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A STUDY OF COLOR REACTIONS AND PREFERENCES OF CERTAIN SEVENTH AND EIGHTH GRADE STUDENTS

(TITLE)

BY

Gerald Lee Norris

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

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IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

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I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING
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DEPARTMENT HEAD

A STUDY OF COLOR REACTIONS AND PREFERENCES OF CERTAIN SEVENTH AND EIGHTH GRADE PUPILS

A Thesis Presented to
the Department of Art
Eastern Illinois University

In Partial Fulfillment of
the Requirements for the Degree
Master of Science in Education

by
Gerald Lee Norris

August, 1967

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CHAPTER I

Introduction

Purpose of the Study

Since graduation from college, this writer has been interested in the emotional color reactions and color preferences of junior high school age students, particularly seventh and eighth grade students. This interest has been particularly concerned with preferences of the colors which most often appear, the primary pigment colors, red, yellow, and blue along with their medium tints and shades.

This writer through this research study hopes to give some indication of the following:

1. Which of the primary or secondary colors is preferred by the study's population.
2. If the pure pigment color is preferred to tints and shades of a color.
3. What emotional reactions are associated with each of the primary and secondary colors.
4. If there are any significant differences between the preferences for and emotional reactions to color of students who have studied color and of students who have not studied color.

Statement of the Problem

The purpose of this investigation, then, is to develop a possible method for determining the color preferences and emotional reactions to color of certain seventh and eighth grade students.

Definitions of Terms

In this study, the terms primary colors will refer to the pigment

colors of red, blue, and yellow, and secondary colors will refer to the pigment colors of orange, green, and violet. Tint will refer to a color to which white has been added, the resulting color being lighter than the initial color. The term, shade, refers to a color to which black has been added with the resulting color being darker than the initial color. Hue will refer to the pure colors in the primary and secondary groups. The study will refer to color preferences meaning color preferences selected from a limited number of colors presented to the population.

The emotions presented to the population from which they may select will consist of the following as defined by Webster: (18)

1. Hate--to dislike intensely; to detest
2. Fear--a feeling of dread; alarm; fright; anxious concern; worry
3. Sadness--the condition, quality, or fact of being sad; affected with or expressive of grief or unhappiness
4. Coolness--moderately cold; lacking warmth
5. Anger--showing a strong feeling of displeasure and, usually, hostility aroused by a sense of injury or insult; wrath; ire
6. Love--a strong liking; deep interest
7. Happiness--a condition of well-being, with good health and freedom from cares and worries
8. Warmth--strong feeling, as of enthusiasm
9. Friendliness--kindly disposed; amicable; not hostile
10. Madness--condition on instance of being mad; lunacy; also, folly or rage

In the study, population will refer to seventh and eighth grade pupils of the Community Unit #2 Junior High School of Robinson, Illinois.

Review of the Literature

From the review of literature for this study, this writer will describe established color preferences and emotional reactions to color and indicate some emotional characteristics of junior high students.

Maitland Graves stated in The Art of Color and Design (10:401) that although such things as line, direction, shape, size, texture, value, and contrast have an effect on an individual's color preferences, normally, red is the most favored color with blue the second most favored, followed

by violet, green, orange, and yellow. Graves goes on to say that red is the most popular color with women, and blue the most popular with men. Some investigators reported that women are generally more sensitive to color than men with the fact that ten times more men are color blind than women having some bearing on this. Graves says also, that pure colors are preferred to shades and tints when used in a small area.

Graves indicated that the color preferences of junior high school age students would vary only slightly from those of adults. The basic differences indicated in this report would be in the areas of general physical and emotional development.

The duPont Color Conditioning Report No. 3, Emotional Reactions to Color, (5:2) divides the emotional reactions to color into three categories: exciting, tranquil, and subduing. This report states:

> Emotional reactions of color have been studied by psychologists; while temperaments of people vary in likes and dislikes, there is a consistent pattern in color reaction when many people are observed. Warm colors are usually stimulating and cool colors, usually subduing.

DuPont found that the most exciting colors are red-orange, red, and orange. They found that greenish blues are more compelling than ultramarine or purplish hues. They also found the most subduing colors to be blue-violet, violet, and blue. Tranquil effects are predominantly in yellow-green, green, and blue-green. The duPont report states that greens are not more comfortable to one's eyes, but that green, being "nature's color", does offer a psychological comfort.

Maitland Graves (10:399) states that "it is a well-known fact that color affects powerfully the mood of people and that most people have the same reactions to colors, although there are, of course, early associations and prejudices." This seems to indicate that ideas and experiences can

modify emotional reactions to color but that this is not the chief cause of color reaction.

Individual sensitivity to color varies, starting from color blindness to the super sensitive person whose color sense is as acute as taste, smell, and hearing. Graves says, "this has been proven by responses of children, who are usually ignorant of color symbolism and who have had few experiences associated with color."

