COLOR PREFERENCES AS RELATED TO
SOCIAL INTROVERSION-EXTROVERSION FOR A SELECTED SAMPLE
OF COLLEGE WOMEN HOME ECONOMICS STUDENTS

A thesis submitted in partial satisfaction of the requirements for the degree of Master of Science in
Home Economics

by

Daisy Pauline Stringer

August, 1971
The thesis of Daisy Pauline Stringer is approved:

San Fernando Valley State College

August, 1971
This thesis is dedicated to

Dr. Marjory L. Joseph

in appreciation for her many suggestions,
rare patience, and understanding.
ACKNOWLEDGMENTS

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To the author's family goes a tribute of deepest gratitude for their understanding and encouragement at times most needed.
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ABSTRACT

COLOR PREFERENCES AS RELATED TO
SOCIAL INTROVERSION-EXTROVERSION FOR A SELECTED SAMPLE
OF COLLEGE WOMEN HOME ECONOMICS STUDENTS

by

Daisy Pauline Stringer

Master of Science in Home Economics

August, 1971

The Omnibus Personality Inventory, Form F, by Paul
Heist and George Yonge was administered to 100 college stu-
dents to determine the personality characteristics of
introversion-extroversion. The results were analyzed in
relation to responses to color preferences. The colors
consisted of the primary, secondary, and tertiary colors
in full intensity.

No significant differences occurred in relation to
color preferences and introversion-extroversion. Combined
first, second, and third choices of warm colors as pre-
ferred colors were selected by 47 per cent of the intro-
verts while 49 per cent of the extroverts chose warm
colors. The cool colors selected as first, second, and
third choices combined were preferred by 53 per cent of the introverts and 51 per cent of the extroverts. Differences were not statistically significant.

Research of a number of other investigators indicated different results, showing that introverts preferred cool colors, while extroverts preferred warm colors (20:182). This study has shown that warm colors are more popular with the respondents than has been shown in previous studies.
CHAPTER I

INTRODUCTION

The enjoyment of color is characteristic of all people regardless of race, culture or age. The pleasures and appeal of color are significant forces influencing choices made by man. For many years, and perhaps due to a steady rise in the American standard of living, color has come into its own. The nation is no longer merely color-conscious; it has become almost completely color-minded according to Faber Birren. "Not only does it call for color in virtually everything it buys, but it has gained substantial income to indulge in its fancies" (5:15).

The present study was undertaken to determine the relationship which may exist between colors which are preferred and introversion-extroversion personality characteristics. If personality characteristics could be related to color choice, insight into consumer preferences and satisfactions might be increased. Merchants of wearing apparel should benefit from studies of color preferences in predicting probable consumer responses to color.
Information regarding color preferences could be helpful to garment manufacturers and to manufacturers of home furnishings and many other consumer products.

The interior designer should be able to understand the variant color preferences of individuals within a family and thus should benefit from a study of personality and color preference.

Exploration of color preference as related to personality traits could be beneficial to teachers by increasing their insight into student preferences and satisfactions.

Color is closely related to emotion and different personality types are distinguished by various emotions (5:157). Certain broad generalizations may be made despite the countless shades of personality.

The color spectrum is divided into long wave lengths (red, yellow, orange) and short wave lengths (green, blue, violet). The former colors are vibrant, warm, and exciting. The latter colors are retiring, cool, and passive. In a very similar way human beings appear to fall into two distinct groups. Some people prefer vivid colors, usually primitive and "hot" in tone. The psychologists term them "color dominant" personalities who are extroverted in nature. Their chief interests are in the outside world. They are impressionable and social. They have a desire to
be active in the world and to be influenced by what takes place about them (5:160).

The lovers of cool colors (and refinement), on the other hand, have a more detached attitude and are less interested in the world than in themselves. They are introspective, deliberate, and perhaps more attracted to their own inner existence than to the distractions that lie outside their being (5:160).

Studies on color preference have involved statistics on color preference in relation to age, sex, socio-economic level, intelligence, educational level, race, social and biological influence, and certain personality attributes. These studies appear to support hypotheses that these variables are related to color preference. These studies have stimulated interest in color and personality characteristics, and based on this, the following hypotheses were formulated.

Hypotheses

Social introversion and extroversion have an effect on color preference.

Sub-hypotheses: (1) Socially introverted individuals select cool colors.

