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Gender influences on colour preference: Implication for designers in north eastern Nigeria

Mojirola Funmilayo Iheme[1], Yohanna Ogbu Egiri[2], Garba Rabiu Sadiq[3], Isaac Ali Kwasu[4]
[1-4] Department of Industrial Design, Abubakar Tafawa Balewa Universit, Bauchi, Nigeria

Abstract
This study explores how Gender influences the colour preferences of Nigerians living in north eastern Nigeria and the implications for designers in relation to global trends. The study also sought to determine if a colour classification code different from existing ones can be defined or developed based on demographic variables to be applied by designers in determining client preferences. The gap the study sought to fill is the lack of research on the demographic influences on Nigerians colour preferences. The study began with observations linked to the basic assumptions and used inductive reasoning to derive a theory. The theoretical framework was based on the Birren's colour theory (BCT), and Maslow's Hierarchy of Needs. A literature review of earlier works was carried out in order to establish similarities or differences that might exist between responses from their population sample and the one for this study. Some earlier surveys with modifications were replicated in order to establish the influences gender as a demography has on colour preferences. The finding revealed that while Gender plays a large role in determining colour preferences also, on-going trend and traditional notions affect colour choices. The Kendall Tau Correlations were employed in the analysis of the collated data. The study revealed a correlational relationship between gender, the most preferred colour and preferred colour for house. There was also a relationship with respondents' choices of cup, toothbrush cell phone and house. Recommendations were made on how designers, can predict clients likely colour of some major items, based on their most preferred colour and best colour for smaller items. The researcher believes this study will be of benefit to designers, now and in future.

Keywords: gender, colour, colour influence, colour preference

Introduction

Colour is a powerful medium through which man views the world. Unlike most animals, which see only shades of grey, humans are exposed to this marvelous additional dimension of vision (Bleicher, 2005) [4]. Colour evokes aesthetic feelings, this is usually expressed, in terms of preference for some colours over others.

Colour preferences have assumed such grand importance, especially in the sphere of design, such that each year, since the turn of the century, colour for the year is chosen and this affects and reflects in all spheres of design. Pantone, a paint and design company leads in this. Since the turn of the century, Pantone had been gathering design specialists to decide what colour will be chosen as lead theme in all spheres from architecture, through automobile to fashion. In 2013, the colour for the year was Emerald, and that fashion designers, web designers, make-up artistes and brand managers came together in choosing this colour which was subsequently reflected across all spheres of design. The 2014 colour of the year is Radiant Orchid, in 2016 two colours were picked, serenity and Rose quartz.

Nature and Nurture: One of the chief questions to arise in colour psychology is the question of behavioural origins. Studies seek to determine if responses to colour stimuli are innate, learned, or some combination of the two. Rider (2009) [38] though research with infants indicates that innate reactions do exist, variation in colour response across demographics suggests that much of adult colour response is learned (Crozier, 1999) [10].

This study addresses age long questions on colour preferences and what affects it. This study is on Nigerians living in Nigeria and it will deal only with the gender matter and colour preferences, also what this implies for designers in the market place.

The study addresses questions such as: "do people in a group tend to prefer the same colours?" "Do the sexes differ in patterns of preference?" Embedded in both questions, is the issue of what determines preference; to what extent is it universal, or in contrast, to what extent is it peculiar to the individual? If there are universal patterns, are these determined by our genes, or by common experience? If experience is important, then there could be consistent cultural differences as people from the same culture are more likely to have similar experiences than people from different cultures.

Natalia Khouw (2010) [28] in her study on colour and gender gives the following postulations, "What we see and interact with is in colour, includes both natural and built environments. About 80% of the information which we assimilate through the senses is visual. However, colour does more than just give us objective information about our world-it affects how we feel. The presence of colour becomes more important in interior environment, since most people spend more time inside than outside".

There have been extensive studies on colour, but almost none

focusing on Nigerian groups as to how colour influences their preferences. Consequently, there are very few recorded studies on the symbolic associations which groups in Nigeria have to certain colours. Anecdotal evidence suggests, however, that many Nigerian designers tend to ignore the psychology of colour perceptions and the emotional attachments people have to colours. They thus negate these factors as criteria to guide them in the choice of colours which are appropriate for their design audiences. Although designs might have been tailored to certain groups, unfortunately, sometimes there are discrepancies between what is perceived by a group and what messages were intended.

Purpose of the Study

The purpose of the study is to examine the influences of demographic variable of gender on the colour preferences of Nigerians with a view to identifying its influence on their purchasing decisions and what implication this could hold for designers while relating it to on going global trends

Specifically, this study intends to:

Investigate colour preferences among participants based on demographic variables of gender.

Find out if any broad colour preference patterns exist based on gender Determine if global trends affect colour preferences among Nigerians Determine if there are implications of colour preferences for designers.

Research Questions

The study was guided by the following research questions

1. To What extent do the demographic variables of Gender affect colour preferences of participants***?***
2. What significant colour preferences patterns based on demographic variables gender exist?
3. What is the relationship of the findings with on going global trends, (if any)?
4. What are the implications of colour preferences (if any) for designers in Nigeria?

Literature Review

"If you are involved in the creation or design of visual documents, an understanding of colour will help when incorporating it into your own designs. Choices regarding colour often seem rather mystical, as many seem to base decisions on nothing other than "it looks right "(Conway, 2009).

Colour preferences and their attendant effects on different aspects of life and living has generated a lot of research, therefore, there is extensive literature on topics concerning the major components of this research. The novelty of the current research is its localization. Claims of universality pervade colour preference research. It has been argued that there are universal preferences for some colors over others (e.g., Eysenck, 1941) [15], universal sex differences (e.g., Hurlbert & Ling, 2007), and universal mechanisms or dimensions that govern these preferences (Palmer & Schloss, 2010).

Rider, (2010) [38] in describing colour said, what humans perceive as colour is actually light waves reflected off a surface which absorbs all the spectral hues except for those that bounce off in the form of visible colour. Eckstut and Eckstut (2011) [14] put the concept of colour to be a, "specific colour is composed of three elements: hue (the common name of a colour, e.g., red or blue), value (brightness), and saturation (vividness or lack of grey)". On his part, Birren (2007) [3] described colour as having a natural shape; a triangle, with white, black, and any given pure hue making up the three corners, and a gradient of tints and shades in the middle.