In the duPont Color Conditioning Report No. 8, Color and Visibility, (8:3) it states that bright colors and, particularly yellow have the highest visibility. The report goes on to say that red and red-orange have the highest attention value. The report lists the most conspicuous color combinations in the following order: black on yellow, green on white, red on white, and black on white. This report states that almost any combination can be readily seen providing that extreme darkness is contrasted against extreme lightness.

Warmth and Coolness in Color, duPont Color Conditioning Report No. 4, (6:3) describes the quality of warmth and coolness in color as more "psychological than physical in nature." The report states that, in a study, it was found that people looked upon red, orange, and yellow as warm, and upon green, blue, and violet as cool colors, with yellow-green as the neutral point. This report mentions that one authority found the warmest color to be red-orange.

Graves (10) lists some characteristics and symbolism of color in The Art of Color and Design. Yellow is sacred in China and in European Christanity, but to others it means treachery and deceit. Yellow is the most luminous of all colors, least popular in darker tones, and is symbolic of the sun.

The color, red, is the strongest chroma, is positive, agressive and exciting, most popular with women, and was the first color designated in primitive languages. Red is symbolic of primitive emotions and passions and associated with rage, strife, danger, courage, virility, and sex. China uses red in the marriage ceremony. Red is said to be stimulating and exciting, but too much red seems to fatigue the viewer.

The color, violet, is symbolic of richness, is pompous, stately, and impressive. It combines the characteristics of red and blue, that is, the courage and virility of red and the spirituality of blue. Violet is the color of royalty and is cool, negative, and retiring. Violet is melancholy and, in religious symbolism, devotes penitence of the saints.

Blue is calm, serene, passive and tranquil. It has a religious symbolism of sincerity, hope and serenity. Fidelity and aristocracy are also denoted by blue.

The color, green, is known as cool, serene, passive, and has a neutral emotional effect. The color is said to be more passive than active and is considered the most restful color. Green is called the "Catholic color" and, in religion, represents faith, immortality and contemplation and is also symbolic of Easter. Green shows freshness, rain, youth and immaturity. The green olive branch is also the symbol of peace.

Black, white, and gray, although not colors, are capable of producing moods. White is positive and stimulating as compared to black and gray. It is luminous, airy, light, and delicate and the symbol of purity, chastity, innocence, and truth. In China, the color shows mourning and bereavement. The white flag is also a sign of truce or surrender.

Middle gray takes on the characteristics of both white and black. It has the richness lacking in white and is depressing. Middle gray is

symbolic of sedate and sober old age and shows passive resignation and humility.

Black is subdued, depressing, solemn, and profound. It is symbolic in the western world of sorrow, gloom, and death. Black protrays secrecy, terror, and evil and when used with white shows formality.

In describing junior high school students and some of their mannerisms and attitudes, this study will rely heavily on the information published by the National Art Education Association and entitled, Art Education in the Junior High School. (16:19) Junior high school students in this study will mean seventh and eighth grade students of approximately twelve to thirteen years of age for the seventh grade subjects and approximately thirteen to fourteen years of age for the eighth grade subjects.

The NAEA report indicates that all children do not necessarily become adolescents at twelve and young adults at the age of sixteen, but that the growth process varies from individual to individual. This is also particularly true in relation to the growth process of boys versus girls. The process for boys, in general, is slower than that for girls.

At the junior high school level, the student is undergoing unique body changes because of puberty. There are also intellectual, social, and psychological changes that accompany these body changes.

The study indicates, at age twelve, the adolescent is vigorous, assertive and energetic, but for all of this, he has periods of leisureliness. His body development varies. His enthusiasm can become so strong that it overcomes him and he will rush into things that interest him, and become so boisterous and excited he may loose self-control. He maintains close group identification and resists being different. He

likes himself as he is, and he likes things as he and his friends do them. The sexes remain separated. Both boys and girls are anxious for new experiences and they show strong emotional reactions.

The NAEA publication also indicates characteristics for the thirteen year old age group. At this age, children are in a stage of momentous transitions and need sympathetic understanding. Both sexes are becoming rapidly more mature physically. Stamina and energy are variable and moods change quickly. There is a tendency to withdraw, and they are no longer spontaneous and communicative and are more discriminating.

In contrast to these periods of withdrawal, the child may become extremely busy and will not have enough time in the day to do everything important to him. He also has new found intellectual powers and thinks about his future and career. A child in this age group wishes to compete in areas where he feels he has special abilities. He has a tendency to worry about himself and is more conscious of his personal appearance.