(2) Socially extroverted individuals select warm colors.
Null Hypothesis: Social introversion and extroversion have no effect on color preference.

Assumptions

1. Color is a source of appeal to everyone.
2. Reliable information can be collected by the testing method used. The Omnibus Personality Inventory, Form F, by Paul Heist and George Yonge was administered to determine the personality characteristics of introversion-extroversion. A color chart of primary, secondary, and tertiary colors in full intensity was used to determine color preferences.

Limitations

1. The study was limited to a selected sample of female home economics students at Moorpark Community College, Moorpark, California.
2. The colors were limited to primary, secondary, and tertiary colors of full intensity.
CHAPTER II

REVIEW OF LITERATURE

Color expressions work their way into language, symbolism, tradition, and superstition. Color conveys moods which attach themselves quite automatically to human feelings because it is part and parcel with the psychic make-up of human beings (3:162).

Nearly all of early color expression concerned mysticism and the enigmas of life and death. Man was not impelled to love color by some aesthetic urge but by the fact that color was involved with the supernatural. Color, being a manifestation of light, held divine meaning. Historical records of color show little interest in the physical nature of color, nor even in its abstract beauty, but in a symbolism that attempted to resolve the strange workings of creation and give it personal and human meaning (3:3).

Belief in the divine healing properties of color pervades all ancient symbolism, religious or otherwise (3:7). Red is the most interesting color used in magic healing.
It is found not only in the lore of ancient medicine but in the superstitions of modern times. Scarlet cloth has been used to stop bleeding for many centuries. Avicenna, a great Arabian philosopher and physician of the eleventh century, dressed and covered his patients with red. The physician to Edward II, to defeat smallpox, demanded that everything about the room be red. Francis I was wrapped in a scarlet blanket for the same affliction (3:55).

Most of the symbolism of color used in healing was very direct. Colors were associated with the color produced by the disease. Yellow cured jaundice because jaundice was yellow. Yellow spiders rolled in butter were English remedies for jaundice. A patient was treated for "gold disease" by drinking wine with a gold piece placed in it. Skins of black animals were applied to the body to relieve rheumatism (3:36).

Color was important to magic and was used to ward off the "evil eye." In the fashioning of amulets the preferred colors were red, blue, yellow, green, and white. Red stones protected their wearers from fire and lightning. Blue and violet stones were associated with virtue and faith. Yellow stones assured happiness and prosperity. Green stones caused fertility in man and beast. White stones averted the "evil eye" and carried with them the
protection of heaven because they were thought to come from heaven (3:31).

In Hebrew and Christian lore, color symbolism is glorified. Blue is the hue of the Lord Jehovah. In Judaism the divine hues are red, blue, purple and white. To the Christian blue is less significant than green and is seldom used in church ritual. The Holy Grail was emerald and according to St. John the Divine, "there was a rainbow round about the throne, in sight like unto an emerald" (3:6).

The American Indian also had color designations for a lower world, which was black, and an upper world of many colors. He related colors to his songs, ceremonies, games, and prayers. Life and death were somehow influenced by them (3:9).

Astrology was devoted to colors for their messages from heaven. The Chinese, for example, felt that green clouds in the sky were omens of a plague of locust. Red clouds meant calamity or warfare and black clouds brought floods. Yellow clouds heralded prosperity (3:11).

The preference for certain colors is influenced by many factors. Color preferences in relation to geographic area, socio-economic status, education, sex, and age have been analyzed in previous studies.
Nearly all investigators have included highly saturated blue, red, green, violet, orange, and yellow among their colors in studies of color preference. Average rankings of color preferences obtained in various experiments totaling 21,060 samples ranked the colors in this order: blue, red, green, violet, orange, yellow (10:391).

A study conducted by Jacquelyn McInnis and Jane Shearer on the relationship between color choice and selected preferences of the individual showed that 70 percent of the total sample chose cool colors, while 29 percent selected the warm colors as their favorite (20:182). The bright-warm colors were listed most often as being disliked, and the dull-warm hues were next in frequency of expression of dislike. The cool-color arrangements were disliked by the smallest number of subjects.

