

## USER PERCEPTIONS OF COLOUR AS A MEANS OF COMMUNICATION

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### ABSTRACT

Colour as a cognitive artifact draws our attention to the fact that its visual attribute has a profound effect on the viewer's reasoning and perception of objects, space, persons and environment. Mood swings and extreme motivation can be propelled through appropriate use of colour in various degrees. An artifact such as colour has its roots firmly held to the bedrock of Archaeology, historical events, excavations and has always been a product of both human and spiritual conception. This study seeks to investigate and bring to enlightenment, colour combinations as a means of communication and universal language. The study also dwells on the notion that proper allocation of colours to designed spaces in a well-defined order psychologically impact the viewers with all necessary adjustments needed to benefit maximally from the designed and pigmented living spaces. Colour choice and combination, are the independent variables in this study in relation to size, shapes, position and circulation allowances of designed spaces. Visual communication and psychological impact on viewers and dwellers form the dependent variables. The study lays technical emphasis on how colour affects man's psycho-visual perception of colour-consideration in institutional buildings while focusing on primary schools within Jos metropolis. Historical reviews also reveal theories of colour effects and its significance on buildings of sundry scales. The study deduces that there is a relationship between objective

colour combination concepts and human perception. The study also proposes an alternative to existing concepts and procedures of colour selection by designers and also marketing enhancements.

**Keywords:** Colour Combination , Colour Psychology, User Perceptions

## **INTRODUCTION**

Architecture and sculpture have relied primarily on the basic elements of visual arts which includes the use of colour, shapes, form, value, line and space. The use of lines dominated have the practice of Architecture right from time past and while the use of colour dominated the art of painting. However with such a historical setup, doubts could arise as regards the use of colour in Architecture. The primitive man extensively used colour to paint drawings in caves. So the relationship between man and colour was and is still, one of the most closest (Dorris, 2014). In Architecture, as in art, the use of colour swings between the magic, ritualistic role and aesthetics.

The issue of colour in Architecture has been approached in many ways and on many levels: The relationship between colour and humans regarding the psycho-physiological influences, the relationship between the architectural form and colour (Porter& Mikellides, 2009; Bright& Cook, 2010; McLachlan,2012; AT, 2016). Colour has held a fascinating evolution through history till through every civilization, age and region manufacturing from available resources. Colour was on one hand, associated with magic and rituals and on the other hand, had the role of decorating the shelter. "In the Palaeolithic age, the desire to colour sometimes seemed to exceed the goal of the realistic painting. Thus the use of colour represented, in psychological terms, a privilege of the ruling classes of the person in the high level of

hierarchy of society being associated with the power, with the dominance. The colour was intended to impress psychologically, to give importance, to confer distinction, “to remove from the ordinary that person distinguished with it and enforce those around the feeling of adoration and revelation” (Porter& Mikellides, 2009). The colour along with lines, the shapes and later the volume was the basic element in the visual arts (De Jong, 2015).

The use of colours in designed Architectural spaces and its psychological effect on the users in a room painted with a very dark shade of purple. This colour gave the space a seemingly dark and smaller impression and thus looked quite depressing. Studies have observed that most people chose colours based on personal taste or feelings without knowing its psychological impact on individuals and their performance levels in such spaces. Ignorance of the psychological effects have given rise to the inappropriate use of colours and all these affect the, mood, emotions and the human experience which produces a negative or redundant effect in that environment. (Walden,2015)

### **COLOUR PSYCHOLOGY**

Colour psychology deals with an in-depth study of colours as a factor in human behaviour. Colour psychology is a new branch of psychology and while few studies done on this subject to ensure its validity short studies have been done to determine that colours do in-fact play an important role in the human mind and the way that things are perceived and processed. Colours affect moods, emotions and behaviour although, the way a certain colour affects moods varies with the individual and one colour can have different effects on different people. Colour practitioners who use colours to heal and restore, have

found that there are some rules about how specific colours affect our minds(Maust, 2013). For example: colour psychology is used in business to influence moods, length of stay and impulse to buy. Various colours have been psychologically proven to affect customers or instance, a blue company logo makes the company appear trust worthy.(O'Conner, 2011), colour in design is very subjective, what evokes one reaction in one person may evoke a very different reaction in someone else. Sometimes this is due to personal preference.

One of the most striking results concerning colour connotations and colour mood associations is its consistency cross-culturally from one individual to another and from group to group, showing that colour is an international visual language understood by all. The impression of a colour and the message it conveys is of utmost importance in creating the psychological mood or ambience that supports the function of a space(Zybaczynski, 2013). A classroom for instance, has a different function from a hospital patient room or ward; an office space is not a production line.