The fourteen year old, according to the NAEA report, becomes better oriented to his environmental peers than other adolescents. The girls have usually become physically mature but the boys are in a transitional stage. This age child is more self-reliant and carefree. He has good command of language and ideas, and, being less defensive, he can talk freely and listen well. He can even bear to be wrong at times. His attitude toward adults is a little more mature--he can become interested in other people as individuals.

This study of emotional reactions to color and of color preferences of the junior high school students of Robinson, Illinois, may reinforce already accepted color reactions and symbolisms, or it may indicate new reactions to color and new color meanings.

Organization of the Remainder of the Study

In the following chapter, this writer describes the composition of the test which was given to a select group of junior high school age students and some factors regarding the students which were relevant to the test. The procedure for administrating the test is also presented in this chapter.

In the third chapter, the test data is analyzed and interpreted. The fourth chapter is a summary of the data and the conclusions drawn from this study.

CHAPTER II

Procedure

Description of the Test

The method devised to test color preferences and reactions of the subjects was originated by the writer to test only the preferences and reactions to the primary and secondary colors and to a medium shade and tint of each.

Each of the colors was displayed on white and black backgrounds. This made a total of six testing agents for each color as follows:

1. the medium shade on black
2. the shade on white
3. the pure color displayed on black
4. the pure color on white
5. the mediumtint on a black background
6. the medium tint on a white background

The test consisted of a total of 36 color combinations.

A set of colors in this test indicates the three tones of one color on one of the backgrounds, such as, red tint, red, and red shade on a white background. There are six sets of colors for each of the two backgrounds. The colors were displayed as five inch circles glued to ten inch squares of posterboard.

An answer sheet was devised which listed the sets of colors with space for preference and emotional reaction.

A large chart was constructed with ten emotions listed in numerical order as follows:

1. fear
2. love
3. hate
4. warmth
5. sadness
6. happiness
7. anger
8. coolness
9. friendliness
10. madness

These ten emotions were selected because it was felt that they were emotions with which junior high school students could identify most easily. There was also an attempt made to select, in equal quantity, positive and negative emotions.

Plan of the Experiment

The method of procedure for this study was as follows:

I. The groups.

A. Three hundred and twenty-six students of junior high school age were tested. Of the students, two hundred and seventy-five had only a limited grade school art background and were considered the non-art group.

B. Fifty-one of the students had a junior high school art background and were called the art group.

II. Treatment of the data.

The color preferences and emotional reactions to color of the groups were compared by percentages.

III. Conclusions.

The conclusions drawn were based on test data.

Description of the Population

Three hundred and twenty-six junior high school students in the Robinson, Illinois, school were the subjects for the investigation. These students are from a small community in a basically rural area. Robinson, a town of about 8,000, is economically based on agriculture and the oil

industry. A large oil refinery is located there along with a variety of small factories, including the home office of the Heath Candy Company. The economic, social, intellectual, and cultural variety of the students' backgrounds is great.

In order to obtain more data about the students which might have an influence on their reactions to and preferences of colors, the students completed an information sheet. This sheet elicited data regarding the student's art education specifically relating to the study of color, information regarding the parents' age, education and occupation, and information regarding the students' cultural activities.

From this information, it was determined that most of the subjects had had some art training in grade school. Art in the grades in Robinson is taught for the most part by the class room teachers. There were fifty-one subjects who have had junior high school art which in Robinson is a one semester course taught by a qualified art instructor. The course includes a unit on the study of color. Eighteen per cent of the subjects previously had attended schools other than Robinson.

From the information specifically regarding the study of color, it was found that the students who had had art in junior high, and, hereafter, referred to as the art group, were acquainted with and understood color mixing, intensity and value, and associated emotions with color.

Due to the size of the group involved, no further work was done with the factors regarding the parents' backgrounds in completing the test results, and, for this reason, these factors will not be discussed in detail now or later in the study.

In regard to the students' cultural activities, it was found that within the past year, 97% had attended a movie, 64% a musical concert,

27% a play, and 13% an art show. These percentages are undoubtedly due, to a large degree, to the proximity of these cultural activities. There are several movie theaters in the Robinson area and the schools in the area present several musical concerts and plays each year. There are, perhaps, two very small art shows in the area per year. The closest art gallery is 45 miles away in Terre Haute, Indiana.

Of the three hundred and twenty-six students, 48 indicated there were color TV sets in their homes. The students ranged in age from 11 to 16 years with 13 years the mean age. According to sex, there were 148 females and 178 males.

Administration of the Test

The subjects were asked to indicate on the answer sheet which of the three colors of a set they preferred and to indicate this on their answer sheet. Besides the color they preferred, the subjects were asked to indicate the emotions this color portrayed to them. The subjects selected, from the chart listing the ten emotions, the emotions coinciding most closely to the emotions the color portrayed to them. The same procedure was then used for all six color sets on both the black and white backgrounds.

