FABRIC PREFERENCE RELATIVE TO TACTILE AND COLOR PERCEPTIONS

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CHAPTER I

INTRODUCTION

Silk, "the Queen of fibers", has been deeply liked and has been synonymous with luxury, nobility, and prestige for thousands of years. Silk fabrics are noted for their soft, luxurious hand, rich luster, beautiful color and strength with lightness (23).

China is the cradle of sericulture. Classical writings describe ways the Chinese people began to produce silk some 5,000 years ago (20). About 119 B.C., silk was exported through "The Silk Road" from China to the Western world (22). During the late seventh century sericulture moved to Europe. Since that time, silk has become very popular and the silk industry began to play a very important role in the history of the Western textile industry.

In the twentieth century, the silk industry suffered a decline during World War I and II as a result of competition from cheaper rayon and nylon, which did not require the hand labor of silk culture (23). Therefore, silk almost disappeared from the Western markets.

In 1946 raw silk reappeared in the Western markets (35). Since then, under the silk promoting activities of

designers, fashion leaders, and businessmen, the demands for silk have increased greatly. Many people dreamed of owning one or more dresses made of silk.

Due to the limited supplies and high costs of silk, textile scientists in the United States began to seek a substitute fiber. As early as 1910, rayon or "artificial silk" was introduced on the market as a substitute for silk. In 1951, a new fiber, polyester, was introduced by Du Pont, which also was used as a substitute for silk.

Scientists have utilized new techniques to improve polyester fibers and tried hard to capture the silk market for polyester by producing fabrics that looked and felt like silk. Since 1953, polyester has become one of the most widely used and desirable of all synthetic fibers (11). However, do polyester fabrics effectively substitute for silk fabrics? Although, polyester fabrics appear almost identical to silk, they posses qualities and characteristics different from the desirable ones of silk.

Consumers have voiced various dissatisfactions with polyester fabrics. Little or no research has been reported where preferences for silk or polyester were compared. Therefore, a need for more information relative to preferences for silk or polyester is evident. Results of this study will furnish such information and will be beneficial to consumers, retailers, and educators.

Purpose

The purpose of this study was to investigate consumer preferences for silk or polyester fabrics based on tactile and visual perceptions. Also, judgments relative to the selection of and preference for fabrics for specified apparel styles were examined.

Assumptions

The following assumptions were made for this study:

1. Tactile perceptions affect preferences for silk or polyester fabrics.
2. Color perceptions affect preferences for silk or polyester fabrics.

Hypotheses

On the basis of the assumptions and the review of literature, the following hypotheses were formulated:

1. There is no significant difference between preferences for silk or polyester fabric relative to tactile perception.
2. There is no significant difference between the preference for silk or polyester fabric relative to visual perception.
3. There is no significant difference between individual color preferences.

4. There is no significant difference between individual choices of silk or polyester fabric for a specified apparel style.

Review of Related Literature

The literature reviewed was divided into the following areas: 1) color preferences, 2) tactile perception, and 3) fabric suitability to apparel style.

Color Preferences

Davis (6) defines color as:

> Color is two things: external event and internal sensation. Color is the perception and interpretation of visible light wavelengths from red through the spectrum to violet, as they come from a light source or reflect from a surface. All color has these aspects: hue, value, and intensity.

Colors exert a strong influence on peoples' daily lives. According to Gatto (7), color establishes moods, sells products, attracts attention, is used as an idea communicator, and aids in the expression of personal emotions and feelings. The relation of color preferences to personality has long been a subject of interest to psychologists and consumers.

Borror and Creekmore (2) investigated the relationships that existed between the warmth and coolness of physical coloring in young women, preferences for warm or cool

colors, and personality characteristics described in terms often associated with warm or cool colors. The sample was comprised of 142 women students at Oregon State University. A method was developed to compare the physical coloring of the students to Munsell hues that corresponded to skin, hair, and eye colors. These colors were divided into cool and warm classifications and, in addition, the hair colors were divided into brunette or blonde groups. From the 142 students four groups of 25 each were selected as representative of four personal coloring groups -- warm blonde, cool blonde, warm brunette, and cool brunette.

The color comparisons were conducted in a room with controlled light and special equipment to prevent any reflection of other colors onto the participants' faces in order to determine their color preferences for clothing. Cattell's 16 Personality Factors Test was utilized to determine high and low scores on four selected personality factors.

The data were subjected to an analysis of variance in order to determine significant differences between color preferences and personality-factor scores of the participant groups. Results revealed that the participants generally preferred cool colors to warm colors when selecting colors to be used for clothing and cool tones to warm tones of these colors. Results also showed that the choice of

coolness in color was significantly related to the coolness of personal coloring, and warmth or coolness in personal coloring was more related to color preference than hair color.

Philip (16) investigated the utilization of dimensional analysis under objective conditions in his study of color preferences in fashions. Results of previous research had shown that one of the main difficulties encountered in experimental studies of fashion was the selection and preparation of the materials used in the investigation. With the use of actual costumes for all observations, factors other than those being examined probably would tend to obscure the real facts. In a previous unpublished study, Philip found that the use of colored reproductions of fashions instead of actual costumes produced equal results of comparable validity. Thus, the decision was made to use colored fashion plates in lieu of actual costumes in his investigation.

A sample of 19 male and 9 female college students were given sets of randomly arranged color fashion plates with instructions for arranging them in order of preference on a long table. Each set of color plates consisted of 25 cards; each card displayed one afternoon dress. The dresses differed in such details as cut, ornamentation, et cetra. There were five different predominating colors within each set of cards. These colors were green, blue, black or grey,

red and brown, with five cards of each color that differed in hue saturation and intensity.

The data were statistically analyzed through the use of analysis of variance techniques. Results revealed that the color of the costume was a significant factor in the fashion preference for the male participants, but not for the female participants. The favorite color of the males was blue with black ranking second. Blue was also a favorite color of the females, but ranked slightly less than green. Other factors were more influential in the costume selection of the women than was color preference.

