

# Ife Journal of Theory and Research in Education



## Journal of the Institute of Education

Obafemi Awolowo University  
Ife.

Bi-Annual  
Vol. 3 No. 1 1991



# PROBLEMS ASSOCIATED WITH VISUAL PERCEPTION OF COLOURS ON POSTER DESIGN: A MODEL FOR EFFECTING CHANGE

Adeyanju, 'Lade Joel  
Institute of Education  
Obafemi Awolowo University  
Ile-Ife, Nigeria

## ABSTRACT

The paper discusses the problem of visual perception of colours and its use on posters, by the Fine Arts Students of Obafemi Awolowo University in Ile-Ife. In order to solve the identified problems, the author prescribes a model for effecting change based on theories of learning and perception.

The procedure include visitations and planned field trips to art galleries after which the strategy of rapport would be introduced. Reinforcement of every desired responses would be encouraged during the course of practicals when actual pigments of colours would be mixed. The suggested model presents the criteria measure which would enhance the mastery of desired responses. Feedback, application and evaluation procedure are also used to advantage in the prescribed model.

The art teachers are encouraged to make use of Instructional strategies for delivering their lectures based on the above model.

## Introduction

Perception is a process whereby an individual become aware of the activities going on in his environment. It is the gate way to knowledge, the foundation of learning and an extension of communication. Man's organ of perception and reality determines what he perceives. However, what man perceives quite easily are those things that are meaningful to him, for example, objects like trees, books and cars and many others. Perception begins when the brain absorbs sensation, makes a discriminatory selection, becomes aware, and generalizes and superimpose new experiences on the old and then suppresses the information that is not required so that interpretation can take place.

Apart from the presence of ray of light which is involved in perception, Ittelson (1974) a transaction theorist posited that perception is built on contextual factors which involve other variables. He points out that man's perception of an object is based on the variables around its interpretation. There are several models of perception among them are the Epicurian Greeks whose belief centred on object emission of information about itself; the interaction model, which capitalizes on the perceiver as a part of what is being perceived. There is also the Gabner Morphys model which revolves around the stage of diffusion, differentiation and integration. Diffusion explains the formless stages when concept presented is vague and strange to the perceiver or the learner. At the level of differentiation, the learner is undergoing a process whereby forms begin to integrate but learner is still unable to relate elements to one another for proper understanding, but he gets motivated. The final

stage of integration explains clearly the structural organization of the concept under observation.

### **The Problems Involved in the Design of a Poster**

The Fine Art students do have the problems of choice of colours for their design generally, they have the problems of type faces; the use of visuals and images in representing abstract concepts. Some of them usually do not finish up their designed posters for lack of enough time and since some other project work do demand for their attention; the decision to use appropriate colours for their poster design very often is hasty. Solution is needed in the area of use of colours because most of the colourful designs that students produce are usually unprintable partly because of the colours combined and mostly because of printing cost. In order to forestall a positive change in the use of colours for communication purposes on posters, the combination of some relevant models of learning theories and perception theories would be required.

### **Principles of Perception**

Perception principles according to Fleming (1960) are summarised below

- (1) The linking of past experiences with unfamiliar topic. In a sense the provision of anchors of references are essential in the learning of a new knowledge, habit, attitudes and the like, since it affords the individual to adjust personally and socially to a new experience.
- (2) Man's strive for logical organization and the exposure of learners to simple concepts before complex ones when introduced, could facilitate perception of visual situation.

### **Visual Pattern Recognition**

Solso (1979) conjectured that visual recognition of pattern is determined jointly by the information available to the senses and knowledge stored in memory. He further stressed that everyday pattern of recognition involves a complex interaction between sensation perception, and a cognitive search for identification of stimuli, Gestalt in Kimble and Garnezy (1963) on man's ability to classify visual patterns explains that man sees the "whole" pattern of stimuli and parts of the whole configuration derive their meaningful appearance from their membership in the whole. He stressed that it is the recognition of the 'whole' which is a summary that leads to the recognition of the components. Palmer (1975a) pointed out that the Bottom up/Top-down aligned visual information is more easily perceived. This explains the advantages of looking at a whole pattern of stimuli at the same time.