One minute intervals were used between the showing of each set of colored shapes. The same explanation was given to all subjects and the subjects were asked not to discuss or talk over any of their answers. Due to the large number of students, all were tested at one time en masse.

At the bottom of the answer sheet, each subject was asked to indicate which color he liked best and to indicate the emotion it portrayed. He

was also asked to indicate which color he liked least and which emotion it portrayed.

CHAPTER III

Data and Analysis of Data

From the raw statistics contained in the answer sheets, the color preferences and emotional reactions to color of the art and non-art groups were tabulated and compared by percentages.

Color Preferences

Tables I and II show the students' preferences, by per cent, for the colors on the white and on the black backgrounds. There were found to be no significant differences in the color preferences between the art and non-art groups.

Tables III and IV show the students' preferences, by per cent, for a single color preferred the most on each of the two backgrounds, and Tables V and VI show the single color preferred least on each of the backgrounds. Rank of the single color preferred most by the art and non-art groups is indicated in Table VII and rank of the color least preferred is shown in Table VIII.

These tables indicate that both groups preferred the pure colors rather than tints or shades. This correlates with Graves' statement described in Chapter I regarding color preferences. Also, the tints may have been preferred less because they were more difficult to see.

Both the art and non-art groups preferred blue first, red second, and as the next pure color, violet. This writer wonders if the preference

TABLE I

STUDENTS' PREFERENCES ON WHITE

Color	Non Art Group	Art Group
Red tint	19%	19%
Red	70%	64%
Red shade	11%	17%
Yellow tint	29%	19%
Yellow	54%	58%
Yellow shade	17%	23%
Blue tint	32%	31%
Blue	55%	50%
Blue shade	13%	19%
Orange tint	17%	15%
Orange	74%	70%
Orange shade	9%	15%
Green tint	17%	17%
Green	66%	64%
Green shade	17%	19%
Violet tint	42%	45%
Violet	41%	46%
Violet shade	17%	9%

TABLE II

STUDENTS' PREFERENCES ON BLACK

Color	Non Art Group	Art Group
Red tint	20%	19%
Red	69%	72%
Red shade	11%	8%
Yellow tint	17%	9%
Yellow	71%	85%
Yellow shade	12%	6%
Blue tint	28%	33%
Blue	62%	59%
Blue shade	10%	8%
Orange tint	17%	20%
Orange	70%	65%
Orange shade	13%	15%
Green tint	19%	13%
Green	68%	66%
Green shade	13%	21%
Violet tint	48%	41%
Violet	38%	42%
Violet shade	14%	17%

TABLE III

SINGLE COLOR PREFERENCES ON WHITE

Color	Non Art Group	Art Group
Red tint	1.8%	--
Red	15.2%	9.0%
Red shade	1.4%	4.0%
Yellow tint	2.1%	4.0%
Yellow	1.8%	4.0%
Yellow shade	--	1.9%
Blue tint	10.0%	7.9%
Blue	17.8%	13.7%
Blue shade	.3%	1.9%
Orange tint	--	--
Orange	.3%	1.9%
Orange shade	--	--
Green tint	.3%	--
Green	2.5%	4.0%
Green shade	--	--
Violet tint	4.3%	7.9%
Violet	2.5%	--
Violet shade	.3%	--

TABLE IV

SINGLE COLOR PREFERENCES ON BLACK

Color	Non Art Group	Art Group
Red tint	1.4%	1.9%
Red	8.4%	--
Red shade	1.4%	--
Yellow tint	.7%	1.9%
Yellow	2.9%	4.0%
Yellow shade	.4%	--
Blue tint	2.1%	1.9%
Blue	9.8%	4.0%
Blue shade	1.0%	1.9%
Orange tint	.4%	--
Orange	.7%	1.9%
Orange shade	--	1.9%
Green tint	.4%	1.9%
Green	.4%	4.0%
Green shade	--	--
Violet tint	4.0%	5.9%
Violet	2.5%	5.9%
Violet shade	.7%	1.9%

TABLE V

SINGLE COLOR PREFERRED LEAST ON WHITE

Color	Non Art Group	Art Group
Red tint	--	--
Red	1.4%	--
Red shade	1.0%	--
Yellow tint	.7%	4.0%
Yellow	3.2%	--
Yellow shade	.7%	--
Blue tint	.4%	--
Blue	--	--
Blue shade	--	--
Orange tint	1.8%	4.0%
Orange	5.8%	--
Orange shade	3.2%	1.9%
Green tint	1.0%	--
Green	2.9%	--
Green shade	2.5%	--
Violet tint	.4%	--
Violet	1.0%	--
Violet shade	1.4%	--