Kawasaki, Oshitani, and Kiriyama (12), investigated factors that govern consumer preference for women's suits and found that the age and occupation of the women questioned did not influence their preferences. The garments were similar in sensory images (such as elegance) but differed in physical properties. Color governed the consumers' preferences to a considerable extent. The conclusion was that women tended to purchase by visual evaluations of characteristics in a fabric rather than by tactile stimuli of the fabric.

Compton (5) performed an exploratory study in which she investigated the relations that existed between preferences for color and design in clothing fabrics and selected physical and personality characteristics of the

individual. The sample consisted of 145 freshmen women in the College of Home Economics at the University of Maryland.

The student's fabric preferences were determined by the use of an instrument that consisted of paired fabric choices. Three series of fabrics mounted on cards were utilized to obtain data relative to: 1) fabric color preference, 2) fabric design preference, and 3) large or small fabric pattern preference. The fabric color series involved plain weave fabrics in six different hues with respect to tint, shade, or saturated hue. The fabric design preference involved different designs with strong contrast in the value of color between the background and the pattern as opposed to the same designs with weak value contrasts. The fabrics of the third series pertained to choices between large and small patterns of striking similarity. The fabrics of each pair within a series and the cards for all series were randomly arranged before presentation to the participants for choices. Students were classified into preference groups on the basis of their preference scores. The preference groups were compared to determine differences in physical characteristics, interest in occupational fields, and personality dimensions. Chi-square distributions, analysis of variance, and T-tests were utilized to analyze the color, design, physical characteristics, occupational interest, and personality measures.

Results showed that fabric color and design preferences were independent of the physical characteristics investigated. However, significant differences in personality and occupational interests were found between certain color and design preference groups. Results also indicated that oneself is expressed through one's selection of apparel fabrics and that items of clothing play a role in aiding an individual to conform to an ideal self.

Sailor (19) explored relationships between certain personality dimensions and selected aspects of color and design in clothing fabrics. The sample was composed of 47 mentally retarded boys and girls, who ranged in age from 12 to 18 years, and who attended a state school or were enrolled in special education classes in public schools in south Texas areas. Form B of the Holtzman Inkblot Technique was administered to the participants to obtain personality scores. The participants also completed the Compton Fabric Preference Test and preference scores were calculated for each teenager. Results revealed that this group of mentally retarded teenagers tended to prefer fabrics of saturated colors with small designs and strong figure-ground contrasts as well as smooth-textured fabrics.

Springer (21) investigated factors of childrens' apparel that were related to color, design, and texture preferences and that might explain existing clothing behavioral

patterns. A group of 120 kindergarten children and 68 mothers comprised the sample. The children ranged in age from five to six and one-half years. Three different preference tests (color, fabric design, and texture), accompanied by separate fabric swatches were administered to the children. Approximately 15 days later, the second interview involved the use of garments constructed from the same fabrics used in these previous swatch tests. Shirts for boys and dresses for girls were used for preference selection in the second series of tests. After each child finished the texture preference test involving garments, he or she was asked to answer questions in order to obtain responses that would illustrate certain clothing behavioral patterns. The 68 mothers completed a questionnaire that obtained information relative to the mother's color, fabric design, and texture preference for her child utilizing the same garments presented to the children. Questions relative to children's clothing behavior also were included in the questionnaire.

Data were analysed through percentage distributions and chi-square tests. The result showed that boys and girls liked red, blue, and green in both the swatch and garment tests, while their mothers preferred blue. Though there were differences between the boys' and mothers' color choices, blue shirts were favored by both the boys and their mothers. Generally speaking, the girls and mothers

indicated a close preference for similar colors. Both chose blue as the first favored color and red was second. The results of fabric design preferences indicated that the boys chose floral and polka dot motifs while the mothers chose plaids and stripes as desirable fabric designs for boys' shirts. The girls and their mothers chose a floral design as their first preference for a dress. Results of the texture preference test revealed that both boys and girls ranked velveteen first in preference. However, the mothers' texture preferences were not the same as their children's texture preferences. Results also showed that the mothers chose certain color, fabric design and texture variations primarily for easy care and durability of fabrics and their preferences did not always coincide with those of the children.

Bjerstedt (1) attempted to clarify the meaning of various color reactions and the relation between color preferences and personality characteristics by performing three related studies. In the first study, a series of experiments demonstrated that warm color and cool color had different psychological meanings; that these differences showed a marked degree of inter-methodological consistancy; that these differences displayed a certain degree of inter-cultural consistancy. In the first experiment, 322 males and females of four different nationalities, most of whom were

20 to 25 years of age, described different colors on semantic differentials. Results revealed that clear color contrasts between different colors emerged relatively independent of nationality. Other tests were administered such as scene construction in conjunction with Twichell-Allen's Three-dimensional Personality Test, color-adjective matching procedures and the Rosenzweig test. Usually, clear inter-methodological consistencies were produced by comparable tests.

In the second study, Bjerstedt tried to overcome some deficiencies of the Color Pyramid Technique by using the Paired Color Pattern Device, where a participant chooses the pattern he prefers from a series of ready-built color pattern pairs. Results showed that this technique had several advantages over the conventional procedure. This technique reduced variable interactions to a minimum and made interpretation easier and increased the possibility of obtaining reliable individual color differences.

The third study was based on the Paired Color Pattern Device and on the general results from the first study on different color meanings. The purpose of this study was to investigate the relationship between color preferences and personality traits and color preference differences between younger and older people.