According to the McInnis and Shearer study there is a significant relationship between the geographic area in which a person is reared and color choices. Their data indicates that those who spent their youth in the West or Midwest chose the warm colors in preference to the cool hues and particularly preferred the dull-warm colors. Those who described their home area as having been green and flat definitely favored the cool hues, with emphasis
on the dull-cool hues. Respondents who were reared in green and mountainous areas chose the two cool-color groups with equal frequency (20:184).

Dr. Anspach conducted a study on fashion consciousness of Thai women. It was observed that people in Thailand always wear very bright colors except when they are working. One group member asserted that color preference was inborn in a race and is also influenced by climate. In a tropical climate, such as that of Thailand or Hawaii, most people like bright colors. Bright pink is an all-time favorite with the Thai women. Black is a color enshrouded in superstition in this country and Thai people believe that black is the color of sadness and bad luck (1:269).

Former research has indicated that the higher socio-economic groups chose dull colors in preference to bright colors. Data from the study by McInnis and Shearer indicated that preference for the warm colors was highest in lower classes, in the lower income brackets, and among subjects whose income was derived from weekly wages. Weekly-waged subjects also chose dull colors more often than they chose the bright-colored groups. Monthly salaried subjects preferred the cool colors (21:183).
The older the person, the more highly educated, the higher the socio-economic group, and the more extensive the exposure to color association, the more likely the respondent will choose subtle, strange or off-hues with small contrast. Those who are young, less educated, and in the lower socio-economic levels tend to select color combinations in which variety, intensity, and contrast prevail (21:182). In the McInnis and Shearer study all educational levels chose the cool-color groups more often than the warm hues, although a stronger preference for the cool colors was evident among the more highly educated respondents (21:186).

The respondents from the McInnis and Shearer study who preferred muted colors read more "intellectual" magazines and read the newspaper more thoroughly than did those who preferred the more brilliant tones, whether warm or cool.

In various studies discussed by Eysenck, researching the correlation between the average ratings given to various colors by the white and minority groups (12,175 white, 8,885 minority), it was concluded that "there are no racial differences in color preferences" (10:393).

Results from the studies discussed by Eysenck also showed that preferences were very similar between the
sexes. The only reversal was the case of orange and yellow; orange being preferred to yellow by the men, yellow to orange by the women (10:394). In the McInnis and Shearer study both men (twenty-nine) and women (eighty-four) preferred the cool-color groups. Fifty-six per cent of the men preferred the cool colors, compared to seventy-six per cent of the women who chose them.

Previous studies have indicated a relationship between age and color preferences. Many studies have been done in relation to young children's color preferences. Hurlock has written that children's response to color is the earliest indication of aesthetic preception (16:2). Between the ages of six months and twenty-four months, babies responded differently to color change exhibiting color preferences in this decreasing order: red, yellow, blue, green (3:175). Color preferences tended to vary with age but not with sex. Green, which was ranked third by the five-and six-year-olds, became increasingly popular until it was ranked first by the nine and ten-year-olds (16:11). Red, which was the most popular with the five and six-year-olds, became less popular with advancing age. Violet and orange were considerably less preferred than red, yellow, green, and blue. Lighter colors were most preferred followed closely by the standard levels, and the
darker levels were less favored. The lighter levels were more popular with the girls than the boys; the darker levels were more popular with the boys.

Garth and Porter tested 1,032 children to determine their color preferences. Tabulation revealed that any color was preferred to white. Yellow ranked just above white. Red was highly esteemed through kindergarten and was preferred to blue, although blue was more esteemed with increasing age (16:14).

Garth tested one thousand white children in grades one to ten to determine a color preference scale for white children, any sex differences in preferences, and the influence of education. The one thousand subjects ranked the seven colors in the following decreasing preferential order: blue, green, red, violet, orange, yellow, white. Both sexes agreed on the placement of blue first and yellow and white last. The greatest disagreement came in the placement of red; males scored it second and females scored it fifth. Females placed orange above violet, and males scored violet above orange. Increasing education appeared to cause suppression of preference for all hues except blue. With the increase of age the high ranking of red and orange decreased (16:15).
Katz and Breed reported a test in 1922 using over 2,500 subjects that covered a wide range including pupils from elementary school, high school, and college levels (16:17). At every age from five to fifteen blue was preferred most frequently. Forty-seven per cent found blue the most pleasing of the six colors used. Green was a distant second, red a close third, violet and yellow occupied the next positions, and orange proved the least pleasing of the six. As the children advanced in age and grade there was a distinct rise in the preference of green, blue, and violet, the colors of short wave length, and a corresponding decline in the values of red, orange, and yellow, the colors of long wave length. In the comparison of pre-adolescents with adolescents, the noticeable difference was the marked loss in the popularity of green as the children matured. Red was a greater favorite among the children in poor neighborhoods than among the children in well-to-do neighborhoods during their earlier years; the reverse was true of green. As the children advanced in age and school attainment, differences due to social status tended to be overcome. Children of kindergarten age showed a preference for saturated colors (16:18).