TABLE VI

SINGLE COLOR PREFERRED LEAST ON BLACK

Color	Non Art Group	Art Group
Red tint	.7%	4.0%
Red	1.0%	1.9%
Red shade	1.0%	1.9%
Yellow tint	.4%	5.9%
Yellow	1.8%	--
Yellow shade	--	5.9%
Blue tint	2.1%	--
Blue	--	--
Blue shade	--	--
Orange tint	4.3%	11.7%
Orange	14.9%	15.7%
Orange shade	11.2%	4.0%
Green tint	2.1%	4.0%
Green	16.5%	5.9%
Green shade	5.8%	7.9%
Violet tint	1.4%	4.0%
Violet	8.0%	5.9%
Violet shade	9.8%	11.7%

TABLE VII

RANK OF SINGLE COLOR PREFERENCES

Non Art Group		Art Group	
Blue on white	—1 (17.8%)	Blue on white	—1 (13.7%)
Red on white	—2 (15.2%)	Red on white	—2 (9.0%)
Blue on black	—3 (9.8%)	Blue tint on white	—3 (7.9%)
Red on black	—4 (8.4%)	Violet tint on white	—3 (7.9%)
Violet tint on white	—5 (4.3%)	Violet tint on black	—4 (5.9%)
Violet tint on black	—6 (4.0%)	Violet on black	—4 (5.9%)
Yellow on black	—7 (2.9%)	Red on white	—5 (4.0%)
Green on white	—8 (2.5%)	Yellow tint on white	—5 (4.0%)
Violet on white	—8 (2.5%)	Yellow on white	—5 (4.0%)
		Green on white	—5 (4.0%)
		Yellow on black	—5 (4.0%)
		Blue on black	—5 (4.0%)
		Green on black	—5 (4.0%)

TABLE VIII

RANK OF SINGLE COLOR PREFERRED LEAST

Non Art Group		Art Group	
Green on black	—1 (16.5%)	Orange on black	—1 (15.7%)
Orange on black	—2 (14.9%)	Orange tint on black	—2 (11.7%)
Orange shade on black	—3 (11.2%)	Violet shade on black	—2 (11.7%)
Violet shade on black	—4 (9.8%)	Green shade on black	—3 (7.9%)
Violet on black	—5 (8.0%)	Green on black	—4 (5.9%)
Green shade on black	—6 (6.8%)	Violet on black	—4 (5.9%)
Orange on white	—7 (5.8%)	Yellow tint on black	—4 (5.9%)
Yellow on white	—8 (3.2%)	Yellow shade on black	—4 (5.9%)
Orange shade on white	—8 (3.2%)	Red tint on black	—5 (4.0%)
Green on white	—9 (2.9%)	Orange shade on black	—5 (4.0%)
Green shade on white	—10 (2.5%)	Green tint on black	—5 (4.0%)
		Violet tint on black	—5 (4.0%)
		Yellow tint on black	—5 (4.0%)
		Orange tint on black	—5 (4.0%)

for violet could be somewhat unique to this age group, which places such emphasis on conforming to peer group values, since violet is, at times, something of a "fad." However, Graves ranks violet as third in preference too.

These colors were predominately preferred on white backgrounds. This would seem to bear out Graves' statement in Chapter I that white is considered positive and stimulating, while black is regarded as negative and depressing. (10:407)

The preferences for a single color least preferred were found to be more scattered in both the art and non-art groups. The non-art group preferred green least, then orange, and finally violet, while the art group preferred orange least, next violet, followed by green, and last, yellow. All these preferences were on the black backgrounds.

Emotional Reactions

Tables IX and X show the most prevalent emotional reactions to colors on each of the backgrounds by the art group. The most predominate colors and emotional assocations on white for the art group were as follows: red--love (37%), yellow tint--warmth (45%), blue tint--coolness (50%), orange tint--coolness (50%), green shade--fear (40%), and violet shade--madness (60%). Also, for the art group, the most predominate color and emotional association, on black, were as follows: red shade--madness (40%), yellow shade--happiness (66%), blue tint--coolness (29%), orange shade--madness (37%), green shade--sadness (54%), and violet tint--love (28%).

TABLE IX

MOST PREVALENT EMOTIONAL REACTIONS OF ART GROUP TO COLORS ON WHITE

Red tint	Warmth	30%
	Coolness	20%
	Friendliness	20%
Red	Love	37%
	Anger	22%
	Fear	18%
Red shade	Fear	22%
	Love	22%
	Hate	22%
	Warmth	22%
Yellow tint	Warmth	45%
	Coolness	36%
	Happiness	18%
Yellow	Happiness	28%
	Warmth	26%
	Friendliness	10%
Yellow shade	Happiness	25%
	Hate	16%
	Warmth	16%
Blue tint	Coolness	50%
	Love	18%
	Sadness	12%
	Happiness	12%
Blue	Coolness	25%
	Friendliness	25%
	Love	17%
Blue shade	Sadness	30%
	Love	20%
	Madness	10%
Orange tint	Coolness	50%
	Fear	12%
	Hate	12%
	Warmth	12%
	Anger	12%
Orange	Warmth	20%
	Friendliness	20%
	Sadness	11%