A group of 603 boys and girls from preschool children

up to university students comprised the sample for the third study. The Paired Color Pattern Device was administered to the participants for color pattern preferences. The collected data were analyzed by chi-square tests and results revealed significant differences between the color preferences of the males and females as well as strong relationships between color preferences and personality traits. The person who tended to prefer warm color patterns showed behavior tendencies linked with the symbolic values of the warm colors, which represented activity, receptivity, directness, and need gratification. Results also indicated that relationships existed between age and color preference. Younger people chose the warm color patterns more often than did the older people.

Tactile Perception

Tactile perception is the sensory assessment of the feel or touch of fabric (25). Touch and sight are two aspects of the human senses to which texture appeals. These aspects of texture can be defined as the tactile and visual qualities of a surface which may be considered as fabric aesthetics (6, 3). Different textures, rough or smooth, harsh or soft, thick or thin, and different stimuli, give consumers different feelings of comfort or pleasantness. When selecting fabrics, consumers usually prefer to use

their fingers to make sensitive and discriminating judgments. Visual judgment of fabrics with good aesthetics are those which are pleasing to the eye (9). Thus, this aspect of fabric evaluation also exerts an influence upon one's preference for apparel fabrics.

Ripin and Lazarsfeld (18) performed a series of experiments regarding the tactile-kinaesthetic distinctions that could be made between fabrics in general, and specifically, between rayons and silks, and the influence these attributes exerted on fabric preferences. The purpose of this experimental series was to measure the preferences for silks and rayons and to ascertain the reasons for such preferences. The sample was composed of a cross section of one hundred women, according to their education level, income, and age. The materials utilized consisted of ten pairs of fine fabrics with a silk and rayon fabric for each pair, matched as carefully as possible in all attributes other than fiber. These fabric pairs were medium crepe, velvet, triple sheer, satin, heavy crepe, taffeta, crepe, heavy sheer, flat print, and fourth crepe.

A preliminary presentation of the paired fabrics was made in order to familiarize the women with the procedure. Each woman was blindfolded and asked to feel each fabric and indicate her preference and rate it on a scale from one to five, ranking from indifference to liking the fabric very

much. After this rating the participant's blindfold was removed and she was requested to feel and rate the fabric again while looking at it. If the rating changed after seeing the fabric, the woman was presented one member of each pair of fabrics at a time and instructed to rate it on the rating scale. Silks and rayons were alternated as first members from pair to pair. Then both fabrics were presented together and the woman indicated her preference giving reasons for her choice.

A second series of six triplets of fabrics were presented, each consisted of fabrics that represented three degrees of some one varying attribute. The participants ranked the triplet members relative to the variable and stated which one they preferred. In a third series, seven fabrics were presented and the women made a first, second, third, and last choice among them for a dress. In the fourth series, the same seven fabrics were presented and the participants eliminated one fabric at a time, choosing the one which seemed unlike all the others. Participant comments on attributes were categorized as "demanding" and "relaxing" for purpose of analysis.

Results revealed that rayon was preferred over silk by a majority of the participants when preferences were based on tactile perceptions. There was no specificity of judgment relative to any one attribute; all judgments are

influenced by the configuration which makes up the fabric and any cognitive factor which may be connected with it through experience. Theoretical conclusions must be stated in terms of combinations of attributes rather than single attributes. Chi-square distribution results of participant comments showed that they did not follow a chance distribution.

Pontrelli (17) investigated the effect of tactile aesthetics as a psychological stimulus in assessing comfort of fabrics. Fabric preferences were obtained from panels of men and women. The women wore women's double-knit dresses, the men wore men's double-knit slacks, and men's single-knit T-shirts under controlled conditions and during normal wear. In addition to the garment wear test, blindfold tactile aesthetic preference tests were conducted for the fabrics utilized in the garments. Wearers were asked which of these test fabrics they would prefer to wear most and least as a garment in the summer and to give reasons for their choice.

Results of this experiment revealed that tactile preference predicts preference both during normal wear and under controlled environmental conditions. The reasons given by participants for tactilicity and wear preference were the same in almost all instances. Therefore, if a person likes the way a fabric feels, he or she will almost always prefer

to wear the resulting garment. Thus, tactile aesthetic preference can be the single most important parameter in the selection of everyday garments provided all other criteria, such as environment, psychophysical parameters, and past experiences, are satisfied.

Winaker, Kim and Wolins (25) investigated the tactile sensory assessment of selected cotton and polyester fabrics that varied in specified physical dimensions of stiffness, roughness, and thickness. Fifty-four female and five male students enrolled in an intermediate textiles course at Iowa State University were the sensory judges. Two sets of eight woven fabrics each of cotton and polyester were selected to represent combinations of three specified physical hand properties. These fabrics were randomly presented to the judges for sensory assessment who used a semantic differential and a 99-point certainty scale. Nine pairs of polar adjectives were used by the judges in their tactile sensory assessment of the three physical dimensions of the selected fabrics. Participants were asked to handle one fabric at a time behind a screen and to make a judgment. Responses were indicated on the 99-point certainty scale. Data then were transformed to normal deviates in order to be statistically analyzed by analysis of variance techniques.

Results showed that all four of the main effects --

fabric content, fabric stiffness, roughness and thickness -- significantly affected the sensory responses of the judges relative to the nine polar-adjective pairs. Also, the judges' responses to the polar-adjective pairs, chosen to describe the selected physical properties, differed significantly with the actual physical dimensions of the fabrics.

Brand (3) investigated the use of subjective scales identified by common words to analyze the aesthetic components of fabrics. He felt that such words as loft, clammy, hard, et cetera, must be defined and put into orderly framework before meaningful questions could be asked.

Since the measurement of aesthetic characteristics of fabrics is subjective and apparently means different things to different people, there is no accepted method of measuring these characteristics. Thus, problems are encountered in conducting effective research on the aesthetic characteristics of fabrics because explicit definitions are lacking in this area. Brand attempted to develop a definition of fabric aesthetics in terms of fabric elements having the form of common words; to devise a system for selecting rating scales; to show how basic judgmental data could result in the numerical definition of a specific aesthetic property.