The younger adult age groups (55 per cent) seemed to prefer the bright and the warm colors more frequently than
did the older groups (38 per cent), although respondents of all ages indicated a preference for the dull hues and for those colors within the cool range. More of the over-fifty age group disliked the bright-warm colors than did the younger subjects (21:186).

The normal development sequence of color reactions will be from an "affect-dominated" pattern in childhood to a "symbol-dominated" pattern with increasing maturity. According to Walter A. Woods, as the personality develops social influences will come into play so that attitudes will be determined by socially meaningful aspects of color as symbols (30).

The practical validity of this approach is witnessed by a commentator, writing in 1890 of the uses of color in dress,

We put bright colors upon our little children, we dress our young girls in light and delicate shades, the blooming matron is justified in adapting the rich hues which we see in autumn leaf, while black and neutral tints are appropriate to the old (30:190).

This does not seem to apply to the use of color today, as pastels are seen on infants, children, and adults alike. Many older people today wear vivid colors of red, orchid, and blue. What may have been the case in 1890 simply does not hold true in the 1970's.
A relationship between personality and color choice has been suggested in many studies. The findings indicate that individuals seem to fall into two categories: the warm-color-dominant individuals as extroverted and the cool-color-dominant individuals as introverted. Swiss psychoanalyst Carl G. Jung suggests that people might be described in terms of their introversion and extroversion tendencies. The extrovert tends to be socially outgoing, aggressive, self-expressive, and dependent on others for personal-affectional satisfaction. The introvert tends to be socially withdrawn, reflective, isolated, contemplative, and dependent on himself for personal satisfaction (18:470). According to Ernest R. Hilgard introverts and extroverts are not actually two distinct types but merely extremes on a scale (18:471). They differ as do tall and short by going in both directions from a middle condition. Most people are neither introverts nor extroverts but are ambiverts, sometimes one, sometimes the other. Clear, distinct hues are often associated with the extrovert and the tones of less saturation with the introverted person.

Studies have been done to test the hypothesis that a preference for tints on the one hand or for strong color on the other hand is associated with certain characteristics of personality. Those individuals with a preference
for strong color were more likely to score toward the masculine end of the scale than were the subjects who preferred tints (2:230). Those who prefer strong colors responded more directly and with greater interest to the objects and objective events of the external environment while the persons who preferred tints viewed the external world from the point of view of subjective values and lived more in their own thoughts (2:227).

Individuals who were classified as introverts preferred the less saturated tones and the cool colors of blue and green, while those who were extroverted chose colors which were bright and warm. This was reflected by the findings that the warm-color-oriented subjects and those who chose bright colors were more active and gregarious than were those who preferred cool and dull colors (21:185).

Subjects who preferred the warm colors not only participated in more active sports but more enjoyed sports events than did the cool-color-oriented subjects (21:185). They belonged to several clubs or organizations, while those from the cool-color-dominant groups participated in church organizations. Those partial to warm pigments had more interest in participating in hobbies, in collecting things, and in playing bridge than did those who were
partial to cool colors.

Subjects who preferred the cool colors expressed preference for a greater diversity in types of reading materials and also read more books than did those who favored warm colors. They found it difficult to converse with new acquaintances and enjoyed being alone more than those who selected colors within the warm range (21:185).

It was found that those who preferred the warm hues chose gay and exciting music more frequently, while the cool-color-dominant types preferred more soothing music. Also music classified as folk, spiritual, and country-western was enjoyed more often by the warm-color-oriented individual (21:186). The warm-color-oriented group enjoyed more types of music than did the cool-color-reference group. Those who selected the dull-color groups as first choice enjoyed little variety in music. Those respondents who chose cool and dull colors enjoyed concerts more than the warm and bright-color-oriented individuals.