TABLE IX--Continued

MOST PREVALENT EMOTIONAL REACTIONS OF ART GROUP TO COLORS ON WHITE

Orange shade	Sadness	37%
	Anger	25%
	Fear	12%
	Warmth	12%
	Friendliness	12%
Green tint	Coolness	33%
	Friendliness	33%
	Hate	22%
Green	Hate	18%
	Coolness	16%
	Friendliness	16%
	Happiness	10%
	Anger	10%
	Madness	10%
Green shade	Fear	40%
	Hate	20%
	Sadness	20%
Violet tint	Love	30%
	Warmth	13%
	Sadness	13%
	Coolness	13%
	Madness	13%
Violet	Fear	18%
	Love	18%
	Madness	18%
	Anger	13%
Violet shade	Madness	60%
	Anger	20%
	Friendliness	20%

TABLE X

MOST PREVALENT EMOTIONAL REACTIONS OF ART GROUP TO COLORS ON BLACK

Red tint	Fear	30%
	Love	20%
	Hate	10%
	Sadness	10%
	Anger	10%
	Madness	10%
Red	Hate	32%
	Fear	16%
	Hate	16%
	Anger	13%
Red shade	Madness	40%
	Love	20%
	Coolness	20%
	Fear	20%
Yellow tint	Warmth	60%
	Happiness	20%
	Coolness	20%
Yellow	Warmth	16%
	Coolness	16%
	Friendliness	11%
	Hate	9%
Yellow shade	Happiness	66%
	Friendliness	33%
Blue tint	Coolness	29%
	Love	18%
	Warmth	18%
	Sadness	18%
Blue	Coolness	20%
	Fear	13%
	Anger	10%
	Friendliness	10%
Blue shade	Fear	25%
	Love	25%
	Anger	25%
	Friendliness	25%
Orange tint	Anger	20%
	Madness	20%
	Fear	10%
	Hate	10%
	Happiness	10%
	Coolness	10%
	Friendliness	10%

TABLE X--Continued

MOST PREVALENT EMOTIONAL REACTIONS OF ART GROUP TO COLORS ON BLACK

Orange	Hate	15%
	Madness	15%
	Fear	12%
	Warmth	12%
	Sadness	12%
	Anger	12%
Orange shade	Madness	37%
	Warmth	25%
	Fear	12%
	Hate	12%
	Sadness	12%
Green tint	Coolness	33%
	Hate	25%
	Happiness	25%
Green	Sadness	25%
	Fear	14%
	Hate	10%
	Anger	10%
	Madness	10%
Green shade	Sadness	54%
	Fear	18%
	Love	9%
Violet tint	Love	28%
	Sadness	19%
	Coolness	14%
Violet	Love	19%
	Sadness	19%
	Coolness	14%
	Hate	9%
	Happiness	9%
Violet shade	Fear	22%
	Love	11%
	Hate	11%
	Warmth	11%
	Sadness	11%
	Anger	11%
	Madness	11%
	Friendliness	11%

This writer considered the emotions of love, warmth, happiness, and friendliness as positive emotions, and fear, hate, sadness, anger, coolness, and madness as negative emotions. These were the ten emotions listed on the chart from which the subjects could choose. For the colors on white, the group selected 47% positive emotions and 53% negative emotions. For the colors on black backgrounds, they selected 34% positive emotions and 66% negative emotions. There seemed to be a definite indication, three out of four, of associating the shades with the negative emotions.

Tables XI and XII deal with the most prevalent emotional reactions to colors on each background by the non-art group. Most predominate colors and emotional associations for the non-art group on white were as follows: red tint--warmth (33%), yellow tint--coolness (28%), blue tint--coolness (43%), orange shade--hate (27%), green tint--coolness (30%), and violet shade--madness (18%). Also for the non-art group, the most predominate colors and emotional associations on black were as follows: red--hate (31%), yellow shade--coolness (34%), blue tint--coolness (25%), orange shade--madness (46%), green shade--sadness (25%), violet shade--hate (30%).

For the colors on white backgrounds, the non-art group selected 39% positive emotions and 61% negative reactions. For the colors on black backgrounds, they selected 26% positive reactions and 74% negative reactions. Here again, the shades were predominately associated with negative emotions. Perhaps the reason the students selected more negative emotions in association with the colors could be due to the uncertainties and ambivilant feelings of children of this age group.