Brand used the aesthetic fabric concept of "cover" to illustrate this approach to the measurement of fabric

study. Four denim fabrics, three 100 percent cotton fabrics and one 64/36 cotton/polyester blend, were used for tactile and preference evaluations. The participants were blindfold and requested to rank fabric swatches of the four denim fabrics on tactile characteristics and on wearing comfort. Then, the jeans' characteristics were ranked according to their overall importance to comfort.

After completion of the tactile and preference evaluations, 17 of the participants from the first segment took part in a wear segment. After eight weeks of wear and laundering, the men ranked the jeans on fit, comfort, and appearance.

Data were subjected to analyses of variance, correlation and linear regression to determine significant relationships among the variables. Results indicated that the softest fabrics were preferred. Comfort and fit were the two most important factors in determing the overall preference for the garments. The tactile evaluations predicted preference during wear as tactile aesthetics, especially softness, and were important attributes in determing the fabric preferences.

Fabric Suitability to Apparel Style

Kettumen (13) defined line, shape, value, color, and texture as the elements of dress design. Burris-Meyer (4) believed that the most important consideration of a design is the suitability of the fabric to the purpose of the design. Therefore, the duty of a good designer is to use materials appropriately and make satisfactory garments. In fact, a good design is the combination and integration of lines, colors, textures, shapes, workmanship, fit, form, and materials, with the principles of dress design.

Because a garment is the substantial manipulation of clothing fabrics, the specific end-use of a fabric is considered to be a very important factor and influences consumers' apparel selections. Ripin and Lazarsfeld (18) found that an individual can better indicate a fabric preference when the purpose for which the fabric is to be used is known. Results of their investigation showed that fabric preferences were influenced by the factor purposefulness. Many participants were incapable of making a purely aesthetic judgment and refused to compare fabrics as such without knowing the purpose for which they were intended.

Valentine (24) investigated the interest in and the influence of color, texture, and design on consumer preferences for wearing apparel. The sample was composed of 185 women who were members of area women's organization and

college classes. A three part questionnaire regarding to personal data, clothing preference and garment selection was administered to the participants. From the responses received, a clothing interest score and a color, texture, and design influence score were obtained for each participant.

In order to determine the influence of color, garment design, and texture on apparel preferences, 20 pairs of garments were modeled by two models paired as closely as possible in height, hair color, skin tone and body build. On the basis of visual observation only, the participants indicated their preference for one garment in each pair and then checked the degree to which color, texture and apparel style influenced their choice.

Comparisons relative to color, texture and design interest and to the influence of these three factors on apparel selection were made on the basis of age groups. Results showed that the interest in and the influence on apparel selection of the three factors investigated increased as the age of the participants increased. Participants with less education showed more interest in color and texture, while design was considered the most influential factor in the apparel selection of those with more education.

Haley (8) investigated the relationships between parental education, personality traits and educational levels of high school girls and their choices of selected clothing

fabrics for specified garment designs. The sample consisted of 112 girls enrolled in a high school located in the northern part of the Texas Panhandle. In one segment of this study, a questionnaire designed to obtain fabric preferences for specified garment designs was administered to the participants. Fabric samples which were assumed to be most often worn by high school girls and four apparel designs, which were appropriate for their activities were presented, from which students made their suitability judgments. For each apparel design (school dress, sportswear outfit, church ensemble, and special occasion dress), six different fabrics were presented from which choices would be made in accordance with the participants' suitability judgments. The fabrics available for each garment design were in the same hue but differed in textile design and included plaids, stripes, florals, polka dots, and solids.

The participants' responses to the questionnaire were analyzed statistically. Results indicated that: 1) solid fabrics were preferred by a majority of the students, 2) suitability judgments relative to the appropriateness of fabrics to specified apparel designs differed slightly between the student groups. No matter whether students had clothing instruction or not, there was only a slight difference between personality factors, clothing awareness, and fabric preferences for the specified garment designs of the

three student groups.

Jordan (10) conducted a study to establish a conceptual framework for consumers' responses to the elements of color and texture in fabrics as they were applied to clothing. A total of 46 students in the School of Home Economics at Ohio State University participated in this study. Prior to the actual research, pilot tests were conducted in order to determine the most appropriate procedures to follow during the investigation. A series of five tests were developed and administered to the participants in order to determine both tactile and visual preferences for texture, color, and fabric judgment for specified apparel garments.

Ten fabrics of different fiber content were selected. These fabrics differed in textural qualities that ranged from smooth to rough, and soft to harsh. In four of the tests, samples of the fabrics were presented randomly to the participants in order to determine preferences. In the fabric suitability judgment test, each fabric was paired with one garment design. Participants judged the suitability of the fabric for the design, on the basis of both visual and tactile perceptions. A six item gradation scale, ranging from very poorly to very well, was utilized for judgment responses.

Data were statistically analyzed by the use of Pearson's product-moment correlation and multivate linear

regression methods. Results showed that the highest number of significant relationships occurred between color preference and fabric preference. The next highest number of significant correlations occurred between tactile preference and fabric preference. Visual texture preference, tactile texture preference, and color preference can be used as predictor variables of fabric preference but often are overlapping. Results also showed that fabric judgment is seldom significantly related to fabric preference variables, such as tactile, visual, and color preference, and is often influenced by perceptual factors of association, comfort, cost, utility and other elements.

CHAPTER II

PROCEDURE

This investigation was designed to obtain information relative to consumer preferences for silk or polyester fabrics based on texture and color perceptions. Also, judgments relative to the selection of fabrics for specified apparel styles were examined.

Sample

Participants

Fifty female students enrolled in undergraduate and graduate classes at a university located in the Southwest United States volunteered to participate in this study by completing the tests utilized to obtain data. The young women were studying in 22 different major areas. These various majors were offered in the: 1) College of Natural and Social Sciences, 2) College of Humanities and Fine Arts, 3) College of Education, 4) College of Nutrition, Textiles and Human Development, 5) School of Library Science, and 6) Institute of Health Sciences.