Respondents who preferred the bright tones and the warm colors evidenced a greater interest in some facet of art expression or appreciation. They owned more original art objects, participated in more creative activities, more frequently thought that achievement of beauty was the more important consideration in furnishing a living room,
more frequently were fond of modern art, owned more reproductions of "famous" paintings, visited art galleries more often, and considered themselves more interested in art than did those subjects who preferred the dull and the cool tones. Those who favored the dull-cool hues seemed more interested in antiques (21:185).

Several investigators have studied warm and cool-color preferences of mentally ill patients. The conclusions of these studies indicate that emotionally elated and physically active patients prefer warm and brighter colors (red, yellow, and orange) and that emotionally depressed and physically inactive patients prefer cooler colors (green, blue, and purple).

Bullough reported that color preferences are determined in the last analysis by the individual's desire to be stimulated (preference for warmth) or to be soothed (preference for coolness) (7:43). In a study with college students, Bjerstedt found that preferences for warm colors represented activity, directness, and need gratification. Subjects preferring warm colors expressed an attitude of life enjoyment rather than of moral or intellectual selection.

Results of past research seem to support the current findings that suggest a happy acceptance of the cool hues
by a preponderance of individuals, particularly if these individuals were well educated and widely read and were in the higher socio-economic groups. Preference for cool hues by an individual would indicate that he enjoys being alone, attending concerts and plays, and participating in water sports and in organized groups related to church. The dull-cool tones would be more likely choices to predominate in the home.

The data suggest that the warm-color preferring individuals may be inferred by their enjoyment of many outdoor activities and their pleasure in frequent entertaining in the home. Tendencies are evident which indicate that warm-color preference individuals are active in sports, have extensive interest in art, enjoy a wide variety of clubs and hobbies.
CHAPTER III

PROCEDURE

The subjects for this study of color preferences in relation to personality traits were students attending Moorpark Community College, Moorpark, California. The sample was composed of 100 females enrolled in a home economics class.

Data were collected by means of two tests. The test for determining introversion-extroversion personality traits was the Omnibus Personality Inventory, Form F, by Paul Heist and George Yonge. The test involved for color preference was a ranking procedure test selecting first, second, and third color choices from a color wheel. The diameter of the color wheel measured eighteen inches with the size of the color samples measuring four and one-half inches by three inches. The colors consisted of the primary, secondary, and tertiary colors in full intensity. The colors were arranged according to the Brewster color theory in this order: yellow, yellow-green, green, blue-green, blue, blue-violet, violet, red-violet, red,
and red-violet were classified as warm colors. Yellow-green, green, blue-green, blue, blue-violet, and violet were classified as cool colors.

A comparison was made between the colors selected by introverts and the colors selected by extroverts. The percentage of students selecting warm colors and cool colors was determined. Colors were ranked according to their preference by introverts and extroverts and in combination.

Statistical Procedures

The chi square test was used to compare students selecting cool colors versus warm colors.

The "t" test was used to determine significance of differences between samples.

The .05 level of significance was used.
CHAPTER IV

RESULTS AND DISCUSSION

The data presented in this section describes information from the Omnibus Personality Inventory and the color preference test. Color preferences in relation to introversion-extroversion have been analyzed.

Fifty-seven per cent of the total sample were introverts and 43 per cent were extroverts. Forty-seven per cent of the introverts selected warm colors as their first choice and 53 per cent of them selected cool colors. The results were identical for the extroverts; 47 per cent selected warm colors and 53 per cent selected cool colors as their first choice (See Table 1, p. 22).

A two per cent difference existed between the extroverts' and introverts' second choice color preferences for both warm and cool colors. Forty-six per cent of the introverts selected one of the warm colors, while 44 per cent of the extroverts chose a warm color for second choice. Fifty-four per cent of the introverts chose one of the cool colors and 56 per cent of the extroverts
**TABLE 1**
FIRST, SECOND, AND THIRD COLOR CHOICES OF INTROVERTS
(n = 57)