Probably one of the latest known factors of appropriate colour specification is its role in safeguarding visual efficiency and comfort(De Jong, 2015). The eye adaption process involves the immediate reaction of the eyes to change in the degree of illumination. Lower light reflectance causes the pupil to dilate, and the reverse is true for the higher reflectance. Luminous density can prevent eye fatigue and raise visual acuity, and thus productivity.

The international norms are the 3-1 light reflection ratio within a space. This suggests that floors should reflect about 20%, furniture 25-

40%, walls 40–60%. The 3-1, however visual ergonomists are not colour designers, for instance, a yellow wall at 60% is not yellow anymore but tan. The only solution is, if the walls are raised to 75% light reflection for example, so must then be the percentage of floor and furnishings also be raised to insure that there still exists control of extreme contrasts in dark and light. Interestingly, the fact is that if these rules were known by the design community, white walls would not exist – only ceilings are where 80–90%.

**Table 2. The Psychological effect of Colour on Mood**

EFFECT	HUE	CONTRAST
Exerting	Bright red	High
	Bright Orange	
Stimulating	Red	Moderate
	Orange	
Cheering	Light Orange	Moderate
	Yellow	
	Warm grey	
Neutralizing	Grey	Low
	Light/Off	
	white	
Petering	Cool grey	Low
	Light Green	
	Light Blue	
Relaxing	Blue	Low
	Green	
Subduing	Purple	Moderate
Depressing	Black	Low

Adapted from Walden (2015)

**Table 3. Remedies to the Psychological effect of Colour on Mood**

<b>EFFEC T</b>	<b>DESCRIPTION</b>	<b>REMEDY</b>	<b>ILLUMINATI ON LEVEL</b>
Enlar ge	Areas would be generally enlarged by lightness and small patterns (use of feelings oppression closed-in.	Pale or desaturated colours “recede” in situations where equipment projects into room and tends to make it appear smaller than it actually is, paint the project the same colours, the ceiling and walls or with a very light shade to make them appear to recede into the wall or ceiling.	High
Close- in	Areas would be closed-in by darkness and large patterns	Dark or saturated times “protrude”	Low

Adapted from Walden (2015)

## **METHODOLOGY**

The Data collection method in this research included interviews, a focus group and self-administered questionnaires. Among all the 50 questionnaires distributed, 20 were issued out to the teacher while 30 were given to the pupils. Interviews with staff and pupils of the selected school were conducted to investigate the effect of colours in the learning process. The study area is the Jos south Local Government Area of Plateau State.

## RESULTS

The survey consisted of inventory of selected classes in a selected Nursery and Primary school, paying attention to the colours used and the effect on learning. The Pre Nursery classroom has its interior painted two colours, green and yellow. The perceptions of the interior suggested that the colour green evokes a feeling of fertility, green also represents learning, harmony and growth. The Nursery classroom had its interior painted in white all through. The users perception of the interior suggests that the white colour used in this class room space evokes truthfulness upon the occupants, but on a negative side, its monotonous nature could lead to drowsiness and a little restriction to creativity. The lower primary classroom has its interior painted with two shades of orange colour, occupying equal halves of the wall. The upper primary classroom has its interior painted with two shades of green, occupying equal halves of the wall. The researcher's perception of the interior suggests that the colour green evokes a feeling of fertility, green also represents learning, harmony and growth.



Plate ii. Typical pre-Nursery classroom interior



Plate iii. Typical Nursery classroom interior





**Plate iv: Typical Lower Primary classroom interior**



**Plate v: Typical Upper Primary classroom interior**

Figure 1 showed that more female pupils responded in this survey than the males. Figure 2 revealed that male pupils preferred green while the female pupils tied with purple and gold. Figure 3 showed that black was the least liked colour. Questions were asked about the moods invoked. The colour that invoked sadness in male pupils in grey, while black invoked sadness in female pupils. (Figure 4). The colour that instilled happiness was yellow for female pupils and red for male pupils (figure 5). Figure 6 shows that the colour that induced calmness and relaxation for most male pupils was blue while for most female pupils it was purple. Figure 7 also showed that most male pupils preferred blue for the classroom interior, while most female pupils preferred gold. Figure 8 revealed that most male pupils felt blue aided learning the most, while female pupils felt it was red and green. Figures 9 and 10 show the perceptions of pupils and teachers respectively. The summaries do not show a clear majority of colours, except that black is the least liked colour by pupils and purple the most liked by teachers.