Origin and Nature of Colour Preference

Walton, Guilford, and Guilford (2003) investigated colour preference among 1279 University students in Brooklyn New York. Eighteen colours were used in the study with a parried comparison method. Results showed significant differences between males and females in colour preference. Men had a preference for yellow to orange colours, while women showed a different pattern, their preference was purple. There was great agreement for each sex in their response and this was interpreted as providing evidence for a universal biologically driven order of colour preference. This study will seek to establish if the Guildford finding holds true in Nigerian setting.

An evolutionary and universal pattern has also been suggested by Guildford and Smith (2009) [21] who tested 20 males and 20 females in Sussex (United Kingdom) Participants were asked to judge the pleasantness of 316 Munsell colours using a 10 point rating scale. Considerable consistency was found in the participants' answers with preference highest in the green to blue region and lowest in the region of yellow and yellow-green. Eysenck (1941) [15], also claimed that there was a stable universal order of colour preferences. He tested 42 university students who were asked to rank 10 colours (6 fully saturated 3 tints and shades) in order of preference. There was high agreement in the order of preference, and the average ranking in order of preference was: blue, red, green, purple, orange and yellow. The existence of a general order of preference or a universal pattern in hue preference was supported by other studies such as, Granger, in 1955; Helson, and Lansford, in 1970; (as quoted by Orgydziak, 2005), (Malacara 2011; Hulbert & Ling, 2007) [30]. All of the above studies took place years ago, in regions far from Nigeria with cultures that differ. Their results may therefore not hold true for Nigerians.

Theory Building

The study made use of theory building as an approach to data collation and analysis. The study began with observations linked to the basic assumptions and used inductive reasoning to derive a theory. Do majority of demography lean towards a certain colour? Does gender reflect a pattern in colour choice? If such theories are true, then is true also for people who choose the same colour for their homes, car furniture, phone, wearing apparel or even tooth. The study followed an existing pattern but moderated it to suit the objective of this study.

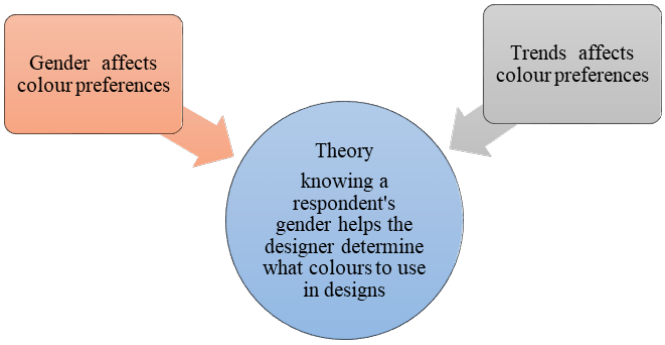

Fig 1: Observations

The Theoretical Framework

The study operated from the point of two theoretical frameworks. The Maslow's Hierarchy of Needs and the Birren's colour theory. The Artificial Neuron was explored to predicting purchases based on colour preferences.

Maslow's Pyramid of Needs

Maslow's Hierarchy of Needs is a "content theory" that classified human needs as follows: use of colour choices tie consumers' emotions related to wanting to feel like they are doing something good and positive (Gunelius, 2013) [22].

The pyramid, is a visual aid Maslow created to explain his theory, which he called the Hierarchy of Needs. It is a pyramid depicting the levels of human needs, psychological and physical. When a human being ascends the steps of the pyramid he reaches self-actualization. Safety Needs: Security, Order, and Stability: (These first two steps are important to the physical survival of the person).

i. **Social Needs**: These are psychological needs; when individuals have taken care of themselves physically, they are ready to share themselves with others, such as with family and friends.
ii. **Esteem level:** the need to be competent and recognized, such as through status and level of success.
iii. **Need for Self-actualization:** this occurs when individuals reach a state of harmony and understanding because they have achieved their full potential. Once a person has reached the self-actualization state they focus on themselves and try to build their own image in terms of feelings such as self-confidence or by accomplishing a set goal.

Fig 2: Marslow's pyramid of needs

The study on colour preference focused on this hierarchy as it affects the human behaviour from the third need level, which is the social needs level of "Love and Belonging," through the level of "Esteem" to the Aesthetic level, which is the level of the need for harmony order and beauty. These levels of need place individuals in groups which can reflect their demographic standing of age, religion, educational status or gender. Designers will do well to take cognisance of the hierarchy of needs in developing designs in order to reach their target.

Birren's Colour Theory

One of Faber Birren's beliefs about colour was that we use colour every day to express ourselves, to communicate our thoughts and feelings, and to help us with self-identification. Rather than saying that colours have a direct influence on emotions, Birren wrote that it is the human perception of colours that affect our emotions.

Birren's colour theory operates under the principle that colour affects us in profound ways; as an example, a person in totally black apparel invokes thoughts of death, mourning and gloom and depression, yet, a person dressed in a black suit and white shirt invokes business likeness. Blue skies give calm and tranquil feelings. The theory postulates that some of these emotions being evoked can be attributed to culture, environment gender or religion. But some can be from the person's psychological makeup. (wonderfulcolor.org, 2012) this study will seek to assess if such relationship exists for Nigerians. Colour Response

Natalia Khouw (2010) [28] in her study on colour and gender gives the following postulations, "What we see and interact with is in colour, includes both natural and built environments. About 80% of the information which we assimilate through the senses is visual. However, colour does more than just give us objective information about our world-it affects how we feel. The presence of colour becomes more important in interior environment, since most people spend more time inside than outside".

Nature and Nurture: One of the chief questions to arise in colour psychology is the question of behavioural origins. Studies seek to determine if responses to colour stimuli are innate, learned, or some combination of the two Rider (2009) [38]. Although research with infants indicates that innate reactions do exist, variation in colour response across demographics suggests that much of adult colour response is learned (Crozier, 1999) [10].