Template matching also assists visual perception since it is possible for matching to take place between sensory stimuli and the corresponding internal mental form to bring about pattern recognition. Prototype recognition also can assist in recognition. But this occur only when a match is made between perceived pattern and an abstracted or idealized mental pattern. Feature analysis have also been explained in terms of bottom-top aligned feature. In order to be able to recognise a given pattern easily the incoming stimuli ought to have been analysed initially according to their simple feature.

The enhancement of visual is associated with the principles of organization include proximity, similarity, direction, object set and common fate.

Proximity in the organization of perception refers to elements close in time and space perceived together. An example of this principles can be illustrated with six verticle lines placed same distance from one another. Similarity refers to elements in the same structure which convey the idea of being seen together. An example could be pattern of circles, with smaller circles placed in between the larger ones. Direction is another principle of organization which helps easy recognition. Elements that compose a continuous smooth direction tend to be seen together. Objective set refers to the placement of objects of the same elements perceived together. In other words, when circles of various sizes are placed side by side, it leads to easier recognition of the disparity of the circles. Common fate, another principle of organization refers to things that are seen in like manner. For example when two square shapes are placed next to each other recognition is enhanced.

### Colour in Perception

Hartley (1978) proposes the use of colour in the printing of instructional materials, functionally, to aid instruction and for aesthetic motivational reasons. When colour is used functionally, separate colours are used to denote contours and routes on drawn maps. For aesthetic purposes however, full use of colour is essential if learners are to make correct discrimination. Hartley (1978) stated that about 8.5 percent males and 0.5 percent females have been found to some extent to be colour blind. Andre's (1974) position is that at least 0.05% woman and 5% of man are colour blind. Marthindale (1981) indicate that if light reflected by two adjacent objects differ by a ratio of about 60- 1, the object reflecting 60 units of light appears white while that reflecting less appears black. With the above information, it is clear to researchers on perception that colour as an element can be used to facilitate or inhibit perception.

Colours have been known to have clear-cut implications. Red is harsh, and highly stimulating suggesting activity and assertiveness. Blue is just the opposite, it creates a mood of calm, tranquility and inner peace. Other colours have also been known to create emotions. (Gerard 1972; Aaronson 1972). Yellow creates a strong emotional response sometimes generating a mystical feeling or a feeling of explosion, even a subjective increase in the humidity and heat all depending on who is viewing the colour (Aaronson, 1972). In the various studies of colours on perception (Coules, 1966, Tailor and Summer, 1945, Adeyanju (1987) and Adeyanju (1988) confirm blue colour as the colour preference of females which may influence their choice of colour. The implications are rather important, females are a little more emotional naturally. Their exposure to harsh colours like yellow and red is more likely to aggravate their emotion. Similarly the painting of the coronary units of a hospital in red colour would be inappropriate, since such harsh colours may agitate mental patients equally.

### Theoretical Framework

Educational technology have the potential of providing challenging experiences in the presentation of concepts that would enrich perceptual experiences and facilitate

perception in an individual. The evidence of its contribution are noticeable in expository method, advanced organizers, dramatic-methods, provisions of specimens, sequential presentation of concepts, graphic technique and many others.

Dember (1960) stated that perception depends more on process as learning and motivation which always involve sensation. Perception or knowledge about fact admits number-less degrees of complication which can be analysed considering the following: stimulus presentation, registration, feedback and reaction.