Total Sample = 100

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<thead>
<tr>
<th>Warm Colors</th>
<th>1st Choice</th>
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<th>2nd Choice</th>
<th></th>
<th>3rd Choice</th>
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<td>14.04</td>
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<td>22.81</td>
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<td>1.75</td>
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<td>1.75</td>
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<td>2</td>
<td>3.51</td>
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</tr>
<tr>
<td>Red</td>
<td>4</td>
<td>7.02</td>
<td>3</td>
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</tr>
<tr>
<td>Blue-violet</td>
<td>1</td>
<td>1.75</td>
<td>1</td>
<td>1.75</td>
<td>0</td>
<td>0.00</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Violet</td>
<td>3</td>
<td>5.26</td>
<td>4</td>
<td>7.02</td>
<td>7</td>
<td>12.28</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>30</td>
<td>52.63</td>
<td>31</td>
<td>54.39</td>
<td>29</td>
<td>50.88</td>
<td>90</td>
<td></td>
</tr>
</tbody>
</table>

*Total Choices = 3 times sample 81 + 90 = 171 (57 x 3 = 171)
selected a cool color for second choice.

A greater per cent difference existed between the introverts' and extroverts' third choice color preferences. Forty-nine per cent of the extroverts selected one of the warm colors, while 47 per cent of the introverts chose a warm color for third choice.

The order of preference for the first choice of the introverts was as follows: yellow, yellow-green, blue, blue-green, red-violet, red, red-orange, orange, violet, yellow-orange, blue-violet, green (See Table 1, p. 22).

The extroverts' order of preference for first choice was as follows: blue, yellow, red, yellow-green, violet, blue-violet, red-orange, orange, green, blue-green, red-violet, yellow-orange (See Table 2, p. 24).

The combined total of both introverts and extroverts ranked their first choice color preferences in the following order: blue, yellow, yellow-green, red, blue-green, red-violet, violet, red-orange, orange, blue-violet, yellow-orange, green (See Table 3, p. 25).

Tables 1 and 2 indicate the order of second and third choice preferences. Combined preferences for second choice were as follows: yellow-green, blue, yellow, red-violet, red, violet, green, orange, yellow-orange, red-orange, blue-violet, blue-green (See Table 3, p. 25).
<table>
<thead>
<tr>
<th>Warm Colors</th>
<th>1st Choice</th>
<th>2nd Choice</th>
<th>3rd Choice</th>
<th>Total*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Per cent</td>
<td>No.</td>
<td>Per cent</td>
</tr>
<tr>
<td>Yellow</td>
<td>8</td>
<td>18.60</td>
<td>5</td>
<td>11.62</td>
</tr>
<tr>
<td>Yellow-orange</td>
<td>1</td>
<td>2.33</td>
<td>3</td>
<td>6.98</td>
</tr>
<tr>
<td>Orange</td>
<td>2</td>
<td>4.66</td>
<td>4</td>
<td>9.30</td>
</tr>
<tr>
<td>Red-orange</td>
<td>3</td>
<td>6.98</td>
<td>1</td>
<td>2.33</td>
</tr>
<tr>
<td>Red</td>
<td>5</td>
<td>11.62</td>
<td>5</td>
<td>11.62</td>
</tr>
<tr>
<td>Red-violet</td>
<td>1</td>
<td>2.33</td>
<td>1</td>
<td>2.33</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20</td>
<td>46.51</td>
<td>19</td>
<td>44.19</td>
</tr>
<tr>
<td>Cool Colors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow-green</td>
<td>4</td>
<td>9.30</td>
<td>9</td>
<td>20.93</td>
</tr>
<tr>
<td>Green</td>
<td>1</td>
<td>2.33</td>
<td>2</td>
<td>4.66</td>
</tr>
<tr>
<td>Blue-green</td>
<td>1</td>
<td>2.33</td>
<td>2</td>
<td>4.66</td>
</tr>
<tr>
<td>Blue</td>
<td>10</td>
<td>23.26</td>
<td>6</td>
<td>13.95</td>
</tr>
<tr>
<td>Blue-violet</td>
<td>3</td>
<td>6.98</td>
<td>2</td>
<td>4.66</td>
</tr>
<tr>
<td>Violet</td>
<td>4</td>
<td>9.30</td>
<td>3</td>
<td>6.98</td>
</tr>
<tr>
<td>TOTAL</td>
<td>23</td>
<td>53.49</td>
<td>24</td>
<td>55.81</td>
</tr>
</tbody>
</table>

*Total Choices = 3 times sample 63 + 66 = 129 (43 x 3 = 129)
### TABLE 3
COMBINED CHOICES OF INTROVERTS AND EXTROVERTS
(Data in Numbers and Per cent)