Innate response: Choungourian, (as cited in Rider, 2009) [38] found that three-month-old babies stared longer at long-wavelength colours such as red and yellow. Many animals with colour perception also show innate preferences, but, ironically, for short-wavelength colours such as blue and green. More recently, researchers in the classical conditioning school have begun to discover that attitudes formulated through a conditioning process may result both from belief formation, a cognitive process, and perhaps even through direct "affect" transfer, which would be an emotional process (Rider, 2009) [38].

The Impact of Colour

Colour affects us in a lot of ways. Colour is an important

variable in a wide range of applied and theoretical disciplines and has been argued to produce a variety of effects Middlestadt (1990) [32]. At the physiological level, colour has been shown to affect emotional arousal, performance of simple psychomotor skills and perception of time. Taylor, & Franklin, (2012).

Colour Preference

Al-Rasheed, (2010) [1] in his research on colour and languages posits that, "Colour usually evokes an aesthetic, expressed, for instance, in terms of preference for some colours over others". Child, Hensen and Hornbeck (1965) [6], found that studies of colour preference date back to late 1800, addressing questions such as: do people tend to prefer the same colours; do the sexes differ in patterns of preference? Embedded in both questions, is the issue of what determines preference; to what extent is it Universal, or in contrast, to what extent is it peculiar to the individual? If there are Universal patterns, are these determined by our genes, or by common experience?

Colour and Demography

Sable, and Akcay, (2010) [41], wrote that, "our response to colour is learned, and much of our learning is influenced by a number of variables, including demographic variables like age, gender, and ethnicity".

Various studies support the contention that there is a relationship between certain demographic factors and colour preferences of individuals, Choate, (2007) [7] The demographic factors reviewed as they relate to colour preferences are ethnic background or culture, age, size of home town, educational level, and socio-economic status (Choate, 2007) [7].

Colour and Gender

Do men and women respond to colour differently? There are numerous investigations on this issue and though findings are ambiguous, many investigations have indicated that there could be differences between genders in preferences for colours. If there are differences, then the implications for advert designers is clear. The findings in a study carried out in the Netherlands, revealed that women see more colour than men, that colour blindness occurs sixteen times more in men than women (Palmer, & Schloss, 2010).

Taylor, Clifford and Franklin, (2014) [43], compared the colour preferences of British adults to those of Himba adults who belong to a non-industrialized culture in rural Namibia. British and Himba colour preferences are found to share few characteristics, and Himba colour preferences display none of the so-called 'universal' patterns or sex differences. Several significant predictors of colour preference are identified such as cone-contrast between stimulus and background (Hurlbert & Ling, 2007), the valence of colour-associated objects (Palmer & Schloss, 2010), and the colorfulness of the colour. However, the relationship of these predictors to colour preference was strikingly different for the two cultures. No one model of colour preference is able to account for both British and Himba color preferences. The particular study suggested that not only do patterns of colour preference vary across individuals and groups, but that the underlying mechanisms and dimensions of colour preference vary as well. The findings have implications for broader debate on the extent to which our perception and experience of color is culturally relative or universally constrained

Radeloff, (1990) [37], has found that women in Europe were more likely than men to have a favourite colour. In expressing the preferences for light versus dark colours, there were no significant differences between men and women; however, in expressing the preference for bright and soft colours, there was a difference, with women preferring soft colours and men preferring bright ones.

Botoli and Marato (2013) [5] interviewed 72 Nepalese and asked them to list the names of all the colours they could think of. There was a significant difference between men and women. Although, the women consistently listed more colour names than men did, the cultural context of this study must be noted since Nepalese women traditionally wear more colourful clothing than men do. A similar study by Greene (1995) examined the colour identification and vocabulary skills of college students. They were asked to identify the colours of 21 colour chips. The results showed that women recognized significantly more elaborate colours than did the men. Findings also indicated that gender different responses in colour identification may be attributed to a difference in the socialization of men and women (colourmatters.com**,** 2010).

Hallock, (2009) [23] carried out an investigation which compared colour preferences among gender of various demographics. He polled 232 people from 22 countries around the world. The following are his findings: The experiment showed that men and women both preferred blue, out of the sets of colours. 57% of men said that blue was their favourite colour while 35% of women said that blue was their favourite colour. When asked to choose from mixed colours, women liked colours that are closer to the red end of the spectrum, where shades of pink are found the study done by Hallock, (2009) [23] revealed that, male and female participants disliked many of the same colours. 27% of men said that brown was their least favourite colour33% of women said that orange was their least favourite colour. Interestingly, the "least favourite colour" charts are very similar to the colours that the participants considered "cheap" or "inexpensive" in another experiment. 26% of all participants said they considered orange to be a "cheap" colour.

The most notable gender difference can be seen in the colour purple. The study reported that 23% of female participants chose purple as their favourite. No males chose purple as their favourite. In the experiment, both men and women had the same general preference when it came to light and dark colours. However, the experiment showed that women gravitate toward soft colours, while men like bright ones. As a general rule, men tolerate achromatic colours more than women (Hallock, 2009) [23].

McInnis and Shearer, (2007) [31] experiment in found that women preferred tints more than and men lean towards shades. It's often proposed that the reason is due to their higher consciousness of specific colours. A colour scheme using tints is soft, youthful and soothing, while. Shades are deep, powerful and mysterious.

Valdez & Mehrabian (1994) [45] as cited in (Singh, 2006) [42, 44] discovered that although the genders responded very similarly to variations in saturation and value, women were more sensitive to the variations than men were. Khouw, (2010) [28],

found the genders differed in perception of grayscale tones and colour combinations. Women also became more confused and distracted than their male counterparts.

Eysenck, (1941) [15] in a review of colour studies in early 1940's notes the following results to the relationship between gender and colour, Dorcus, (2006) [13] found yellow had a higher affective value for the men than women and blue for men stands out far more than for women. Eysenck's study, however, found only one gender difference with yellow being preferred to orange by women and orange to yellow by men. This finding was reinforced later by Birren who found men preferred orange to yellow; while women placed orange at the bottom of the list.