TABLE XI

MOST PREVALENT EMOTIONAL REACTIONS OF NON-ART GROUP TO COLORS ON WHITE

Red tint	Warmth	33%	Yellow shade	Coolness	35%
	Love	18%		Hate	14%
	Friendliness	13%		Warmth	12%
Red	Love	27%	Blue tint	Coolness	43%
	Anger	24%		Sadness	20%
	Warmth	10%		Friendliness	13%
Red shade	Madness	21%	Blue	Coolness	30%
	Hate	15%		Sadness	15%
	Anger	15%		Love	11%
				Friendliness	11%
Yellow tint	Coolness	28%			
	Warmth	23%	Blue shade	Sadness	18%
	Happiness	13%		Coolness	18%
				Madness	16%
Yellow	Coolness	25%			
	Warmth	23%	Orange tint	Sadness	19%
	Fear	18%		Friendliness	15%
	Happiness	18%		Warmth	10%
				Happiness	10%

TABLE XI--Continued

MOST PREVALENT EMOTIONAL REACTIONS OF NON-ART GROUP TO COLORS ON WHITE

Orange	Friendliness	15%
	Warmth	15%
	Hate	11%
	Madness	10%
	Fear	10%
Orange shade	Hate	27%
	Madness	22%
	Anger	15%
Green tint	Coolness	30%
	Sadness	14%
	Friendliness	10%
Green	Coolness	29%
	Friendliness	11%
	Sadness	9%
	Happiness	9%
Green shade	Coolness	19%
	Madness	19%
	Fear	17%
Violet tint	Happiness	15%
	Sadness	12%
	Coolness	10%
Violet	Love	14%
	Warmth	13%
	Coolness	11%
	Sadness	11%
Violet shade	Madness	18%
	Hate	17%
	Sadness	17%

TABLE XII

MOST PREVAIENT EMOTIONAL REACTIONS OF NON-ART GROUP TO COLORS ON BLACK

Red tint	Love	30%	Blue tint	Coolness	25%
	Happiness	18%		Love	18%
	Anger	10%		Friendliness	16%
Red	Hate	31%	Blue	Coolness	18%
	Anger	18%		Madness	14%
	Fear	15%		Love	13%
Red shade	Hate	25%	Blue shade	Fear	18%
	Anger	18%		Hate	15%
	Madness	18%		Sadness	15%
				Friendliness	15%
Yellow tint	Coolness	23%			
	Happiness	17%	Orange tint	Sadness	15%
	Fear	15%		Anger	15%
				Hate	12%
Yellow	Warmth	19%		Friendliness	12%
	Coolness	17%			
	Happiness	15%	Orange	Hate	14%
				Warmth	12%
Yellow shade	Coolness	34%		Anger	12%
	Love	14%		Madness	12%
	Sadness	14%		Fear	11%

TABLE XII--Continued

MOST PREVAIENT EMOTIONAL REACTIONS OF NON-ART GROUP TO COLORS ON BLACK

Orange shade	Madness	46%	Violet tint	Sadness	15%
	Anger	17%		Love	14%
	Hate	14%		Coolness	14%
Green tint	Coolness	24%	Violet	Love	18%
	Sadness	13%		Madness	13%
	Madness	9%		Sadness	12%
Green	Sadness	17%	Violet shade	Hate	30%
	Coolness	17%		Anger	24%
	Madness	13%		Love	13%
Green shade	Sadness	25%			
	Fear	17%			
	Hate	17%			

CHAPTER IV

Summary and Conclusions

Restatement of the Problem

The problem undertaken in this study was to develop a possible method for the determination of color preferrences and emotional reactions to color of certain seventh and eighth grade students. This writer has realized that this study will only establish an indication of color preferences and emotional reactions to color.

Summary of the Procedure

The testing instrument was developed by the writer after consideration of how best to display the colors and the emotions to the subjects *en masse*. The color shapes needed to be large enough to be viewed from distances and to be elevated so that all subjects would be allowed a clear view of each color. The testing device consisted of thirty-six total color combinations. A set of colors contained three tones of one color on one of the two backgrounds. The answer sheet was constructed so that each set was listed with a space for preference and emotional reaction. The ten emotions were listed on a large chart for easy viewing.

Three hundred and twenty-six junior high school age students were tested. Two hundred and seventy-five were students without junior high art training and were considered the non-art group, while fifty-one

students with junior high art training were considered the art group. The total population of three hundred and twenty-six were junior high school students in Robinson, Illinois. The students were from a rural area with a wide variety of backgrounds.

The subjects completed an information sheet to furnish data relating to their art education, specifically to the study of color. This information sheet showed that most students had had some elementary art training taught almost entirely by the classroom teacher. The fifty-one students, known as the art group, were taught art in junior high by a qualified art teacher. These students generally had a higher degree of color understanding in areas of mixing, intensity and value, and indicated that they associated emotion with color more often than those subjects without art training.