Fabrics

Ten fabrics, five silk and five polyester, that differed in color, texture, and weave constituted the group of fabrics utilized. The fabrics were selected and purchased at retail establishments in the local environs. The silk and polyester fabrics were paired as closely as possible according to color, texture, and weave and resulted in a total of five pairs. The colors selected were red, yellow, green, blue, and purple. The five different fabric textures selected represented different physical dimensions of fabrics such as roughness, stiffness, shininess, thickness and sheerness and were represented by velvet, chiffon, satin, linen weave, and a plain weave fabric.

Preference Tests

Four tests were administered to obtain information relative to preferences for silk or polyester fabrics based on tactile and visual perceptions, color preference, and fabric suitability for specified apparel styles. A description of the tests is given in table 1.

The tests were administered in a room appropriately arranged for each test. In order to keep lighting constant, window blinds were closed to exclude sunlight and overhead artificial lighting was employed.

Table 1.--Description of Preference Tests

Test	Test Type	Sensory Perception	General Nature of Test Specimen
I	fabric texture preference	tactile only	9"x9" paired fabric samples
II	fabric appearance preference	visual only	9"x9" paired fabric samples
III	color preference	visual only	9"x9" colored broadcloth samples representative of Munsell's principal colors
IV	fabric judgment	tactile & visual	4½"x4½" samples paired as in test I, with each pair accompanying a garment design

Test I - Fabric Preference by Tactile Perception

The purpose of this test was to obtain individual preferences for fabrics composed of silk or polyester fibers based on tactile perception. The five paired fabrics were utilized as tactile stimuli.

A large cardboard box, approximately 28"x40"x24", was secured. Two round openings, five inches in diameter, sixteen inches apart and six inches from the lower edge, were cut in the 28"x40" surface of the box, and were labeled A and B. These openings were curtained with fabric to allow easy access to the respondents for feeling the test fabrics, but eliminating visual viewing of the samples. The box was placed on a table so that the 28"x40" surface was at a 15 degree of angle.

Table 2 shows the texture and presentation order of the sample pairs.

Table 2.--Fabric Presentation Order for Test I

Pair	Texture	Fabric Presentation Order	
		Opening A	Opening B
I	Velvet	Silk	Polyester
II	Chiffon	Silk	Polyester
III	Satin	Polyester	Silk
IV	Linen weave	Polyester	Silk
V	Plain weave	Silk	Polyester

The arranged silk and polyester fabrics in each pair were attached to a long steel rod which was placed three inches behind the front sloped surface of this box so that the fabric samples were positioned directly behind the two openings A and B. The participant was allowed to feel the fabrics as long as desired. After a fabric pair was tested, the samples were removed by the operator and the next pair was placed on the rod and positioned behind the two openings for testing. This procedure was followed until all sample pairs were tested.

The tactile response to texture was obtained from one participant at a time. The participants were given a check-sheet and testing instructions were explained before the testing began. The verbal instructions were: "You will be

presented pairs of fabric samples, one pair at a time. You are to feel the texture of the fabrics carefully and decide which one of the two fabrics you prefer, the fabric in opening A or the fabric in opening B, and then check your preference on the checksheet. There is no time limit." A copy of the checksheet appears in appendix A.

Test II - Fabric Preference by Visual Perception

The objective of this test was to obtain individual fabric preferences on the basis of visually perceived fabric texture and color. A test based on visual perception instead of on hand sensation could obtain information relative to the interaction of color and texture and its effect on personal fabric preference.

The same five fabric pairs used in the tactile perception test were used in the visual test. Each fabric sample was mounted over a 9"x9" display board that could be adjusted to stand at various angles. The five pairs of fabric samples were placed on a long counter in the viewing room in a vertical position at a 30 degree angle. In order to minimize the probability of fabric memory from the previous tactile test, the fabric presentation order was reversed. The fabric pairs were placed twenty-five inches apart in an effort to eliminate the effect of visual image transfer from the previous pair. The participants viewed the fabrics from

a distance of three feet and recorded their preferences on the checksheet (appendix A) that was provided.

Test III - Color Preference

The Color Preference test was administered in order to obtain individual color preferences of the participants. Pieces of broadcloth in the five principal colors of the Munsell Color System, red, yellow, green, blue, and purple, were obtained for utilization in this test.

A 9"x9" piece of poster board was covered with each broadcloth sample and then mounted on a 30"x44" poster board in a circle representative of a color wheel and positioned on a wall in the viewing room. The board was placed approximately 40 inches from the floor and the participants viewed the samples from a distance of three feet. The respondents ranked the colored fabrics in the order of their preference utilizing a scale from one to five, with one representing their most preferred color and five representing their least preferred color. A checksheet was provided for recording their color rankings. A copy of the checksheet appears in appendix A.

Test IV - Fabric Suitability for Specified Apparel Styles

This test was conducted to obtain personal judgments relative to fabric suitability for a specific garment style.

Five garment styles (A, B, C, D, E), judged to be compatible with the paired fabrics, were created and illustrated by line drawings on 22"x14" Bristol boards. Figures 1, 2, 3, 4, and 5 in appendix B show these styles and samples of the fabric pairs. The five styles included two evening gowns, one evening jumpsuit, one tailored suit, and one afternoon dress.

One pair of fabric samples, each sample 4½"x4½", was mounted below one of the apparel designs and placed on a long table in a vertical position, 25 inches apart and at a 30 degree angle. The paired fabric samples were the same as those used in the previous tactile and visual tests. The participants observed the apparel styles and the accompanying fabric samples according to instructions on the checksheet in appendix A. Fabric preferences deemed suitable for each apparel style were indicated on the checksheet in the appropriate spaces. Observation time was unlimited and participants were allowed to feel the fabrics as desired.