Khouw, (2010) [28] also reviewed some studies on colour preferences by gender and reports as follows; Guilford and Smith (2009) [21] found men were generally more tolerant toward achromatic colours than women. Thus, Guilford and Smith proposed that women might be more colour- conscious and their colour tastes more flexible and diverse. Likewise, McInnis and Shearer (1964) [31] found that blue green was more favoured among women than men, and women preferred tints more than shades. They also found 56% of men and 76% of women preferred cool colours, and 51% men and 45% women chose bright colours. In a similar study, (Plater, 1967) found men had a tendency to prefer stronger chromas than women.

In 2007, Hurlbert and Yazhu Ling created an experiment to explore how men and women differ in their perception of colour. The experiment showed that men and women both preferred blue out of the sets of colours. When asked to choose from mixed colours, women liked colours that are closer to the red end of the spectrum, where shades of pink are found. In the experiment, both men and women had the same general preference when it came to light and dark colours.

However, the experiment showed that women gravitate toward soft colours, while men like bright ones. Men prefer bright colours Women prefer soft colours as a general rule; men tolerate achromatic colours more than women. Men and women can differ in their colour preference. Businesses marketing to both or a single sex should consider colours favoured in their advertising and other promotional ventures.

Colour preferences by gender can vary depending on the time period or culture, for example, Flanders and Norman in their study on Gender on colour preferences said, although today pink is seen as representing female and blue male, it was not so before the early 1900s, when pink was considered masculine and blue was considered feminine (Flanders and Norman, 2005) [17].

From the day that babies are brought home and cradled in their pink or blue blankets, implications have been made about gender and (colour. colourmatters.com, 2011) While there are no concrete rules about what colours are exclusively feminine or masculine, there have been studies conducted over the past seven decades that draw some generalizations. this assertion points to the long-term general belief that male and female have colours that is supposed to be their favourite, one of the things this study will reveal is whether this distinction apply to the study population or if it is more of a cultural thing imported from the western civilisation.

Colour effect in marketing

Given that people make up their minds about whether or not to buy something within ninety seconds of first encounter, colour psychology has become important to marketing. To the extent that each year designers worldwide subscribe to particular colours described as colour of the year.

The colour red is believed to increase appetite, and is thus commonly used in fast food restaurants. On the other hand, the colour blue is believed to relax people, and is thus used by higher class restaurants to persuade customers to stay longer.

In a study on the impact of colour on marketing, Singh, (2006) [42, 44] found that, colour may also affect subjective time; their finding revealed that, Red and blue are respectively believed to make time appear to pass more quickly and more slowly. Casinos, for example, use red lighting in an attempt to keep customers inside for a longer period of time. Colour may also affect brand perceptions, such as brand personality (Labrecque, and Milne, 2011) [29].

To influence consumer behaviour requires knowledge of what elements, such as colour, are preferred by clientele. Preference studies are useful in determining the degree to which consumers like a certain colour. Colours can also influence customers' emotions, positively or negatively. Previous research has shown a consistent association of colours with certain feelings and experiences. For example, the colour "Blue" is soothing and associated with wealth, trust, and security, whereas "Red" The Impact of Colour connotes excitement and stimulation (Pride and Ferrell 2003) [36].

However, despite considerable literature on the use of colour in capturing attention, results are mixed on the use of colour to influence consumer behaviour. For example, both Kelly and Hoel (1991) [26] and Rouse (1991) [39], as quoted by Gonzalez, (2005) [18] find that colour ads did not lead to a significant increase in advertiser selection. This study, examines the relationship among colour associations and brand personality, to determine if certain colours tend to create certain reactions about a product. For example, it is expected that viewers' perceptions of a brand's image/personality will reflect the image associated with the ad's background colour (e.g., a brand will be judged to be more vibrant and exciting when it is advertised with a red background versus a more calming blue background). Or associated with existing colour codes Coke red, for example, or the colour of a country flag – red is strongly identified with China (Fernandez and Rosen, 2000) [16].

Despite considerable literature on the use of colour in capturing attention, results are mixed on the use of colour to influence consumer behaviour. For example, both Kelly and Hoel (1991) [26] and Rouse (1991) [39], as quoted in Gonzalez (2005) find that colour adverts did not lead to a significant increase in advertiser selection. Colour has the ability to increase credibility of the advertiser and believability of advert claims, particularly if the ad claims are colour-related. For example, claims of "freshness" for food are more believable in colour because colour is an important food freshness cue, (Mitchell & Olson 1981) [33].

"You can tell the ideals of a nation by its advertisements" this quote is credited to the novelist Norman Douglas (Aren, *et al* 2010) [2].

In today's world of marketing, advertising practitioners have come to agree that consumers are the real arbiters of brand meaning. It is extremely important to understand how colour affects attitudes, beliefs, and feelings. Marketers can then apply such knowledge to develop effective promotional strategies and tactics. The correct colours empower and contribute to the success of advertising

From the reviewed literature, we are able to arrive at an agreed notion that colour plays a vital role in people's choices in the market place. We are also able to provide support for the propositions that there are emotional responses to colour and that this could be attributed to demographic backgrounds.

Studies reviewed also have provided some support for the contention that factors such as religion, gender, age, socio-economic status, ethnic background, educational level, are related to colour preferences of individuals. All of these factors were gleaned from this review to enable one establish the relationship of demographic variables of gender and religion on colour preferences. There is also support for the proposition that colour plays a vital role in marketing, thus designers ought to take note of whatever is likely to influence colour choices.

Methodology

The various steps were taken in an attempt to gauge how the following variables affect people's reaction to colours and to determine their implication for designs: Gender and Current global trends

Research Design

The research is a descriptive, exploratory non-experimental survey. The study was first and foremost a survey because it questioned a large group of people about their attitudes and beliefs in some instances. The study was based on correlated groups design because it measured the statistical relationship between the demographic variables and colour preferences without trying to determine causality. Because, in this study, as in most social science studies, attempts were made to answer the "why?" questions, and this led to theory formations or research questions. Most causal thinking is probabilistic, that is working at the level that some factors work increase or decrease the probability of a particular outcome, for example, does having preference for a particular colour lead to choosing designs of certain items in that colour? To get to the conclusion of whether demography influences colour preferences, the study also used the post factum or ex-post factor method, popularly referred to as theory building, theories were built, in form of research questions and then tested statistically. For this research the certain observations were made and relationships built and tested.