User Perceptions of Colour as a Means of Communication

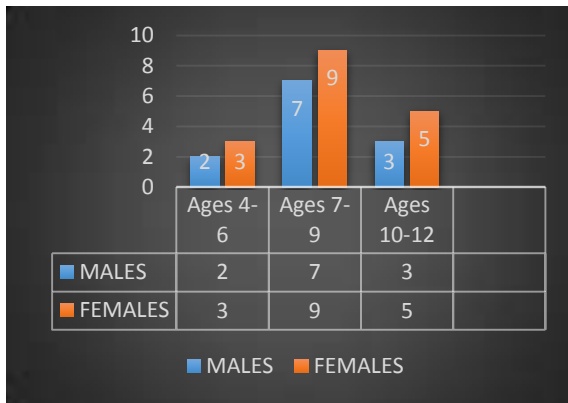


Figure 1: Chart showing Gender and age ranges of respondents (pupils)

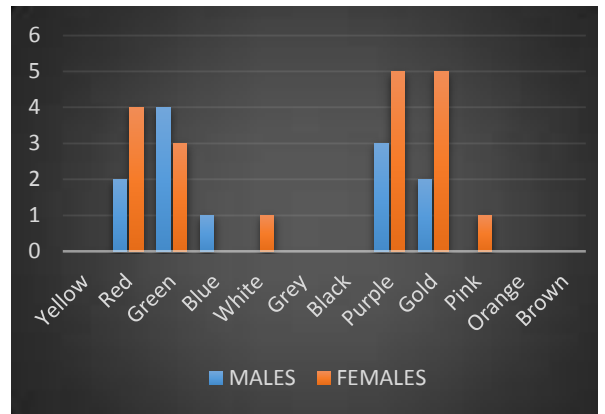


Figure 2: Chart showing pupils choices of most liked colours

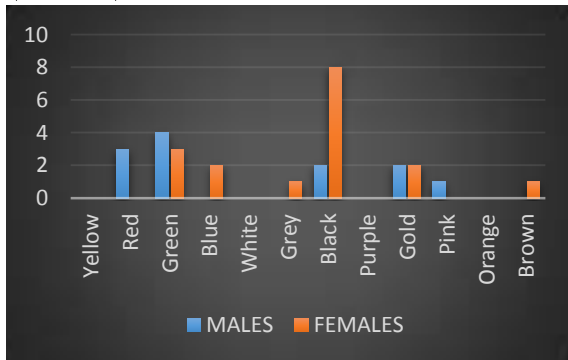


Figure 3: Chart showing pupils choices of least liked colours

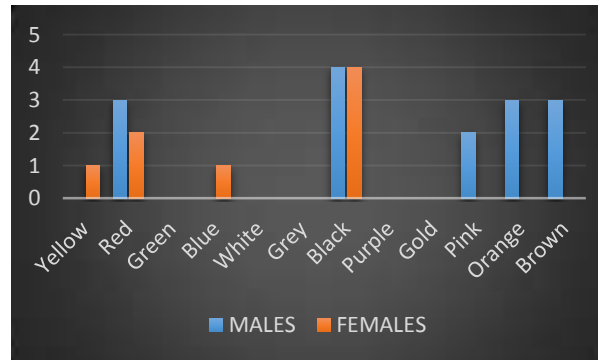


Figure 4: Chart showing pupils choices of colours that instil sadness

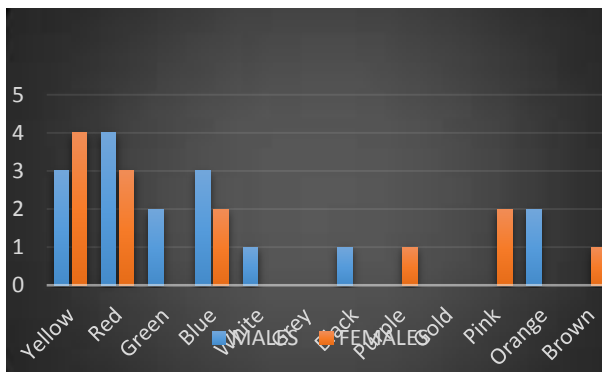


Figure 5: Chart showing pupils choices of colours that instil happiness

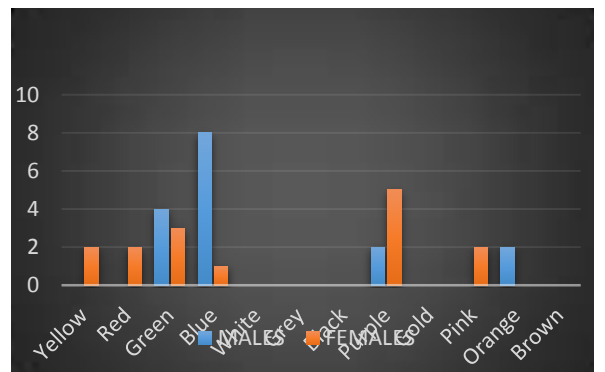


Figure 6: Chart showing pupils choices of colours that induces calmness and relaxation