Statistical Treatment of the Data

Percentage distributions and frequencies were used for descriptive purposes. Chi-square distribution analyses were utilized in order to determine significant differences between preferences for silk or polyester fabrics. The Friedman chi-square test with respect to ranks was used to

determine significant differences between individual color preferences on the basis of rank order. The 0.05 level of probability was representative of significant results. And the 0.01 level of probability was representative of highly significant results.

CHAPTER III

PRESENTATION AND DISCUSSION OF RESULTS

Four tests, based on tactile and visual perceptions of fabrics were administered to 50 female college students, consisting of graduate and undergraduate students. Test responses were analyzed to ascertain significant relationships between the factors investigated. The results are presented and discussed under the following headings: Fabric Preference Based on Tactile Perception, Fabric Preference Based on Visual Perception, Color Preference, Fabric Suitability for Specified Apparel Styles.

Fabric Preference Based on Tactile Perception

The percentage distribution of fabric preferences of the 50 participants based on tactile perception is presented in table 3. A large percentage of the students preferred silk over polyester in fabric pairs I, III, and IV, while the reverse was true for pairs II and V. Results of the chi-square distributions revealed significant differences between preferences for silk or polyester for pair II (chiffon), pair III (satin), and pair IV (linen weave). Thus, hypothesis 1 that there is no significant difference between

Table 3.--Percentage Distribution of Fabric Preferences Based on Tactile Perception of the 50 Participants

Fabric Pair	Silk		Polyester		Chi-square Value
	Number	Percent	Number	Percent	
I (velvet)	29	58	21	42	0.98
II (chiffon)	13	26	37	74	10.58**
III (satin)	34	78	16	32	5.78*
IV (linen weave)	33	66	17	34	4.50*
V (plain weave)	23	46	27	54	0.18

* significant at the 0.05 level of probability
** significant at the 0.01 level of probability

preferences for silk or polyester fabric relative to tactile perception was only partially supported. The findings indicate that even though polyester fabrics are manufactured to simulate silk, consumers still are able to identify some of the unique characteristics of silk that, as yet, have not been incorporated in man-made polyesters.

Fabric Preference Based on Visual Perception

Table 4 shows the percentage distribution of fabric preferences based on visual perception for 50 participants. As may be noted, 54 to 72 percent of the participants preferred polyester fabrics over silk in four of the pairs, fabric pairs I, II, IV, and V, with only 32 percent preferring polyester in pair III (satin) and 68 percent preferring silk.

Chi-square distribution results revealed significant differences between the preferences of the respondents for silk or polyester when viewing fabric pairs I (red velvet), III (green satin), and V (purple plain weave). Therefore, hypothesis 2 that there is no significant difference between the preference for silk or polyester fabric relative to visual perception was only partially supported. A comparison of the results of the tactile perception test with those of the visual perception test shows similarities but in opposite directions. When preferences were based on

Table 4.--Percentage Distribution of Preferences for Silk and Polyester Based on Visual Perception of the 50 Participants

Fabric Pair	Silk		Polyester		Fabric Preferences	Chi-square Value
	Number	Percent	Number	Percent		
I	14	28	36	72	Polyester	8.82*
II	23	46	27	54	Polyester	0.18
III	34	68	16	32	Silk	5.78*
IV	19	38	31	62	Polyester	2.42
V	17	34	33	66	Polyester	4.50*

* significant at the 0.05 level of probability

feel, silk was preferred by a larger percentage of the participants. Whereas, when viewed visually, a majority of the respondents preferred polyester. This may be due to the introduction of color which was not visible during the tactile test. Thus, color appeared to exert an influence on the fabric preferences of the respondents. Both Philip (16) and Kawasaki and coworkers (12) found that color was an influential factor in consumer fabric preferences.

Color Preference

Since color has been shown to be an influential factor in fabric preferences, it was believed that a knowledge of individual color preferences would aid in understanding one's fabric preferences when color was interacting with other fabric characteristics. Therefore, a color preference test involving the five primary colors of the Munsell Color System that also were the colors of the fabric pairs used in the other tests, was administered.

The percentage distribution of the participants' color preferences are presented by rank order in table 5. The largest number, 30 percent, ranked purple as their most preferred color while 26 percent, the second largest number, ranked red as their most preferred color. Blue was the first choice of 24 percent, the third largest number of the participants, followed by green with 12 percent choosing

Table 5.--Percentage Distribution of Color Preference by Rank Order for the 50 Participants

Ranks[a]	Colors									
	Red		Yellow		Green		Blue		Purple	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	13	26	4	8	6	12	12	24	15	30
2	16	32	8	16	11	22	9	18	6	12
3	8	16	10	20	16	32	9	18	7	14
4	6	12	7	14	10	20	17	34	10	20
5	7	14	21	42	7	14	3	6	12	24

[a] rank 1 = color preferred most, rank 5 = color preferred least

this color as first choice. Only 8 percent ranked yellow as number one while 42 percent ranked it as their least preferred color.

The Friedman's chi-square test with respect to ranks was applied to the color rank responses to determine significant differences between color preferences. Results are shown in table 6.

A significant difference existed at the 0.05 level of probability between preferences for yellow and green, for yellow and blue, and for yellow and purple, and at the 0.01 level for red and yellow. This might be expected since yellow was the least preferred of all the five colors. Therefore, results of this analysis only partially supported hypothesis 3 that there is no significant difference between individual color preferences.

When mean ranks were calculated for each color, the following rank order resulted:

Red -- ranked first

Blue -- ranked second

Purple -- ranked third

Green -- ranked fourth

Yellow -- ranked fifth

This was due to the inclusion of the second, third, fourth and fifth ranks received by each color and indicates the color preference order of the total participants.