The following diagram describes the logic which the research process followed.

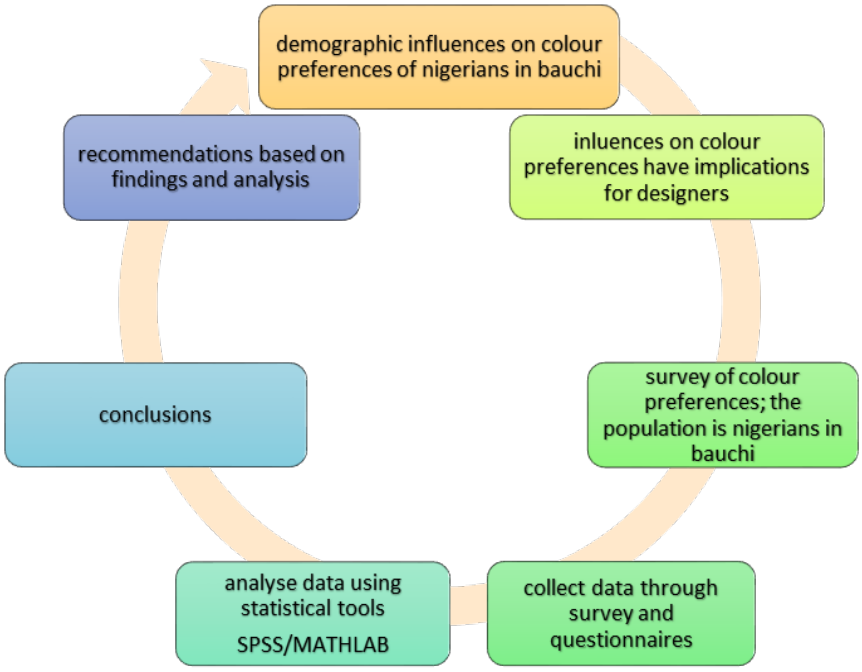

Fig 3: Logic of Research Process, (Kendra 2012 designed by Mojirola Iheme, 2013

Overview

This research focuses on the Nigerian people with a varied buying power capacity. Various survey tests and experiments which earlier researches had carried were examined and some replicated with modifications.

Study Area

The geographical area of this study is North Eastern Nigeria.

Population of the Study

Respondents are from all works of life and it is safe to say a good mix of Nigerians can be here. Also, all strata of the society can be found, from the illiterate to the very literate professor, from the poor to the very rich, different ethnic groups are also represented. There are quite a number of tertiary institutions; the banking community, the business community, including self-employed small and medium

businesses, State and Federal civil servants, primary and secondary school teachers in both state and privately run schools with pupils and students in the same age group, attending schools of different orientations. The survey instrument was largely personally administered by the researcher (with the help of assistants). In picking the respondents, there was a conscious effort to adequately reflect Nigerians.

Sampling Technique

The technique employed was stratified random sampling. This is because the research excluded Nigerians whose purchasing power or poverty level excludes them from the luxury of colour choice. Focus groups were used for different instruments; this classification included the designers who are professionals in the field and the other workers, civil servants self-employed and from the organised private sectors. Different strata of the society were involved in the different surveys. Stratified sampling and Random sampling were used because there are subsets and strata within the demographic variables in the population. The researcher then drew randomly from each stratum so as to not exclude or misrepresent any one stratum.

Simple preference test

This test is a modification of an earlier survey on general colour preferences among demographics by Hallock, (2003) [23], this was group based for different groups at a time: - They were asked to state their favourite colour, then, all respondents were asked to list the colours they know in order of preference. The responses were then used to measure most favourite colour and least favourite colour. They were then asked what colour they will prefer for specific items, these items were determined by the researcher to decide if longevity or context of use influences colour preferences.

Instrumentation

Since the focus of this research was to report on the behaviour of the sample population in terms of their colour preferences, and measure the relationships (if any exists) between their demographic differences. The main instrument used in this research were survey questionnaires. The colour preferences of respondents were determined by responses to survey instruments developed by the researcher, while the possible implication for designers were determined by another questionnaire developed for that purpose.

Demographic information was obtained by a Personal Data Survey. Information requested included age, gender, and marital status, and religion, state of origin, profession / occupation and ethnic background, educational level. A copy of the Survey can be found in Appendix A. Educational level, major source of income, and occupation were used to approximate the social position of subjects. Three earlier research survey instruments were merged and replicated and adapted to suit the current research.

Colour Selection

To select the colours, it was decided to include samples of six easily identifiable colours groups: red, orange, yellow, green, blue and purple. These colours correspond, at least in nomenclature, to the five principal colour groups of the Munsell system, with the addition of orange as a separately identified colour. An additional three derived colour terms (i.e., brown, pink, and grey) from Berlin and Kay's (1969) basic colour terms. Finally, black and white, two achromatic colours were added. The earlier research Limited the colour choice to 7 total options, but based on a pilot test carried out; the current study used all 11 colours.