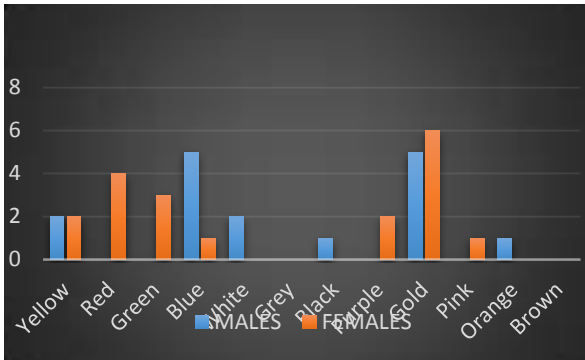


Figure 7: Chart showing pupils choices of desired colours in classroom interior

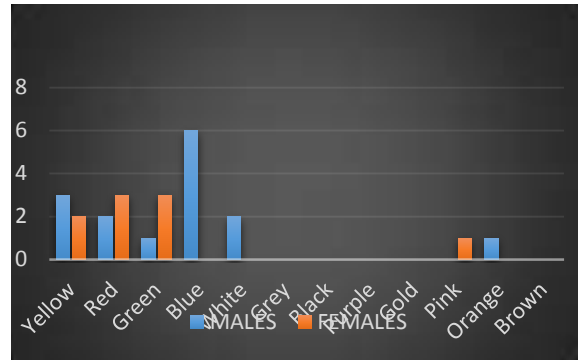


Figure 8: Chart showing pupils choices of colours that aid learning

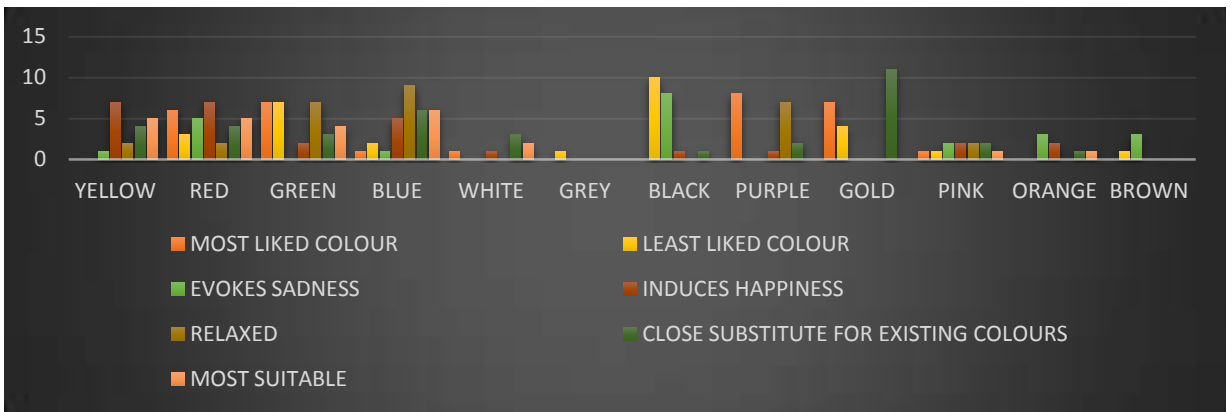


Figure 9: Chart showing pupils general perception of colours

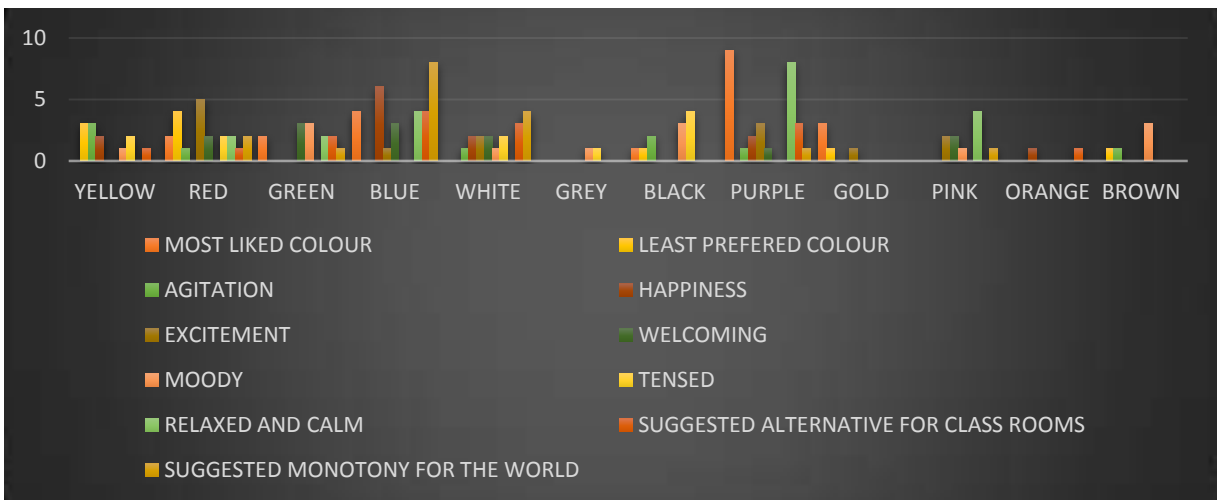


Figure 10: Chart showing the teachers General perception of colour within classrooms

## DISCUSSION

Credible conclusions can be drawn from the empirical evidence found within the study. As related previously, the strategy for colour selection and categorization was based upon the contrasting relationships of hue, value and upon objective criteria that form derivative colour combinations. Since this study applied quantitative analysis strategy, the findings provided evidence to support principles of colour organization that are intuitively understood by designers. Much of the literature related to visual communication and colour selection has been criticized as having a weak scientific basis with little predictive value. The intent of visual communication literature may not be scientific but it is insightful, useful and credible. Often scientific researchers doubt the existence of a simple law of colour structuring, suggesting that colour factors are skewed by human subjective responsiveness. Researchers have produced documented quantitative analysis of colour and visual response, naming and categorization.

However, these studies have not provided much insight for colour application methodology. Many of the principles in visual communication literature can be scientifically tested. The research conducted in this study incorporates quality measures, demonstrating and supporting explicit evidence that colour-coding, colour categorization and colour selection can be objectively derived. This definitive and objective analysis of hierarchical colour patterns is useful to all Architects, Interior designers, design educators, and design practitioners. The entire study also serves the purpose of Relating colour principles to colour application as communication and language links concepts to design education and practice.