<table>
<thead>
<tr>
<th>Warm Colors</th>
<th>1st Choice</th>
<th>2nd Choice</th>
<th>3rd Choice</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow</td>
<td>18</td>
<td>13</td>
<td>21</td>
<td>52</td>
</tr>
<tr>
<td>Yellow-orange</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Orange</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Red-orange</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Red</td>
<td>9</td>
<td>8</td>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>Red-violet</td>
<td>7</td>
<td>11</td>
<td>7</td>
<td>25</td>
</tr>
<tr>
<td>Cool Colors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow-green</td>
<td>14</td>
<td>20</td>
<td>13</td>
<td>47</td>
</tr>
<tr>
<td>Green</td>
<td>1</td>
<td>7</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>Blue-green</td>
<td>7</td>
<td>2</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>Blue</td>
<td>20</td>
<td>16</td>
<td>13</td>
<td>49</td>
</tr>
<tr>
<td>Blue-violet</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Violet</td>
<td>7</td>
<td>7</td>
<td>9</td>
<td>23</td>
</tr>
</tbody>
</table>

Percentages and numbers the same

Total Sample = 100
Tables 1 and 2 indicate the order of second and third choice preferences. Combined preferences for second choice were as follows: yellow-green, blue, yellow, red-violet, red, violet, green, orange, yellow-orange, red-orange, blue-violet, blue-green (See Table 3, p. 25).

The combined total of introverts and extroverts ranked their third choice color preferences in the following order: yellow, blue, yellow-green, orange, violet, red-violet, green, blue-green, red, red-orange, yellow-orange, blue-violet (See Table 3, p. 25). Interestingly yellow was ranked first as third choice by both introverts and extroverts, while blue-violet did not receive a vote from either group.

The combined first, second, and third color preferences of introverts ranked the colors in this order: yellow, blue, yellow-green, red-violet, violet, orange, blue-green, red, green, red-orange, yellow-orange, blue-violet (See Table 3, p. 25). Forty-seven per cent of the preferred colors were warm colors while 53 per cent of the preferred colors were cool colors.

These results are in sharp contrast to findings from previous studies. The McInnis, Shearer study found that introverts preferred cool colors, extroverts preferred warm colors (21:182).
Faber Birren states that when a number of people are questioned as to their predilections for color, it will be found that extroverts will favor warm colors, while introverts will favor cool colors.

Combined first, second, and third color preferences of extroverts were in the following order: yellow, blue, yellow-green, red, orange, violet, yellow-orange, green, blue-green, red-orange, red-violet, blue-violet (See Table 2, p. 24).

First, second, and third choices of both the extroverts and introverts combined ranked their color preferences in the following order: yellow, blue, yellow-green, violet, red-violet, red, orange, green, blue-green, red-orange, yellow-orange, blue-violet (See Table 3, p. 25). Forty-seven per cent of the introverts and extroverts combined selected a warm color for either first, second, or third choice, while 53 per cent selected a cool color. Figures 1 (p. 28, 2 (p. 29), and 3 (p. 30) indicate visual comparisons between introvert and extrovert color choices.

Research of a number of other investigators with a combined sample of 12,175 respondents produced different results. Colors were ranked in the following order: blue, red, green, violet, orange, yellow (10:319). Yellow
Figure 1
FIRST CHOICE RANKING OF COLOR PREFERENCES
(Data in Per Cent)

<table>
<thead>
<tr>
<th></th>
<th>introverts</th>
<th>extroverts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y.</td>
<td>Yellow</td>
<td>V.</td>
</tr>
<tr>
<td>Y.O.</td>
<td>Yellow-orange</td>
<td>B.V.</td>
</tr>
<tr>
<td>O.</td>
<td>Orange</td>
<td>B.</td>
</tr>
<tr>
<td>R.O.</td>
<td>Red-orange</td>
<td>B.G.</td>
</tr>
<tr>
<td>R.</td>
<td>Red</td>
<td>G.</td>
</tr>
<tr>
<td>R.V.</td>
<td>Red-violet</td>
<td>Y.G.</td>
</tr>
</tbody>
</table>

Color Key

Total Sample = 100
Figure 2
SECOND CHOICE RANKING OF COLOR PREFERENCES (Data in Per Cent)