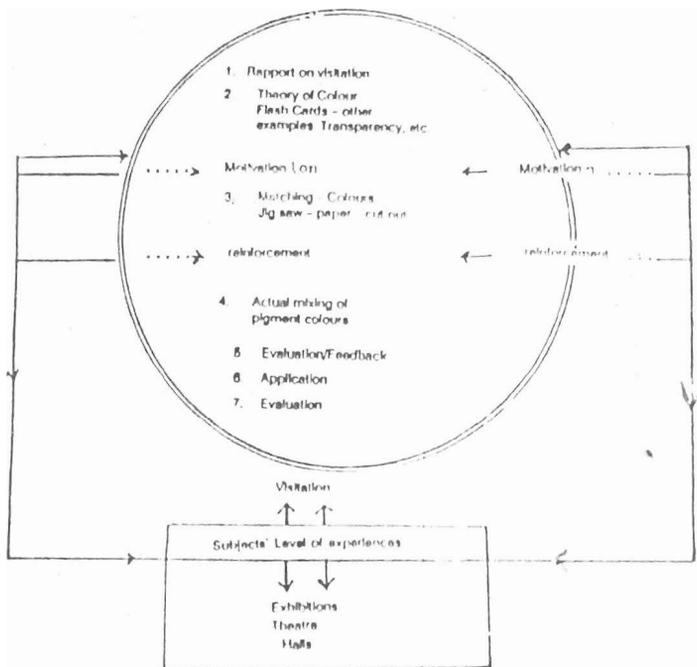
**Problems**

The problem of visual perception on the use of colour was looked into with the undergraduates of fine arts department of Obafemi Awolowo University, Ile-Ife In Oyo State between (1985 and 1990). Most of them were discovered to have problems in mixing and using compatible, appropriate colours on poster designs which are purposely designed for communicating concepts. These art students frequently use colours like reds and the yellows which I consider very harsh and less effective for communicating concepts.

**Objectives**

The paper focuses on the approaches of the problem relating to visual perception especially on poster design through the application of perceptual principles which can serve as a model for bringing about the needed change. Thus, the adaptation level of perception which is subjective as well as the application of the learning theories of Gagne (1979) Bruner (1956) and Piaget, have been combined where they are found to be very relevant.

Figure 1



Lara's suggested Model, on perception correction of Colour  
Figure 1

## Procedure

### 1. Visitations/Field Trips

An organized visit to the art gallery, the drama theatre, the library, photographic darkroom, large offices would be necessary. Subjects would then be advised to study immediate environment in relation to colours of bushes, the sky, colours of dresses, cars, and animals in the zoo. The visitation is essential because in the theory of perception, there is a selectivity for all our senses, the visitation would ensure that the subjects sensory perception serve to reduce, filter out and exclude as much data as possible on colours. Furthermore it will serve as a leveler for all the subjects experiences since a stimulus must be above certain threshold before it can be perceived.

### 2. In the Laboratory/Studio

There would be a rapport on concrete objects that have colours which subjects noticed in the course of the visitation. This strategy is essential because Piaget suggested the use of concrete objects and the provision of variety of opportunities for discovery. Skinner also advised the reinforcement of every desired responses immediately. Since this is the early stage of learning, correct responses to the desired learning out-come on colour perception would be reinforced.

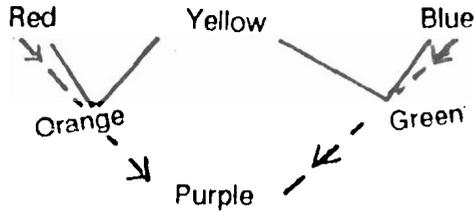
### 3. Introduction of the Colour Circle Using Interaction Model

*The Methodology:* Colour is perceived, when light engenders it. The psychological uses of colours as well as colour perception would be discussed. Analogous of colours, the primary secondary and tertiary colours would be taught using the colour wheel. The subjects would be encouraged to spend more time on the new concepts so as to get familiarised with the contents and the arrangement of colours on the wheel. This strategy will be in line with the suggestion of (Hartley 1978) where he postulates that figures with irregular arrangement of elements with elements in groups arranged in different structure would make observers spend more time studying the figures. : G6bner Morphys model of diffusion, differentiation and integration is also applicable at this stage. The presentation of the concepts on colours have to be very gradual and appeal would be directed at most of the sense organs for clear specification.

### 4. Criteria Measure

Using the transparency as support, variety of coloured objects would be presented as stimulus which subjects will re-act to in terms of the groups of colours they belong. The colour at this stage would be either warm or cold or serene. The reds, yellows purple, orange, blue, green and balck would be flashed very quickly using slides to further enhance the concept. Colour mixing at this stage will involve the use of the primary colours. Red, yellow and blue and the secondary colours that are derivable amount of a load of yellow when properly mixed would give a shade of orange. The brush has to be washed before a new 'load' of colour is added so as to give the same amount of colour mixture.

Figure II.



Enough time should be spent at this stage since the attitude that requires a change evolves from the perception and concepts of colour mixing. Subjects would be allowed to match colours.