Colours evoke similar emotional responses in most people. However, there are not always universal truths about colours. People of different culture may have different thoughts and emotions about certain colours. Despite the exceptions, there are some basic generalities about how certain colours evoke specific emotional and behavioral responses. There are two perceptual extremes known as under stimulation (monotony) and over stimulation (sensory overload) which triggers dysfunction in humans. Under stimulation/ Monotony sends weak signals as people usually show signs of depression, dullness, retardation and redundancy. An under stimulated environment are weak intensities of colours, monochromatic harmonies, achromatic colours, weak or monotonous colour contrast.

## CONCLUSION

Colour can be used to communicate emotion and depth of feeling. If you wish to create a relaxing, soothing and calming environment, choose colours such as blue, green or lilac but if you want to create a joyful, exciting and lively space choose colours like red, burgundy, yellow, orange, and pink. Colour psychology takes environmental factors into consideration and is more complex than simply picking a happy hue. The fields of design and marketing both employ the tricks of using colour to maximize the intended effect and function of a space. Places like restaurants, retail venues and hospitals often use colour psychology principles in selecting their layout.

## RECOMMENDATIONS

Based on the case studies and the opinion survey conducted by questionnaires, the following recommendations should be considered in colour perception for Architectural spaces.

1. Colour that under stimulate or over stimulate the mood or performance within a space be avoided.
2. The knowledge and awareness of colours should be made known to Architects and interior designers as well as their prospective clients.
3. Appropriate colour consideration should be used to achieve the mood, experience and activity required within such a space.
4. Colour specifiers (Architects or interior designers) should not leave colour to chance or sideline it to the sideline it to the background.
5. Colours that create the required emotions for a particular space should be used to provide a lively or relaxed atmosphere or ambiance.
6. The impression of a colour and the message it conveys is of utmost importance in creating the psychological mood or ambiance that supports the function of a space.
7. The colour specifier or designer has the task of knowing how the reception of visual stimulation, its processing and evoked responses in conjunction with the hormonal system, produces the best possibilities for the welfare of humans.

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