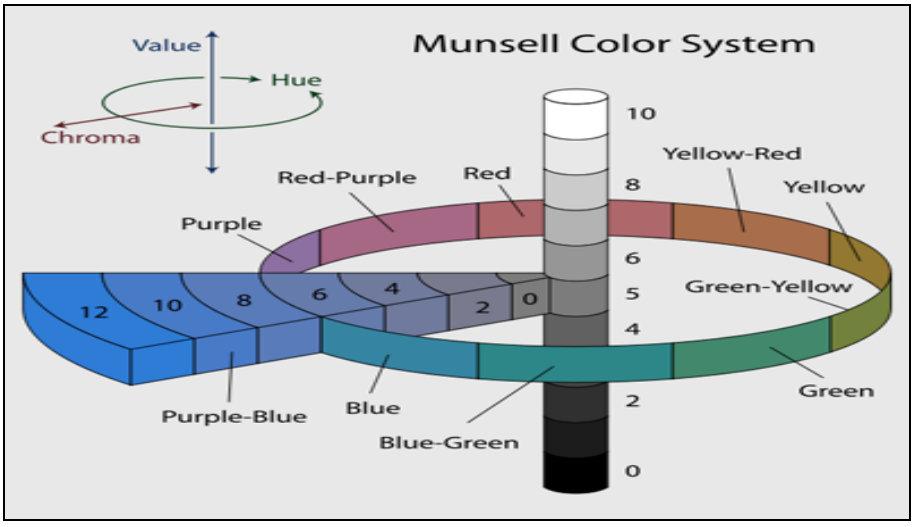

Fig 4: Munsell's Colour System

Results

Overall best preferred colour

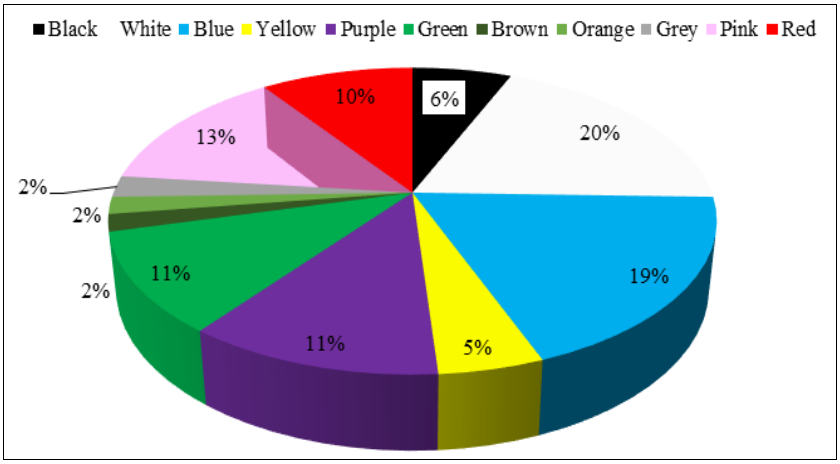

Fig 5: Overall best, second and least preferred colours

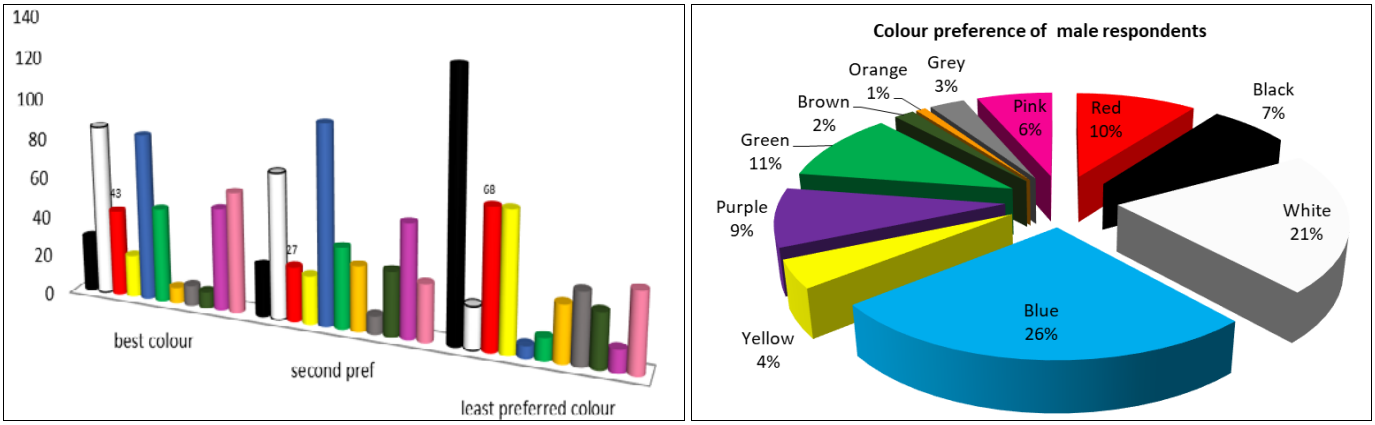

Fig 6: Colour preference of male respondents

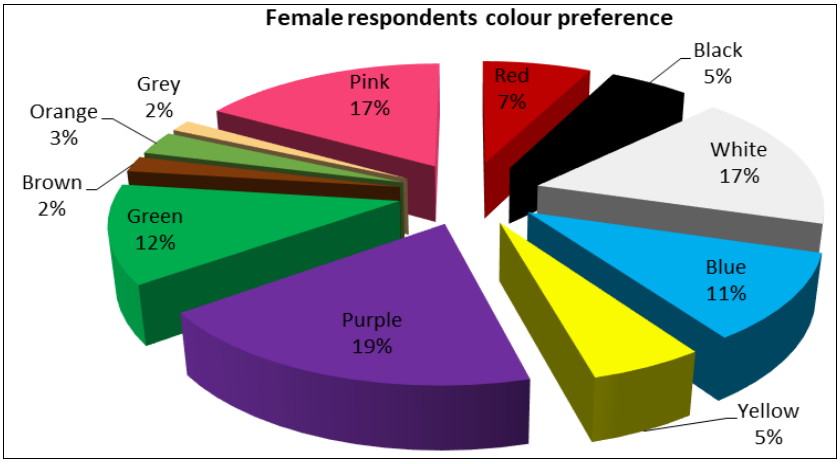

Fig 7: Female respondents colour preference

Colour Preference by Gender

Male respondents

Out of the total of two hundred and thirty seven (237), male respondents, sixty one(61) chose blue as their most preferred colour,50 chose white, 25 green, 24 red; 21 purple; 16 black, 15 pink;10 yellow; 7 grey; 4 brown and 2 chose orange as their most preferred colour.

Female respondents

In the female category, purple was the overall favourite with 39 respondents, followed by white with 35; pink 35; blue and green with 22 respondents each; black and yellow had following of 11 each; orange 6; grey had the least number of 3.