Table 6.--Summary of Chi-square Distributions for Differences Between Color Preferences

Colors Compared	Chi-square Value
Red - Yellow	9.68**
Red - Green	2.00
Red - Blue	0.32
Red - Purple	1.28
Yellow - Green	3.92*
Yellow - Blue	5.12*
Yellow - Purple	3.92*
Green - Blue	0.32
Green - Purple	0.08
Blue - Purple	0.32

* significant at the 0.05 level of probability
** significant at the 0.01 level of probability

Fabric Suitability for Specified Apparel Styles

The participants were requested to choose either a silk or polyester fabric they thought most suitable for each of five specified designs. The percentage distribution of the choices are listed in table 7. Silk and polyester each was chosen for style A by equal numbers or 50 percent of the respondents. Polyester was selected by 60 percent for style B, by 64 percent for style D, and by 70 percent for style E, while silk was chosen for style C, by 78 percent of the participants.

Results of the chi-square distributions utilized to determine differences between individual choices of silk and polyester fabric for the five specified styles revealed significant differences occurred between fabric choices for styles C and E. Thus, hypothesis 4 that there is no significant difference between individual choices of silk or polyester fabric for a specified apparel design was only partially supported.

Table 7.--Percentage Distribution of Fabric Suitability for Specified Apparel Styles

Style Number	Fabric Type	Silk		Polyester		Fabric Choice	Chi-square Value
		Number	Percent	Number	Percent		
A	Velvet	25	50	25	50	equal	0.02
B	Chiffon	20	40	30	60	Polyester	1.62
C	Satin	39	78	11	22	Silk	14.58*
D	Linen weave	18	36	32	64	Polyester	3.38
E	Plain weave	15	30	35	70	Polyester	7.22*

* significant at the 0.05 level of probability

CHAPTER IV

SUMMARY AND RECOMMENDATIONS

Summary

The purpose of this study was to investigate consumer preferences for silk or polyester based on texture and color perceptions. Also, judgment relative to the selection of and preference for fabrics for specified apparel styles were examined.

The sample consisted of 50 female students who were enrolled in graduate or undergraduate classes at Texas Woman's University, Denton, Texas. Participants were enrolled in twenty-two different majors offered in six different colleges: 1) College of Natural and Social Sciences, 2) College of Humanities and Fine Arts, 3) College of Education 4) College of Nutrition, Textiles and Human Development, 5) School of Library Science, and 6) Institute of Health Sciences.

Data relative to consumer preferences for silk or polyester fabrics were obtained through the administration of the following preference tests: Fabric Preference Based on Tactile Perception, Fabric Preference Based on Visual Perception, Color Preference, Fabric Suitability for Specified

Apparel Styles. These tests were based on tactile or visual perception of five types of silk and polyester fabrics. The different fabrics were obtained from local retail establishments and included red velvet, yellow chiffon, green satin, blue linen weave, and purple plain weave, in both silk and polyester fibers and were paired. Fabric samples 9"x9" were used in all tests except the fabric suitability test in which the samples were 4½"x4½". The tests were administered in a large room using overhead lighting. Check sheets were used for recording all responses.

The data were subjected to percentage and frequency distributions for descriptive purposes and to chi-square analyses to determine significant differences between preferences for silk and polyester fabrics. Statistical analysis results of the tactile test showed significant differences between fabric preferences for pairs II, III, and IV where silk was the preferred fabric in two of the pairs (III, and IV) and polyester in one of the pairs (II). Results of the visual test, also revealed significant differences between fabric preferences for three fabric pairs (I, III, and V), but polyester was the preference in two pairs (I, and V) and silk was preferred in only one pair (III) Significant differences between individual color preferences occurred in four instances when the five colors

were compared with each other. Two significant differences between preferences for silk or polyester occurred when choosing fabrics for specified apparel styles. These were between preferences for silk and polyester satin for style C and for silk and polyester plain weave fabrics suitable for style E.

Results showed that all hypotheses were only partially supported. On the basis of the overall results, preferences for silk and polyester differed little.

Recommendations

Based on the results of this investigation, the following recommendations for further research of consumer fabric preferences are suggested:

1. A study of the relationships between personal color preference and fabric selections for specific garments in which fabrics utilized in color preference tests are dyed to match the fabrics being studied.
2. A study similar to the present investigation but expanded to include a wider range of fabrics, fibers, colors, and textures.
3. A survey of consumer fabric preferences based on observed retail purchases for the purpose of developing an information file of consumers' fabric needs and preferences.

Fabric Preference Based on Tactile Perception

After feeling each pair of samples, place a check mark "x" in the blank below the one you like best.

Pair I:	A1	B1
Pair II:	A2	B2
Pair III:	A3	B3
Pair IV:	A4	B4
Pair V:	A5	B5

Major: _____

APPENDICES

APPENDIX A

CHECK SHEETS

Fabric Preference Based on Visual Perception

After viewing each pair of samples, place a check mark "x" in the space below the one you like best.

Pair I:	A1	B1
Pair II:	A2	B2
Pair III:	A3	B3
Pair IV:	A4	B4
Pair V:	A5	B5

Color Preference Test

Rank these colors on the chart in the order of your preference from the most liked to the least liked. Using the following scale:

1 -- equals your first preference
2 -- equals your second preference
3 -- equals your third preference
4 -- equals your fourth preference
5 -- equals your fifth preference

Place the appropriate number in the blank opposite the color.

Red	
Yellow	
Green	
Blue	
Purple	

Fabric Suitability Judgment

Choose one fabric from the pair of samples below each garment style that you feel is the most appropriate for that style. Place a check mark "x" in the appropriate space below the fabric chosen.

