be advanced for this scenario to occur as most heat gains in the interior will occur through the roofing materials being exposed to the sun rays and radiation. So ceiling finishes materials that will poorly conduct these heat radiations into the interiors are most desired by users to keep the indoor environments comfortable and conducive at all times.

CONCLUSION
In conclusion, these finishes pattern findings have not parallel any previous findings within this context of patterns orientation. Besides the suggestions by the works of Bluyssen (2009) that attached ergonomic (dimensions and sizes of the space, tools, furniture, etc.) aspect play an important role in determining total body perception. So this finding is a significant contribution to the body of knowledge since there are no previous findings reflecting it. It is also important to point out that the most emphasized elements attributes in finishing the would-be housing spaces of floor, walls, and ceiling are beauty (aesthetics), hygienic space, durability, affordability, environmental friendliness, and availability of materials. Some of these emphasized attributes are design inclined (beauty, hygienic, durability, and environmental

friendliness) whereas affordability and availability are not directly design inclined. It can then be suggested that design and recommendation for interior finishes materials should reflect the 4 design emphasized attributes variables; i.e. materials that ensure aesthetically pleasant interiors, guarantee hygienic spaces at all times, that are durable, and that can maintain a conducive micro-climate of indoor environment.

Architecturally, the design suggestions for the interiors should provide finishes materials for all of the three space dimensions that express and achieve an aesthetically beautiful indoor environment. Design emphasis for providing finishes materials that guarantee a hygienic indoor space giving importance to frequency of daily and height of location of these finishes as hygienic considerations decrease with the height of location and frequency of daily contacts by the occupants. The design consideration for durable and environmental friendly materials should be emphasized with increase of height of location of these finishes materials and frequency of daily contacts. This is so because of their exposure to atmospheric elements of the environment. The design consideration for the cost variables (availability and affordability) are not clear, but it can be observed that the frequency of mention with regards to the walls finishes are most emphasized, implying that the design considerations for available and affordable walls finishes materials should be given to reduce the overall cost of the walls finishes. These variables have no design consequence with the height of location and frequency of contact and use, and these need to be investigated further.

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