The students were asked to check on the answer sheet which one of the three colors in a set they preferred. Next to the color they selected, they indicated the emotion, from the chart, that this color portrayed to them. The same procedure was used for each of the six color sets on both the black and white backgrounds. At the bottom of the answer sheet, the subjects indicated which color was liked best and the emotion protrayed and the color liked least and the emotion it suggested.

Summary of the Data

The data showed that there were no significant differences in color preferences of the art and non-art group on the white and on the black backgrounds and that both groups preferred the pure colors.

Both groups preferred blue first, red second, and violet third. These preferences correlated with Maitland Graves' findings in his book, The Art of Color and Design.(10) The choice for a single color preferred least was found to be too varied to be significant in both groups.

In regard to the emotions associated with the colors, it was found that, from the emotions listed, the art group selected nearly equal numbers of positive and negative emotions when associated with the colors displayed on the white backgrounds, while the non-art group selected negative emotions at a ratio of two to one. From the colors displayed on black backgrounds, both groups selected negative emotions at a ratio of three to one.

Conclusions

From the information gathered and presented as the data of this study, the following conclusions were reached about the test used and the population studied.

1. The test used does indicate the color preferences and the emotional reactions to color of the junior high students tested. The test validity is limited to the colors and reactions selected by the writer. The writer, however, feels that the test is valid within these limitations.

2. This study bears out other studies which indicate there are predictable preferences for color and emotional reactions to color.

3. The study shows that the primary colors were more favored than the secondary colors. The predominate emotion associated with blue was coolness, and, with red, love.

4. Pure colors were preferred to tints and shades of the same hue, especially by subjects with little experience in the study of color.

5. The colors used in the test were preferred more when displayed on the white background than when shown on the black background.

6. The students with art training in the study of color were more sensitive to subtle changes in color than students without such training. However, there were no significant differences in the color preferences of the art and non-art groups.

Recommendations for Further Study

1. A study separating the sexes by specific age groups would be an area where differences between faster physical development of the girls and the slower physical maturing of the boys would provide a more finite division of the results.

2. The development of more colors and emotional reactions to be included in the test might give further division of sensitivity of the tested population.

3. A study using the same test but testing both younger subjects and older subjects could provide a predictable chart of the development of color preferences and reactions for childhood through adulthood. Variations in reactions and preferences at any age might than be investigated for a cause.

4. A detailed study of environment, both at home and at school, of each subject tested would give the writer more information as to why a color is preferred or why a particular emotional reaction given.

5. A more extensive study could be made to learn the degree of sensitivity to expect from the art and non-art students, and to provide a scale of predictability.

BIBLIOGRAPHY

1. Allison, Rosalie Newton. "Children's Concepts of Form in Relationship to Selected Variables." Ann Arbor, Michigan: University Microfilms, Inc., 1964.

2. Birren, Faber. Color, Form and Space. New York: Reinhold Publishing Corporation, 1961.

3. _____. Creative Color. New York: Reinhold Publishing Corporation, 1961.

4. DuPont Color Conditioning Report No. 1. Brightness Engineering. Wilmington, De aware: E. I. duPont de Nemours and Co., Inc.

5. _____. No. 3. Emotional Reaction to Color. Wilmington, Delaware: E. I. duPont de Nemours and Co., Inc.

6. _____. No. 4. "Warmth" and "Coolness" in Color. Wilmington, Delaware: E. I. duPont de Nemours and Co., Inc.

7. _____. No. 8. Color and Visibility. Wilmington, Delaware: E. I. duPont de Nemours and Co., Inc.

8. _____. No. 9. Size, Dimension and Weight in Color. Wilmington, Delaware: E. I. duPont de Nemours and Co., Inc.

9. _____. No. 10. Attention through Brightness. Wilmington, Delaware: E. I. duPont de Nemours and Co., Inc.

10. Graves, Maitland. The Art of Color and Design. New York: McGraw-Hill Book Co., Inc., 1951.

11. Johnson, Bettye Underwood. "A Study of Color in the Classroom Environment." Ann Arbor, Michigan: University Microfilms, Inc., 1962.

12. Kainz, Luise C. and Riley, Olive L. Exploring Art. New York: Harcourt, Brace and Co., 1948.

13. Keiler, Manfred. The Art in Teaching Art. Lincoln: University of Nebraska Press, 1961.

14. Lolly, Ann M. (ed.) Art Education in the Secondary School. Washington: The National Art Education Association, 1961.

15. Lowenfeld, Viktor. Creative and Mental Growth. New York: The Macmillan Co., 1959.

16. Michael, John A. (ed.) Art Education in the Junior High School. Washington: The National Art Education Association, 1964.

17. Reed, Carl. Early Adolescent Art Education. Peoria, Illinois: Charles A. Bennett Co., Inc., 1957.

18. Webster. New Collegiate Dictionary. Springfield, Massachusetts: G. and C. Merriam Co., 1959.