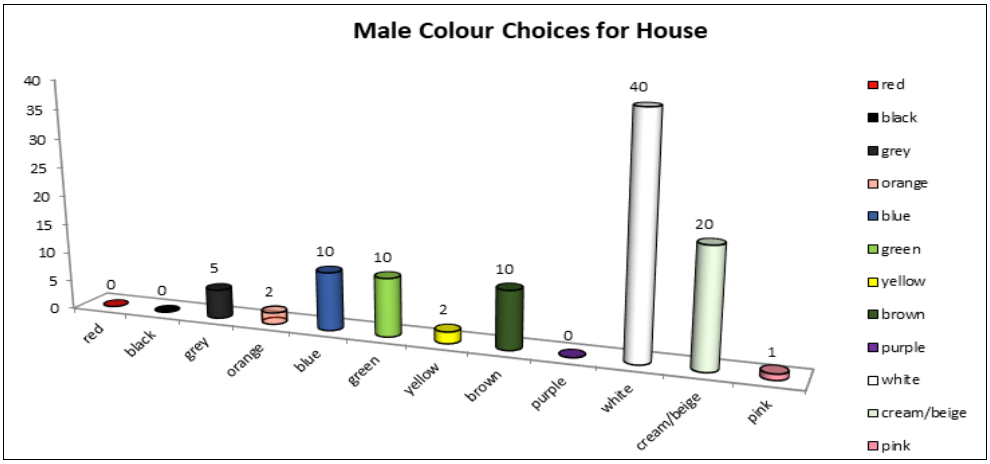

Fig 8: Male Colour Choices for House

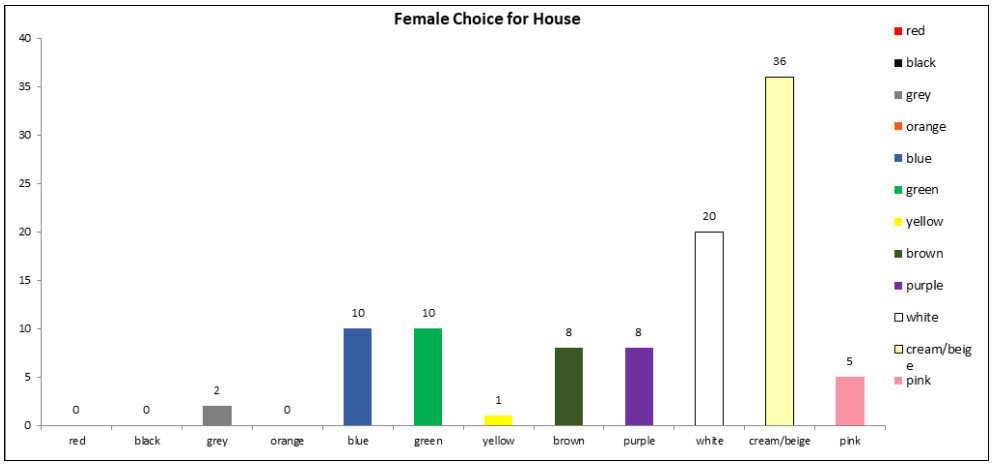

Fig 9: Female Colour Choices for House

Response from Designers

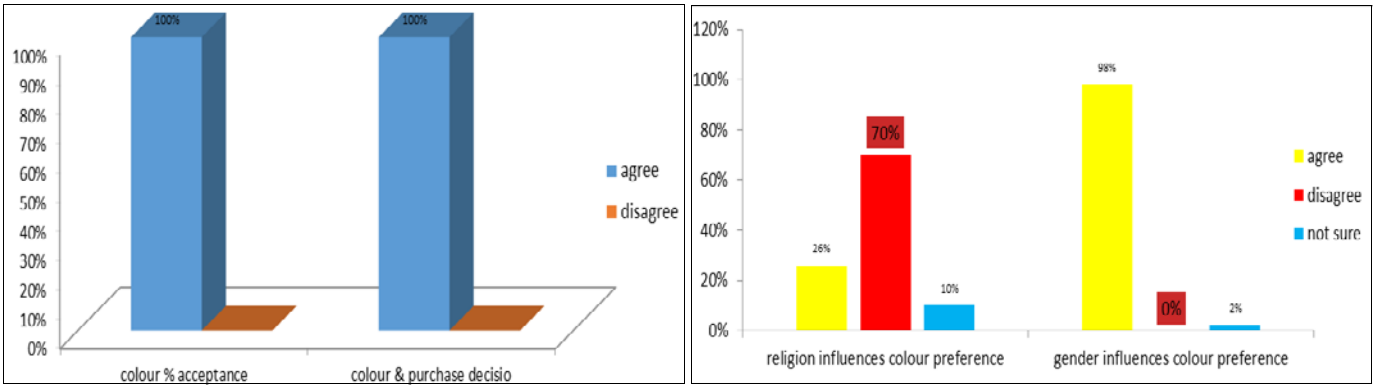

Fig 10: Response from Designers

A questionnaire was designed to get response from designers on the demographic influences on colour preferences of their clients. The target number needed was thirty; the assumption here was to rate one designer's response to twenty clients' responses Thirty –five questionnaires were sent out to give room for non-response. Designers spanning various areas of design were sampled. They include fashion designers, graphic designers, architects, builders and car painters. Thirty responses were received.

- 100% agree that gender influences colour preferences
- 100% agree that colour is vital to product acceptance.
- 100% agree that colour preference affects clients purchase decisions.

Data analysis

The correlation in the relationship between male and female was 0.55. The Kendall-Tau Correlation column shows that the correlation is 0.53 between male and female; the highest correlation of 0.76 between the two female groups. The results also indicate a low correlation coefficient between the sexes. This indicates that in terms of colour preferences, there is no agreement between the two genders.

Linear and Rank Correlational Coefficient Results

Examination of the results suggests that females agree more on colour than males. This suggestion is further supported by the relatively high p-value obtained for the pair. The relatively low correlation coefficients obtained in the M vs. F pair suggests that males and females disagree more on colour preference. This result is in support of the hypothesis that gender affects colour preference. Further pairwise parametric testing, in form of the t-statistic revealed that each pair supports our null hypothesis with the Male Vs Female pair being the pair that most strongly supports it. We can therefore infer, based on t-test, that the populations represented in the respective pairs possess a high probability of having the same mean number of samples per colour.