Fabric Choice

Style A, Pair I:

A	B

Style B, Pair II:

A	B

Style C, Pair III:

A	B

Style D, Pair IV:

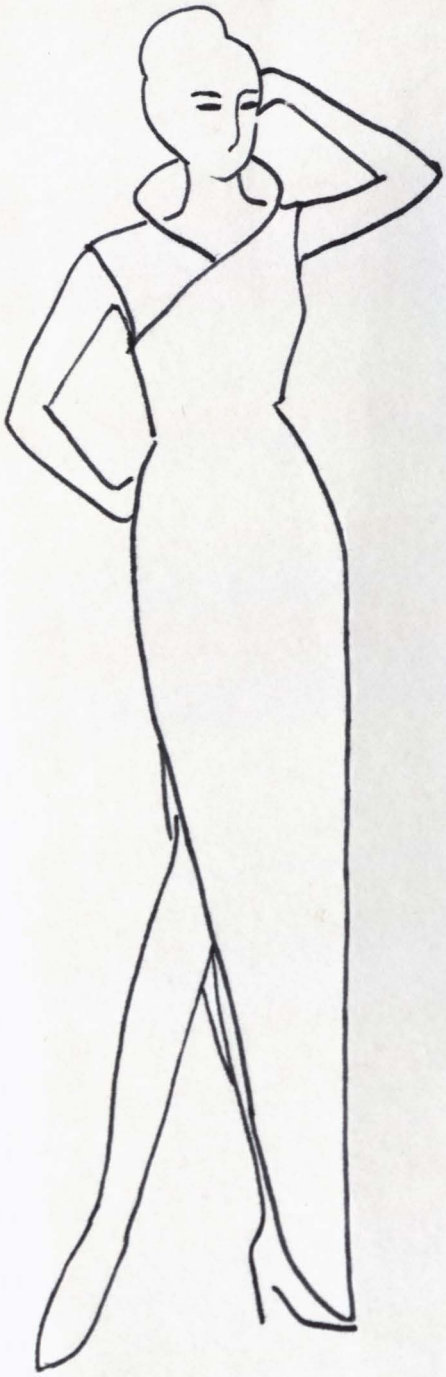
A	B

Style E, Pair V:

A	B

APPENDIX B

SPECIFIED APPAREL STYLES



Silk

Polyester

Figure 1. Style A

Silk

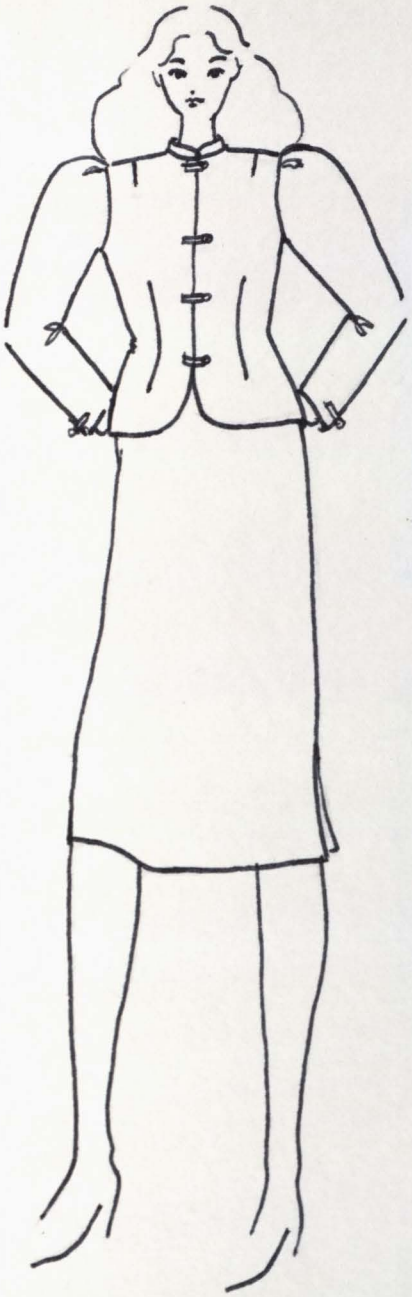
Polyester

Figure 2. Style B

Silk

Polyester

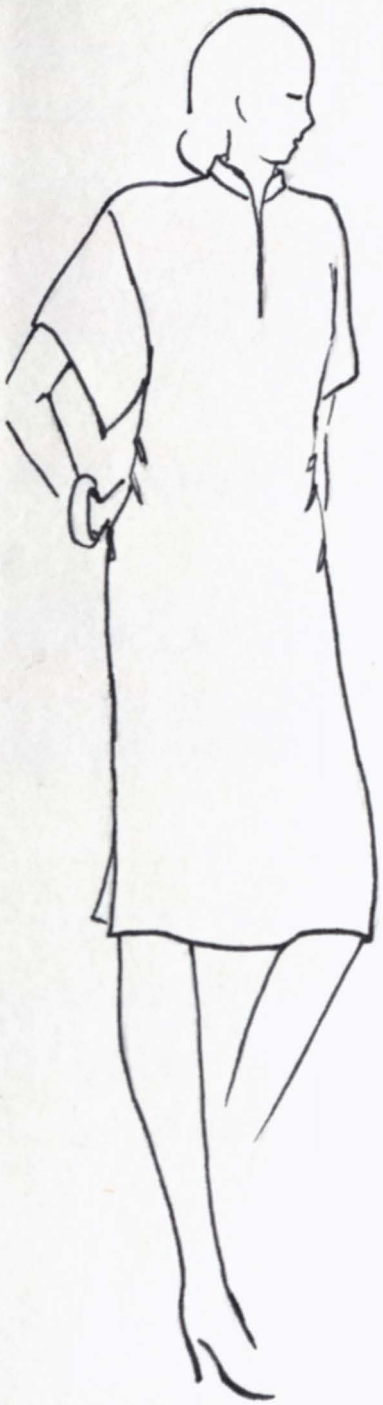
Figure 3. Style C



Silk

Polyester

Figure 4. Style D



Silk

Polyester

Figure 5. Style E

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