Color Key
Y. = Yellow
Y.O. = Yellow-orange
O. = Orange
R.O. = Red-orange
R. = Red
R.V. = Red-violet
V. = Violet
B.V. = Blue-violet
B. = Blue
B.G. = Blue-green
G. = Green
Y.G. = Yellow-green

Total Sample = 100
Figure 3
THIRD CHOICE RANKING OF COLOR PREFERENCES
(Data in Per Cent)

Color Key
Y. = Yellow
Y.O. = Yellow-orange
O. = Orange
R.O. = Red-orange
R. = Red
R.V. = Red-violet
V. = Violet
B.V. = Blue-violet
B. = Blue
B.G. = Blue-green
G. = Green
Y.G. = Yellow-green

Total Sample = 100
ranked last in several previous research studies but ranked first in the present survey.

The data in this study could reflect the current fashion trend in color. At this time yellow and yellow-green are fashionable. Faber Birren stated that where regional color preferences existed the influencing factor seemed to be sunlight. Where sunlight was abundant the colors wanted were strong, brilliant, warm. Where sunlight was more scarce the colors wanted were softer and duller, and a great preference for green and blue was noted. Southern California, the location of this study, is noted for sunny weather. This research has shown that warm colors are more popular with the respondents than in previous studies. The McInnis study reported that 70 per cent of the total sample selected cool colors while 29 per cent chose warm colors. Fifty-three per cent of the respondents in this study selected cool colors while 47 per cent selected warm colors.

Color trends take place because of human desire for a change. Trends run more or less in cycles. In the late twenties tones of rust and green were popular, in the thirties burgundy and royal blue. After World War II the greens, tans, and browns became popular. In the fifties the cycle went back to red and blue. Yet in any year the
masses of the population will tend to go along with cer-
tain primary favorites—red, green, yellow, and blue. More
fashionable hues, such as purple, yellow-green, and blue-
green, may rise and fall with greater rapidity, and none
of them may attain the popularity of the elementary hues
(5:30). It is the opinion of this researcher that the
popularity of warm colors as evidenced by this study may
reflect both the geographical location and current fashion
trends.

Statistical analysis of the data produced no signifi-
cant difference between introverts and extroverts and
color preference.
CHAPTER V

CONCLUSIONS AND SUMMARY

Color preferences as related to social introversion-extroversion proved to be an interesting study, producing data in sharp contrast to many previous studies. Most of the studies done previously cited a relationship between personality traits and color preferences. It should be noted, however, that personality may not be the only factor related to color preferences. Other factors may be social class, age, education, and current fashion trends.

HYPOTHESIS I: Social introversion and extroversion have an effect on color preferences.

Sub-hypotheses: (1) Socially introverted individuals select cool colors.

(2) Socially extroverted individuals select warm colors.

Of the total sample of one hundred college students 57 per cent were introverts and 43 per cent were extroverts. Forty-seven per cent of the introverts selected
warm colors as their first choice and 53 per cent selected cool colors. Forty-six per cent of the introverts selected warm colors as their second choice and 54 per cent selected cool colors. Forty-nine per cent of the introverts selected warm colors for third choice and 51 per cent selected cool colors. Combined first, second, and third choices of the introverts resulted in selection of 47 per cent warm colors and 53 per cent cool colors.

Forty-seven per cent of the extroverts selected warm colors and 53 per cent selected cool colors as their first choice. Cool colors were selected as the second choice by 56 per cent, warm colors by 44 per cent. Forty-four per cent of the extroverts selected warm colors and 56 per cent selected cool colors as their third choice. Combined first, second, and third choices selected by 49 per cent of the extroverts were warm colors and 51 per cent were cool colors.

As a result Chi Square analysis and the "t" test indicated no significant difference between introverts and extroverts in color choices within samples as to color choices. Therefore sub-hypotheses (1) that socially introverted individuals select cool colors and (2) that socially extroverted individuals select warm colors are rejected.
As a result of the rejection of the sub-hypotheses the main hypothesis that social introversion and extroversion have an effect on color preference is rejected and the null hypothesis that social introversion and extroversion have no effect on color preference is accepted.

RECOMMENDATIONS FOR FURTHER RESEARCH

Recommendations for further research are:

1. To conduct a similar study utilizing different populations in the same geographical area.

2. To investigate the effects of currently fashionable colors on color preferences.

3. To further investigate color preferences using more subdued colors.
BIBLIOGRAPHY