Discussion

1. **Objective one:** To investigate colour preferences among participants based on demographic variables of gender: Purple was the overall favourite, The male respondents had the cooler blue colour as their favourite with a very wide margin, followed by white and green. This is different from Hallock's findings that both genders prefer blue as a favourite colour.
2. **Objective two:** To find out if any broad colour preference patterns exist based on gender: The results reveal that female respondents tend to prefer warmer vibrant colours, Further examination of the results suggests that females agree more on colour than males. This is evident from the 0.76 rank correlations. The correlation values obtained when the colour preferences of males compared to that of females is the lowest in the analysis, 0.53. This further supports the hypothesis that colour preferences of male differ from those of female. The preference pattern between the genders is obvious, the male tended towards almost the same, Blue and white were definite favourites while the spectrum of female preference held a wider span, purple through pink and white.
3. **Objective three:** Assess if there is Contextual preferences with on going global trends: our survey indicated that majority of the male respondents (40%), would choose to have the house painted white externally, while only 20% of women chose white. (Charts: 13) Majority of women, 36% would have their homes painted cream or beige, only 20% of men chose beige. In terms of colour preference for cars, there were marked similarities among the genders and religions for favourite colours. Dark blue, silver grey, black and white were general favourites over the other vibrant colours of, red, yellow, pink purple orange or brown. The result of the research with the coefficients between genders, showing of 0.55 indicates that in terms of colour preferences there is very little agreement between genders. More specifically, there is a weaker linear, (Pearson) correlation between any of the compared sets than there is a rank (Kendall) correlation. In terms of preference for cars, there was a marked similarity across the two demographics, with dark blue, silver grey, white, and black as favourites for car over the warmer and more vibrant yellow, pink, green red or brown.
4. **Objective four:** Determine if global trends affect colour preferences among Nigerians: Global trends affect the colour preferences of Nigerians. When it comes to home designs, the young, upwardly mobile working class respondents rely to a large extent on on-going trends in their choices. Although majority of men chose white for external painting of their homes and the women chose beige, it gets a little more adventurous when it comes to painting the interior. They prefer colour combinations as portrayed on sites on the internet, social network or television screens. The women tend towards a combination of brighter colours for their kitchens.
5. **Objective five:** Determine if there are implications of colour preferences for designers: The research revealed that there are significant relationships between the colour preferences of some items to others, and these relationships can be used to predict clients' choice in some items. The survey results revealed that the preferred colour for toothbrush in, the female category is analogous to their likely colour for house, but for the male, it is a complement of their preferred colour for house. Another such relationship is between the preferred colour for cup and the preferred colour for cell phone. The implication for designers from findings of this research are as follows: There are broad colour preferences based on gender. Therefore, designers in tailoring their designs to groups need to acknowledge that gender is an important factor in colour choices. Designers will therefore do well to take into cognisance the gender of their clients when thinking of designs. Another implication for designers from this study is the effect of global trends. Nigerians follow global trends and their colour preferences are affected by what is going on in the world especially in terms of colour of homes and fashion. The research revealed that a populations' choice for favourite colour does not always result in purchase of all items in that colour. The context of use plays an important role in the colour preferences of Nigerians. For example, the fact of choosing green as a favourite colour does not mean the client will want a green house, car or furniture. For some items, knowing the relationships of colour on the colour wheel can help the designer predict clients' colour preferences for other items. This is because the research findings revealed an analogous relationship between male respondents colour choices for certain items and preferred colour for house; whereas for women, the relationship was complementary. Also, while Nigerians have some connotative cultural association to some colours, they still have tendency towards global trends in the usage of the same colours.

From the findings in this study, men and women have different colour preferences. Women tend more to warmer brighter colours, and are more sensitive to shades and tones, and patterns. Men tend to more solid cool colours with fewer

patterns. That is the overall general consensus, but, although men tended to preferring darker shades, the general rule seems to border on the trend and the longevity of use. Men, who prefer blue overall, balk at the idea of an external paint of blue for their homes, though not for cars. The same for women who tended towards pink and purple, they would not have a purple house or a pink one for that matter. The men mostly chose white, while the women chose cream/beige. The younger, more educated and exposed respondents chose lighter and brighter colour combination for the interior of their homes, citing global trends as the sway. There are marked similarities between the genders when it came to choice of favourite colours for cars, with dark blue, silver grey, white and black being the general favourites. Respondents who chose red, purple, orange yellow or green as favourite colours would not choose the bright hues of these colours for things of long-time use such as cars, house and sitting room furniture. They chose more subtle colours of white, beige/cream or light brown, even black as favourite colour for cars. In the fashion arena, choices get a bit more mixed up. Although there is a consensus on the cultural significance of some colours; such as black for mourning, red for danger and white for peace. Although there are significant differences in choices between the genders, there seem to be a convergence of choice among men and women between the ages of 18-35. Men that would choose bright shades like pink, purple or lilac for shirts just as the ladies did. However, the trend changed as they get older. Earlier researches based in the USA attribute this change to the popularity of sports and the bright colours sports wears take on these days, and accessibility of world trends through the social media, internet and television. (Paul 2002)

In summary therefore, the research indicates that gender as a demographic variable has strong bearing in respondents colour preferences, and to some extent in their purchase choices. However, when it comes to long term use purchases, there is a blurring in differences. The overall result of demographic diversity is that people choose colour based more on trend, gender and age.

Conclusion

Colour is a complex subject with many strands and it has the power to subliminally convey values and stories. It influences purchasing decisions in a larger number of instances. To quote Morton, (2005), "the bottom line is that colour preferences are really about demographics, it is not a fixed situation because time and trend affect colour preferences.

This study has found that knowing a clients' gender and their most preferred colour, favourite colour for toothbrush, cell-phone and paper cup can help predict the clients' favourite colour for house. This is because of the split complimentary relationship in these favourite colours for female and analogous relationship for men.

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