### 5. Feedback

Gagne's (1950) suggestion of formal modes as source of feed back for learners and instructor would be used in order to assess the learning situation.

Subjects would be allowed to match colours using jigsaws, cards, coloured transparent sheets, tailors off cuts that have been designed to bring about the expected learning outcome. The instructor at this stages takes notice and give approval to colour matching that are appropriate. Subjects who have passed the stages of colour matching are allowed to experiment with colour mixing using a brush and pallet to get variety of shades of colours.

### 6. Application

Subjects are allowed to practicalise the learned concept on colours appropriate for communicating on a poster design. The paper size would be 15" x 22". Freedom is given on theme but restriction would be on the use of only two colours of choice, to design and communicate the Nigerian transition to civil rule in 1992.

### 7. Evaluation

Both formative and summative evaluation processes would be involved in order to bring about the expected change in the use of harsh colours - reinforcement could be given at every stage.

### Conclusion

In attempting to correct visual perception problem, it should be of importance to get the attention of the subjects to the changes envisaged. In order to arrest their attention therefore, the physical intensity of the stimulating materials to be used would be appropriate. The involvement of subjects mixing colours practically would be more appropriate than story telling in abstract terms on colour mixing. Similarly, the size of a stimulus materials enhances perception in the fine arts. Contrast also helps stimulation and may consequently lead to easy recognition of stored facts. Repetition also plays a vital role - in other words the need to reinforce positive attitude, habits and learning outcomes would be necessary. In the fine arts, projects similar to one another would serve as a reinforcement to the use of appropriate colours. Novelty and familiarity aid recognition, this makes the individuals

previous experience very important in this case. The pull on cultural activities, would serve as motivating factor to learning. Only when students have planned out drawings from their traditional background, will new knowledge of colour mixing and its use become easy to encouraged. Motivation has a significant role to play in bringing about an effective learning outcome, it should therefore be used as control of perception.

### Implication

Since the model being prescribed is a combination of both learning theories and perception principles, the user is expected to pay particular attention to the various stages, in order to attain success. The model has been designed with cognizance to the pupil Centred learning, which makes it imperative for the teacher to be very patient with the learners who will be taken through the system of instruction.

Provision for the required instructional materials will be adequate because of its role in the enhancement of learning.

The teacher is also charged with the duty of utilizing varied challenging innovations. Through this medium, art students are likely to learn to see more, sense more, recall more, and open up themselves to the changing environment which in turn would help them in building up confidence to visually express themselves.

Using the prescribed model, the imagination, and desire of the art student to invent is likely to increase. Their designs and configurations therefore would become more exciting. But the success of it lies on the art teacher if the art teacher cares.

### REFERENCES

- Aaronson, B.S. (1972). "Colour Perception and Effect." *Amer. J. Clin Hyp.* 14, 38-43.
- Adeyanju, S.A. (1987): Effect of colour depth perception on motor performance. *Journal of Health and Physical Education Communications*. Vol. 1. pp. 70-81.
- Adeyanju, S.A. and Adeyanju J.L. (1988) colour preference, discrimination and motor performance of children 7-10 years old. *Journal of Theory and Research in Education*. Vol. 1. No. 1 pp. 64-70.
- Coules, J. (1966). Effect of Photometric Brightness on Judgement of Distance. *Journal of Experimental Psychology* 50, 19-26.
- Dember, W.N. (1960). *The Psychology of Perception*. New York: Holt, Rinehart and Winston Inc.
- Hartley, J. (1978). Quoted in B.S. Aaronson, "Colour, Perception and Effect". *Amer. J. Clin. Hyp.*, 14, 38- 43.
- Martindale, E. (1981). *Cognition and Consciousness*. The Dorsey Press, Homewood, Illinois.
- Solso, L.R. (1979). *Cognitive Psychology* "Pattern recognition" Harcourt Brace Jovanovich, Inc. p. 51-56.
- Taylor, I.L. and Summer, F.C. (1945) "Actual brightness and distance of individual Colours." When their apparent distance is held constant. *Journal of Psychology*, 19, 79-85.
- Kimble, A.G. and Garmery, Norman (1963). *Principles of General Psychology* 2nd Edition. The Ronald Press Company new York. pp. 349-353: