

An Investigation of Fit, Style, and Accessibility of Ready-To-Wear Clothing for Tall Women

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(Abstract)

Tall women's satisfaction with Tall clothing was examined in regard to fit, style, and accessibility. In addition, anthropometric measurements (stature, neck to waist, waist to ankle, shoulder to wrist) of tall women were compared with reported fit problems with Tall clothing, with the measurements from commercial standard PS 42-70, and with two racial groups. Data were gathered from 75 women who were at least 5 feet 8 inches and between 18 and 54 years old.

The subjects were satisfied with the overall fit of Tall clothing, but were dissatisfied with the style, and reported buying Misses' size for most clothing. The subjects rated style as more important than fit and were more satisfied with the overall style of Misses' clothing than with the style of Tall clothing. The subjects appeared to buy Misses' clothing despite their dissatisfaction with fit, in order to have the desired styles.

The reported fit problems with Tall clothing were too short hiplines in skirts and too short hemlines in button-up blouses. When compared with the measurements for Tall in PS 42-70, the subjects' measurements were significantly larger. Comparisons of measurements between Black subjects and White subjects revealed no significant differences.

Style appeared to be a major influence in tall women's dissatisfaction with and the purchase of Tall clothing. Therefore, manufacturers need to consider aesthetic qualities when developing garments for this market and should revise its sizing systems to accommodate the fit needs of Tall women.

DEDICATION

To my mother, whose patience and love are endless
and
my father and sister, who are with me in spirit.

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An Investigation of Fit, Style, and Accessibility of Ready-to-Wear Clothing for Tall Women

Chapter I

Introduction

Ready-to-wear clothing is designed to provide consumers with pre-assembled apparel, in a range of standard sizes, designed to fit the average consumer. By this definition, people whose measurements are not within the average-size will experience difficulty with fit, either in part or in totality, when wearing standard size clothing (Shim & Kotsiopulos, 1990). As a result of fit problems experienced by people outside the standard size range, manufacturers now produce clothing for special sizes. Specialty target markets have been developed based on consumers' physical characteristics (i.e., Petite, Large, Tall).

Manufacturers who design clothing for these markets recognize the market potential for women who are shorter than the average - Petite, larger in diameter than the average - Large, and taller than the average -Tall. Each specialty market has a sizing system that is unique to the physical characteristics of that population. In general, sizing systems act as labeling devices for consumers. The systems are intended to indicate the dimensions of a garment; therefore, consumers can determine the "suitability of a garment for their body dimensions" (Brown, 1992, p. 54). In women's apparel, the Misses' sizing system represents the average size, and can range from size 8 to 22 (U. S. Office of Technical Services, 1958), 6 to 16 or 4 to 14 (Frings, 1994), or 4 to 20 (Tamburrino, 1992a). The differences in how size ranges are defined can make the process of selecting clothing difficult for the consumer, but the variations among manufacturers' sizing systems also benefit consumers, (Tamburrino, 1992a) especially those who do not fit within the average-size (Brown, 1992). The sizing variation among manufacturers provide consumers with an array of systems from which to find a manufacturer who generally produces garments with measurements that complement their body characteristics.

Manufacturers use fit models during garment development, not only to develop the size system, but also to test sample garments for fit quality (Brown, 1992; Workman, 1991). The samples are later used to create additional sizes, smaller and larger, through grading techniques. When consumers find a manufacturer who produces garments compatible with their body measurements, these consumers may later find that changes have been made to the garment dimensions for the particular size that they have become accustomed. According to Sieben (1988), the changes may have been made to reflect current styling trends. Manufacturers may change the amount of ease in their sizing systems with the seasons or style (e.g., one season may feature skirts with A-lines, but the following season may feature tighter fitting straight-line skirts). This practice of inconsistent sizing prevents consumers from assuming that the fit from a particular size for one manufacturer would be the same from year to year. The inability to rely on sizing systems and to subsequently find proper fitting garments increases the possibility of reduced consumer satisfaction.

Prior research related to consumer satisfaction with the fit of women's apparel include body cathexis (LaBat & DeLong, 1990), apparel shopping through catalogs and elderly women (Shim & Bickle, 1993), women's physical size and body cathexis (Shim & Kotsiopulos, 1990), large-size women and clothing interests (Chowdhary & Beale, 1988), petite women (Huckabay, 1992), and garments before and after care (Francis & Dickey, 1984). The common variables with these studies are fit and style.

In general, most women have experienced fit problems with ready-to-wear clothing, regardless of their height. Women who are not average-size (e.g., Petite, Large, Tall) generally experience the most problems with fit and size (Chowdhary & Beale, 1988; Shim & Bickle, 1993). Many times the clothing for the specialty sizes are larger or smaller versions of Misses' clothing without considerations for proportional differences that occur from height differences (Huckabay, 1992; Kim, 1993). As a result, women in these specialty markets may still experience problems with achieving a proper fit.

Aside from fit and size, there are other variables that affect consumers when making apparel purchase decisions. Frings (1994) groups the attributes consumers use in buying apparel into two categories: aesthetic considerations and practical considerations. Aesthetic considerations are what attracts the consumer to a garment and include color, texture, and style of a garment. Practical considerations are what the consumer evaluates prior to purchasing the garment and include price, fit, comfort, appropriateness, brand or designer label, fabric performance and care, quality, and convenience.

Other research studies of consumers' evaluation attributes have used categorizations for grouping consumer apparel shopping attributes: Francis & Dickey's (1984) expressive, instrumental, and market; Eckman, Damhorst, & Kadolph's (1990) extrinsic and intrinsic; and Abraham-Murali & Littrell's (1995) physical appearance, physical performance, expressive and extrinsic. In all of the categorizations, fit and style are addressed by all of the researchers.

Consumer satisfaction has been defined by some researchers in terms of satisfaction/dissatisfaction (Engel, Blackwell, & Miniard, 1993; Oliver, 1981). The foundation of these studies is that the state of consumer satisfaction exists when the consumer's expectation(s) of a product has, at a minimum, been met, and the state of dissatisfaction exists when the consumer's expectation(s) of a product has not been met. To date, no research has been conducted that examined tall women's satisfaction/dissatisfaction with Tall clothing.

According to market segmentation theory, a specialty market needs to be defined in order to properly identify who the consumers are that meet the characteristics of that market and where they are located (Engel, Blackwell & Miniard, 1993). The Survey of Buying Power Demographics USA (1992) stated that there were approximately 130 million females, age 0 to over 65 in the United States. Of that total, 68 million are between the ages of 18 and 54 years. The U.S. National Center for Health Statistics reported the height distribution of females in the United States for the period 1976 to 1980. The results showed females, who measured 5 feet 8

inches and taller without shoes and were 18 to 54 years, represented an average of 6.18 percent of the U.S. population. If this percentage is applied to the population of females (18 to 54 years) from the Survey of Buying Power Demographics statistics, it shows that 4.2 million women are 5 feet 8 inches and taller.

Prior research related to tall women and their perceptions of ready-to-wear clothing examined tall women with average-size clothing and various variables (e.g. fit, size, style). In a few studies, tall women were grouped with large-size women, those who wear sizes larger than Misses' (i.e., Women's category) (Chowdhary & Beale, 1988; Shim & Kotsiopulos, 1990). The Tall market exists because it does not fit within the measurement range of the Misses' and studies should be conducted on products made specifically for that market.

The search for literature on racial body proportions revealed a wealth of studies that compared the Black and White American population, but the studies were mainly focused on children (Malina, 1974; Malina, 1988) and generalized to adult populations. According to Malina and Bouchard (1991), on the average, the Black population has longer upper and lower extremities than the White American population, and the White American population has a longer trunk or torso area than the Black American population. A search for prior research on the comparison of body proportions of adult Black and White female Americans and the implications for the fit of clothing was not located. In a search for prior research that examined proportional differences of women 5 feet 8 inches and taller, none was located. Although literature was located that examined tall women and the fit of clothing (Kersch, 1984; Chowdhary & Beale, 1988; Shim & Bickle, 1993; Shim & Kotsiopulos, 1990), none was located that examined tall women and their experiences with clothing designed for tall women.

The purposes of this exploratory study were to examine tall women's satisfaction with Tall clothing as compared with Misses' clothing. Fit, style, and accessibility were the variables used to investigate the experiences tall women have had with Tall clothing. Additional purposes were to examine the anthropometric measurements of tall women in order to compare commercial standards for tall women's clothing with measurements of an actual population, to investigate relationships between the measurements of tall women and reported fit problems with Tall clothing, and to determine if differences existed between the measurements of Black tall women and White tall women.

Operational Definitions

Accessibility - the ability to locate or acquire Tall clothing

Neck to Waist - measurement from the seventh cervical vertebrae to the small of the back

Shoulder to Wrist - measurement from the point where the arm rotates in the shoulder socket, down the outside of the right arm to the outside prominent wrist bone – the end of the radius bone

Stature - the top of the crown to the sole of the feet

Tall - 5 feet 8 inches or taller, in stocking feet

Waist to Ankle - Measurement from the waistline, in reference to the small of the back, down the outside of the right leg to the ankle

Chapter II

Review of Literature

The review of literature consists of integrative summaries of prior research on the topics of consumer satisfaction, clothing attributes in the apparel industry, fit and style of ready-to-wear apparel, history and uses of anthropometry with stature, anthropometric differences between racial backgrounds, anthropometry and sizing systems, standard body proportions, fit problems, fit problems associated with stature, and merchandising for specialty markets. The chapter concludes with a summary of how the topics relate to the topic of tall women's satisfaction with Tall clothing.

Consumer Satisfaction

Richard L. Oliver (1981) defined satisfaction as, "the summary psychological state resulting when the emotion surrounding disconfirmed expectation is coupled with the consumer's prior feelings about the consumption experience" (p. 27). Others have defined satisfaction as the combination of satisfaction levels for all associated attributes of a product (Churchill & Surprenant, 1982). In essence, consumers have preconceived expectations of the performance of a product or service and it is how this expectation is met after the receipt of goods and services that determines satisfaction (Oliver, 1981). One of the purposes of Oliver's (1980) study of the antecedents and consequences of satisfaction decisions was to analyze how consumer expectation, disconfirmation, and satisfaction were related one to another, and how those relationships differed from the prior theories of consumer purchase behavior. An additional objective of the study was to operationalize the three variables of expectation, disconfirmation, and satisfaction. By doing so, the researcher would be able to construct a model that could be used in subsequent research on consumer satisfaction. The results of the study revealed that "postusage" (p.446) responses were related to consumer expectations prior to the use of the product and also to disconfirmation (Oliver, 1980).

For Oliver's (1981) study of satisfaction in the retailing environment, the objectives were to conceptualize the satisfaction process, to suggest a methodology for monitoring the satisfaction process, and to provide details of how a company could implement a "satisfaction system" (p. 26). The researcher defined the components of the satisfaction process in three stages: store/purchase, product consumption, and redress activities. For each stage, the consumer experiences three phases (i.e., expectation, disconfirmation, satisfaction), which subsequently affect the consumer's attitude concerning that stage in the satisfaction process. The researcher then suggested that in order for a retailer to complete a comprehensive satisfaction study, expectation, disconfirmation, satisfaction, and attitude would have to be measured.

Churchill and Surprenant (1982) examined the effects of expectation, disconfirmation, and product performance on satisfaction for durable and non-durable goods. The researchers reported

that the variables consumers used in the purchase process varied dependent upon the type of goods (Churchill & Surprenant, 1982).

The disconfirmation process and consumer evaluation was the topic of Oliver and Bearden's (1985) research. The purpose of the study was to examine the process by which consumers develop disconfirmation attitudes and how disconfirmation was related to satisfaction. The researchers concluded that disconfirmation was formulated through overall judgment much like attitude formations. The researchers also concluded that "disconfirmation was one of the major factors influencing satisfaction" (p. 243).

Peterson and Wilson (1992) conducted a study that examined the myths of measuring consumer satisfaction. The researchers explained how methodological procedures can affect consumer reports of satisfaction. The topics of skewness of response shape, response rate bias, data collection mode bias, question form, question context, measurement time, and response styles were examined in the study. One of the results of the study was that skewness in the distribution of the responses may not be caused by limited number of responses that the subjects may select, but it may be caused by one or more other methodological procedures used in the study. Based on the results of the study, the researchers concluded that the myth, that consumers who are satisfied respond more often to satisfaction surveys than do dissatisfied consumers, is not so. In fact, Peterson and Wilson (1992) suggest that it would be the consumers who experienced extreme levels of satisfaction or dissatisfaction that would be more likely to respond to surveys than consumers who experienced mere satisfaction.

Peterson and Wilson (1992) reported that the method by which the data were collected from consumers affected the responses to satisfaction, but it did not affect the skewness of the distribution of the responses. Overall, the researchers found that personal contact, telephone or in person, resulted in more responses of satisfaction than self-administered questionnaires. When the researchers tested for the influence of question form on the skewness of the distribution of responses, the result was that a difference was noted when the questions were posed in negative and affirmative styles; affirmative questions resulted in more satisfaction responses and, inversely, negative questions resulted in more dissatisfied responses. Peterson and Wilson (1992) also found that when general questions of satisfaction were asked prior to a specific question related to the same topic, it increased the probability that the consumers would rate that second question higher than the general question.

The results from Peterson and Wilson's (1992) study also showed that satisfaction declined as time progressed from the point that the consumers first reported a level of satisfaction. This implies that the time frame in which the test for satisfaction is issued affects the level of reported satisfaction by consumers. The last topic of the methodological procedures that may contribute to the skewness of satisfaction responses was response styles. The researchers did not have a confirmation or disconfirmation on whether social influence affects how consumers may rate satisfaction. In other words, Peterson and Wilson (1992) concluded that more research needs

to be done on whether or not consumers respond to questions based on how they believe others think they should response versus how they really feel.

Clothing Attributes in the Apparel Industry

In the prior research summaries, consumer satisfaction/dissatisfaction was examined in terms of concepts and theoretical models. This section examines prior research on consumer satisfaction with an array of apparel attributes. According to Frings (1994), consumers use a wide variety of attributes (e.g., fit, style) when purchasing apparel; thus, it is important for manufacturers and retailers to examine consumer satisfaction with the attributes that are used to make purchase decisions.

The attribute frequently tested for consumer satisfaction/dissatisfaction (CS/D) is the fit of ready-to-wear apparel, either independently or with other variables (e.g., body cathexis, style, shopping attributes). Researchers have also examined CS/D with women's apparel in general (Shim & Kotsiopoulos, 1990; LaBat & DeLong, 1990) and with respect to specific or specialized populations (Chowdhary & Beale, 1988; Feather, Ford, & Herr, 1996; Goldsberry, Shim, & Reich, 1996; Shim & Bickle, 1993).

Eckman, Damhorst, and Kadolph (1990) examined the attributes that women consumers used when evaluating women's apparel during the first two phases of the apparel purchase process -- interest, trial, and purchase. The researchers reported that the attributes consumers used during the process could be placed into four categories: aesthetic, usefulness, performance and quality, and extrinsic. The researchers also reported that the consumer went through three phases during the in-store purchase process. During phase one, the interest phase, subjects were mainly concerned with the aesthetic characteristics of the garments. During phase two, the trial, fit was the criteria that led to the purchase or rejection of a garment. Fit was also examined with the garment's appearance on the body. Of the two variables (i.e., fit and appearance), the researchers found that fit was the major factor which led to phase three, the purchase decision (Eckman, Damhorst, and Kadolph, 1990). As a result of the study, Eckman, Damhorst, and Kadolph (1990) suggested that retailers consider emphasizing the attributes used by consumers in order to facilitate the consumer during the apparel purchase process.

Another study that addressed the attributes that consumers use related to apparel items was done by Abraham-Murali and Littrell (1995). The authors gathered data on the terms that consumers use for apparel attributes. The purpose was to develop a list of attributes that could be conceptualized into meaningful categories and that could subsequently be used by various types of retailers in communicating with consumers. The results of the focus group discussions yielded 79 different attributes that were grouped into four categories: physical appearance, physical performance, expressive, and extrinsic. These categories are quite similar to those used by Eckman, Damhorst, and Kadolph (1990). The physical appearance category included attributes that were observable such as fabric content, color/pattern/texture, construction of seams and grain, and styling. The physical performance attributes were related to "instrumental outcomes"

(p.70) such as fabric shrinkage, colorfastness, care, workmanship, garment resilience, and functionality (Abraham-Murali & Littrell, 1995). The expressive category was defined as “attributes that evoked a feeling or reaction in the consumer from owning and using the garment in a work or household context” (Abraham-Murali & Littrell, 1995, pp. 70-71). The expressive attributes included “looks good on me,” “provides scope for individual creativity,” “appropriateness to lifestyle,” and “comments of others” (Abraham-Murali & Littrell, 1995). The last category, extrinsic, was defined as the attributes that are used to evaluate apparel but are not specifically related to the product (i.e., brand, price, store/catalog, country of origin, care label, service) (Abraham-Murali & Littrell, 1995). Abraham-Murali and Littrell (1995) suggested that consumers need different information on apparel attributes when asked to evaluate garments from photographs (e.g., catalogs) than when the evaluation is done in person. The differences stem from the findings that consumers used different attributes when deciding on garments that were in photographs than those they could touch.

Abraham-Murali and Littrell (1995) and Eckman, Damhorst, and Kadolph (1990) were able to categorize the attributes that consumers use when making decisions for apparel purchases. In both studies, fit and style were ranked as important attributes in the purchase process. As such, fit and style have been included in this study of Tall clothing.

Fit and Style of Ready-to-Wear Apparel

LaBat and DeLong (1990) suggested that satisfaction with fit varies by definition from consumer to consumer. Glock and Kunz (1990) defined fit as “how a garment conforms to or differs from the body,” and that fit is “determined by proportional relationships among measurements used in a firm’s sizing system” (p. 110). In order to facilitate the selection process for consumers in apparel shopping, manufacturers provide labels on garments to identify the physical characteristics of a garment (Glock & Kunz, 1990). These labels are designed to provide the consumer with a general idea about the potential fit of the garment on the consumer’s body. Even though the labels are provided, consumers may still experience problems with the fit of ready-to-wear garments (Brown, 1992; Glock & Kunz, 1990). Fit problems are discussed later in the section on sizing systems for women’s apparel.

As suggested by Abraham-Murali and Littrell (1995) and Eckman, Damhorst, and Kadolph (1990), fit is not the only attribute considered by consumers in apparel purchases. Once garments are manufactured that are designed to satisfy the physical needs of women, the garments must also be aesthetically pleasing to the consumer (Shim & Kotsiopolus, 1990). Garment styles are based on what the consumer likes or dislikes, but to a great extent, garments that manufacturers produce are based on current fashions of the time period (Frings, 1994). Frings (1994) states that even though a consumer may be able to fit a garment, if it is out of “style” or does not conform to the mainstream fashions, the consumer would not wear the garment.

Huckabay’s (1992) research showed that petite women felt that Petite-size clothing tended to look more like children’s clothing rather than clothing appropriate for women. The subjects

did not feel that those styles were suitable for their lifestyles. In terms of sizing, both Huckabay (1992) and Kim (1993) reported that clothing for petite women was typically smaller versions of the average-size clothing. Huckabay (1992) goes further to report that detailing on the clothing was not scaled down to complement the smaller sizes.

DeLong, Kim, and Larntz (1993) conducted a study on student ability to detect misproportioned style detailing on a Petite-size garment. The subjects, who were students from an introductory design class, viewed 12 pairs of jacket outlines and were to respond as to whether a difference was noticed in the attractiveness, wearability, fashionability, and acceptability of the jackets and whether they liked or disliked the jackets. The subjects received training on proportioning and retook the test, viewing the same cards as in the first test. For each pair, the details (e.g., lapel, yoke, pocket) were manipulated in the outlines, individually and in a combination, to reflect varying states of proportion (e.g., detailing proportioned for a Petite size jacket or detailing proportioned for a Misses' jacket). The results of the study showed that the subjects were better able to detect misproportioned details of the pockets rather than the lapels and yokes. The researchers suggested that this could have resulted from the subjects viewing the lapels and yokes as part of the total jacket and the pockets as an addition to the jacket.

Large-size women in Chowdhary and Beale's (1988) study showed that the fit problems with large-size clothing did not diminish their interest in clothing nor did it deter them from wanting fashionable clothing. Shim and Kotsiopoulos (1990) reported that petite, large-size, and Tall clothing interests were no different than the clothing interests of average size women. As a result, the researchers suggest that retailers and manufacturers not limit the styling creativity only to average sizes.

The problems with the fit of ready-to-wear clothing that are related to size can be attributed to the sizing systems used by manufacturers to make the garments (Brown, 1992; Tamburrino, 1992). The U.S. sizing systems used by women's apparel manufacturers are fundamentally based on systems that were developed using anthropometric measurements (U.S. Department of Agriculture, 1941). In order to provide background materials on anthropometry, a discussion of the history and uses of anthropometry are discussed prior to the discussion on sizing systems and fit problems.

History and Use of Anthropometry with Stature

Anthropometry is defined as "the measurement of the human body with a view to determine its average dimensions, and the proportion of its parts, at different ages and in different races or classes" (Oxford English Dictionary, 1989 p. 512). In the 1970's, the study of anthropometry began as a way of predicting the nutritional state of a population (Komlos, 1992). Anthropometric measurements were then used to make conclusions on a population's standard of living (Komlos, 1992) as well as its nutritional status (Frisancho, 1990). The concept is that researchers should be able to determine a population's standard of living by whether or not the population, on the average, has reached its growth potential (Komlos, 1992). According to the

author, when a population has had an adequate nutritional diet, the population tends to grow to its height potential (Komlos, 1992). Komlos (1992) explained that this measurement technique captures a greater amount of a population that might otherwise be missed through the use of traditional economic measurements (e.g., Gross National Product).

Medical researchers have used anthropometry for the prediction of stature and growth measurements in populations. Feldesman (1992) conducted a study in which the femur, forearm bone, was compared to stature for males and females, age 8 to 18. The purpose was to determine if the femur was a valid predictor of stature. Feldesman (1992) concluded that females typically go through a proportional change in stature and bone growth, specifically the femur, during the ages of 8 to 18, and that the femur/stature ratio was good for predicting stature for children 12 to 18 years old. This suggests that the length of the femur bone is related to the stature measurement.

In 1993, Prothro and Rosenbloom reported the findings of their study on the validity of using knee length, gender, weight, and age as a method for predicting stature in 119 elderly Black Americans. The researchers predicted that, since the long bones of the arms and legs typically remain static as the body ages, the lengths of those bones should be correlated to stature. The results were that the use of knee height was significant in the elderly female subjects, and showed that knee height and gender were better predictors of stature than weight and age. Prothro and Rosenbloom (1993) noted that even though knee height was significant in both elderly Black women and elderly White women, the White subjects had a higher significance level, but the difference was due to a higher variability in the stature of the two groups. The following section addresses additional research on the differences in anthropometric measurements of Black and White populations.

Anthropometry was used in Chumlea, Guo, and Steinbaugh's (1994) study that examined the validity of using knee heights for predicting the stature in handicapped Black and White adults and children. The sample population was taken from the National Health Examination Survey conducted during the period of 1960 to 1970. Based on the regression equation models, knee height was identified as a viable measurement that could be used to predict stature in handicapped persons. In addition to knee height, age was also found to be a predictor of height for the Black and White women in the sample.

In both studies, anthropometry was used to determine if a portion of vertical body measurements could be used to predict the whole. In Haslegrave's (1986) study of anthropometric extremes, the researcher stated that "vertical body dimensions are more closely related to stature, [and] horizontal body dimensions are more closely related to weight" (p. 282). This concept was also stated in the USDA (1941) Body measurements of American women, which developed the first comprehensive sizing system for U.S. women's apparel.

Blacks and Whites were used in both studies and both reported significant differences in analytical results for the two racial groups. Anthropometric differences between the Black and

the White racial groups have been studied over the years by researcher Robert L. Malina (1973, 1974, 1988) and Malina and Bouchard (1991). It is Malina's theories and concepts that were used for this study.

Anthropometric Differences between Races

In the middle sixties, Malina (1974) studied the body dimensions and proportions of 7,120 Black and White American children between the ages of 6 and 11. The researcher used 28 measurement sites that included measurements for vertical lengths (stature, sitting height, buttock-to-knee length, popliteal height, foot length, upper arm length, elbow-wrist length, and hand length). The author concluded that the Black children had longer lower extremities and the White children had longer sitting heights. Malina (1974) stated that the stature of the White children was comprised of more of the head, neck, and trunk, inversely, the stature for the Black children was comprised mostly of leg length. For the female children of the study, the Black females consistently had longer buttock-to-knee and popliteal (arm) lengths than the White females, and in total stature comparison, the Black females were on average taller than the White females.

Malina (1974) reported that, from the comparison of the upper and lower arm lengths, the Black female lengths were consistently longer than the White females. The proportional differences in the extremities between American Blacks and Whites, where the Blacks on the average have longer extremities (arms and legs), is reiterated by Malina in Miller and Dreger's (1973) Comparative Study of Blacks and Whites, and in Lohman, Roche, and Martorell (Eds.) (1988), Anthropometric Standardization Reference Manual.

Malina and Bouchard (1991) explain how racial or racial genetics affect physical growth and maturation. The authors compared the sitting heights and leg lengths with stature for American Black and White children and Mexican children. The measurements were obtained from databases derived from national health surveys. The American Black children consistently had the lowest sitting heights, but consistently had longer leg lengths. This supports the findings reported by Malina (1974) that, on average, the Black race tends to have longer lower extremities and shorter torsos than the White race.

Malina (1973) stated that, although stature differences were evident among Black and White female children, little significant difference was reported in the stature of adult Black and White races. Malina (1973) also noted that the proportional difference did remain, where Black races have longer extremities and shorter torsos than the White races.

Anthropometric tables for Black (6,954) and White (35,436) Americans were compiled by Frishancio (1990) using data from two National Health and Nutrition Examination Surveys of the 1970's. The tables included measurement sites for stature, sitting heights, weight, and body mass index for Black and White males and females. Of the aforementioned measurements, only stature

and weight measurements were reported in terms of height. The remaining measurements were reported in terms of age.

The stature for the two female populations, who were 5 feet 8 inches or taller, showed variability over the age range of 18 to 54, (i.e., there were instances where Blacks had the higher mean and some instances where Whites had the higher mean). In comparing the sitting heights of the two populations, the Black subjects showed consistently shorter sitting heights than did the White female subjects. This data supports the research by Malina (1974) and Malina and Bouchard (1991).

Giddings and Boles (1990) also found that anthropometric measurements differed according to race in their study of pants fit for Black and White males. The purposes of the study were to determine if 183 Black and White subjects experienced differences in how they found proper fitting pants, anthropometric measurements, and to develop a pants pattern to fit the group that experience the most difficulty in finding proper fitting pants. The results of the study showed that the Black subjects reported more difficulty in finding good fitting pants than did the White subjects. The researchers attributed the problems to the differences in average measurements between the two races. The significant differences were in the waist, crotch length, vertical right buttock, medial thigh circumference, sitting height, and the height of the buttocks curve (Giddings & Boles, 1990). The White subjects had larger means for five of the six measurement sites, where the Black subjects had larger medial thigh circumferences.

The finding that the White subjects had larger sitting heights than the Black subjects is similar to Malina (1973) and Malina and Bouchard (1991). The researchers reported that Black subjects tended to have shorter torsos and longer arms and legs than did White subjects.

Anthropometric Measurements and Sizing Systems

Anthropometry is the basis for the U.S. sizing systems of women's, men's, and children's ready-to-wear apparel. Glock and Kunz (1990) define sizing system as "a range of sizes based on gradation of dimensions for a body type" (p. 110). Manufacturers use one standard size and adjust the pattern dimensions to larger and smaller sizes through grading techniques. Anthropometry has been used in research studies of apparel in comparing how anthropometric averages differ between populations and the implications of fit (Giddings & Boles, 1990), comparisons of ready-to-wear garments to populations (Yoon, 1994), and comparisons of standardized sizing systems to populations (Goldsberry, Shim, & Reich, 1996).

A number of studies have been conducted related to the development of sizing systems specifically for women's apparel. It should be noted that the sizing systems in the United States are voluntary guidelines for apparel manufacturers, and many manufacturers use the sizing systems as a foundation for their own sizing systems.

In the early 1940's, the U.S. Department of Agriculture (USDA) made the first national attempt to collect data on women's anthropometric measurements in order to develop a standardized sizing system for women's apparel. The purpose of the project was to obtain body measurements of a large number of American women in order to create a profile that could be used to develop a sizing system that would accommodate the measurements for the majority of U.S. women (USDA, 1941). Fifty-eight anthropometric measurement sites were used to obtain data on 14,698 female subjects. The average for each measurement site was analyzed in order to develop the profile measurements.

The USDA researchers found that height was a practical method for predicting vertical measurements and that weight was a viable predictor of horizontal measurements (U.S. Department of Agriculture, 1941). The researchers reported a high correlation within vertical measurements and a high correlation within the horizontal measurements (i.e., vertical measurements were predictors of other vertical measurements). When the vertical measurements were analyzed against the horizontal measurements, little to no relationship was found. Weight, on the other hand, was correlated with both vertical and horizontal measurements, but weight was significantly correlated with horizontal measurements, specifically the waist girth. These findings were also supported by Haslegrave (1986) in his study of extreme heights. The result of the USDA study was that in order to develop a sizing system, body length and weight should be used as key dimensions.

A second notable study of women's apparel sizing systems was conducted in the late 1950's by the U.S. Department of Commerce -- Commercial Standard (CS) 215-58. The purposes of the study were to provide a classification system for producers of women's apparel and to provide a system where the consumer could identify her body structure in relation to the sizing classification "regardless of price, type of apparel, or manufacturer of the garment " (p. 1). The results of the study were four classifications for apparel (i.e., Misses', Women's, Half-sizes, Juniors), three height groups (i.e., Tall, Regular, Short) and three bust-hip groups (i.e., Slender, Average, Full), for a total of 21 separate size classifications.

In 1971, the U.S. National Bureau of Standards revised the Commercial Standard CS 215-58 and developed another sizing system - Voluntary Product Standard (PS) 42-70. The PS 42-70 is one of the sizing systems currently used by apparel manufacturers in the United States. The purpose of the revision was to narrow the number of sizing classifications that were previously developed by CS 215-58. The revised sizing system reduced the number of size categories from 21 to seven (i.e., Misses', Misses Petite, Misses Tall, Junior, Junior Petite, Women's, Half-sizes). The reduction in the number of size classifications was achieved by completely removing the hip classifications (i.e., slender, average, full) and by removing the Tall classification from the Junior's and Women's sizing category.

Goldsberry, Shim, and Reich (1996) examined the differences between the body measurements of women 55 years and older to the PS 42-70 sizing measurements. The study was sponsored by the Institute for Standards Research (ISR) and members of the apparel industry. In

prior studies of women 55 years and older, researchers found that this group has special apparel needs due to changes in the body over time (Goldsberry & Reich, 1989; Shim & Bickle, 1993). Thus, the purpose of the study was to develop a database of measurements specifically for this market.

Goldsberry et al. (1996) found that approximately 87% of the subjects' measurements were significantly different from that of the measurements of PS 42-70. Based on that finding, the researchers concluded that women who were 55 years or older should expect to experience problems with the fit of ready-to-wear garments. In terms of the tall measurements for women age 55 years and older, the researchers found that the standardized measurements for tall only (i.e., Misses', Tall) were not designed to accommodate "curvaceous body types" (Goldsberry et al., 1996, p. 117). This means that tall women in this age group, who have had shifts in body mass due to aging, should experience fit problems with garments made with the PS 42-70 specifications.

One of the recommendations from the study was that manufacturers divide the existing size categories to include a section for elderly women (e.g., Misses' and Misses' Senior or Petite and Petite Senior). Another recommendation from the study was that the apparel industry and the American Society for Testing and Materials (ASTM) work together to update the original measurements taken in the 1941 study by the USDA.

Tamburrino conducted a three-part study (1992a; 1992b; 1992c) that examined the sizing issues that face consumers and manufacturers of apparel. The first part of the study was an examination of the sizing systems, which included a brief history of the sizing system and identified the key measurements used in men's and women's apparel. The second part concluded the introduction of sizing systems and addressed the problems that occur with sizing systems. According to Tamburrino (1992b), "Attempts to standardize...women's apparel sizes have failed...because they restrict the freedom of...producers to interpret dimensions for a specific population" (p.52).

The final part of the study (Tamburrino, 1992c) examined the use of anthropometric measurements with current sizing systems. Tamburrino gathered bust, waist, and hip specifications from 16 apparel manufacturers. For manufacturers of women's apparel, the desired specifications were for a size 8 and for manufacturers of men's apparel, the specifications were for a size 40. Each garment was placed on a Wolf form that was representative of the size of the garment. Based on the results of the study, the researcher concluded that the sizing system for the women's apparel industry "is not reliable for either industry or consumers" (Tamburrino, 1992c, p. 68). Tamburrino reported that approximately 80 per cent of the women's garments did not fit the size 8 Wolf form and was found to be larger - up to two sizes, or smaller than the form. The researcher compared the testing environment to the real environments where consumers try on different garments and sizes in order to locate one that fits the consumer's body.

The result of the men's garments was that, overall, the garments fit the male Wolf form with little variation. The author provided three recommendations for solving some of the problems with the sizing systems: (a) use a standard labeling system that details the dimensions of the garment in a manner that consumers can use; (b) provide manufacturers the freedom to use their own individually defined dimensions, as long as they adhere to the standard labeling as mentioned in the prior recommendation; and (c) establish apparel industry funding to conduct perpetual surveys for anthropometric measurements throughout geographical regions (Tamburrino, 1992c).

Chun-Yoon and Jasper (1993) conducted a study that compared garment sizing systems on a global scale. The researchers used sizing systems from the United States (1958), England (1957), South Korea (1981), Germany (1983), Hungary (1986), Japan (1990), and Austria (1991). The researchers found that most of the systems were similar to one another in that they used key dimensions for sizing women's apparel, but the specific kinds of dimensions used in the sizing systems differed by country. Four of the seven countries (i.e., United States, Germany, Austria, Hungary) used bust, waist, hip and height as key dimensions for all types of garments. One point made by the researchers was that many of the countries were revising their sizing systems based on the developments by the International Organization for Standardization (ISO) in the 1970's and 1980's.

For the U.S. apparel industry, the labeling for sizing systems differ among women's and men's apparel. Chun-Yoon and Jasper (1993) stated in their research that the United States was one of four countries that use a nominal number given to a set of measurements to indicate the size of a garment. In contrast to the women's apparel industry, the men's apparel industry in the United States uses a labeling system based on body measurements (e.g., a man's shirt size 40 represents a chest circumference of 40 inches) (Tamburrino, 1992c; Brown, 1992; Chun-Yoon & Jasper, 1993). Although the sizing system used for men's apparel is not perfect, its basis is more solid than that used for women's apparel because the labeling reflects actual body measurements.

According to Sieben (1988), one reason for the arbitrary numbering in women's apparel is vanity. Sieben suggests that some women pay higher prices for apparel in order to be able to wear a garment that has a smaller size on the label. Brown (1992) also agrees with the concept of "vanity-sized" garments (p. 55). The author suggested that designers and manufacturers increase the amount of ease in more expensive clothing to achieve a larger fit, and the cost of increasing the ease and fabric are recovered because the garments sell at a higher price (Brown, 1992). Workman's (1991) view on the need for psychological attachments to clothing size labels was that in order for consumers to find proper fitting clothing, consumers need to put aside their vanity.

Anthropometrics was used in Yoon's (1993) study on the development of a descriptive sizing system for women's apparel. The purpose of the study was to determine what key dimensions consumers preferred on garment labels. A selection of male and female subjects was shown examples of sizing systems for men's and women's apparel and was asked to select a

preference. The results were that both groups preferred a sizing system that was descriptive, one that provided detail on the garment's dimensions. The subjects preferred a sizing system similar to that of the International Organization for Standardization (ISO), rather than the current sizing systems used in women's apparel in the United States.

Yoon and Jasper (1996) examined the key dimensions that should be used in labeling for the women's apparel sizing system. The researchers found that residual variance analyses were better determinants for which of 31 body measurement sites were "good predictor[s] of other body dimensions related to a certain garment type" (Yoon & Jasper, 1996, p. 94). Using data gathered by the Aerospace Medical Research Lab - 1977, Yoon and Jasper (1996) reported that different key dimensions were significant based on the type of garments. The key vertical dimensions reported in the study included sleeve inseam and outseam lengths for long-sleeve garments; shoulder height and length for short-sleeve and sleeveless tops; shoulder height for short pants, split skirts, and skirts; crotch height and length for ankle-length and calf-length pants; crotch height for split skirts; and waist height for skirts.

The researchers suggested that the apparel industry should include pictograms on the label with the key dimensions. A few of the conclusions that Yoon and Jasper (1996) reported were that by including a garment's anthropometric information along with a pictogram on the label, it would reduce the trial and error attempts by consumers in selecting a proper size, it would also reduce the number of returns in catalog purchases, and consumers could select from a variety of garments without concern for sizing ambiguity among manufacturers.

Anthropometric measurement tables in apparel catalogs are used to assist consumers in locating their proper sizes and body types (Yoon, 1994). Several researchers have examined people's ability to accurately use standardized anthropometric tables (Horner & Gayton, 1986) and their ability to correctly report self-measurements such as stature (Giles & Hutchinson, 1991). The 1983 Metropolitan Height and Weight tables were the focus of Horner and Gayton's (1986) study. The researchers conducted testing to determine if individuals were capable of accurately using the tables to identify their own body size. Seventy-two subjects were asked to follow the written instructions on finding their correct body size from the 1983 table. The researchers reported that only ten per cent of the subjects were able to find their correct size. Further, when the researchers took the measurements of the subjects, the measurements were not congruent with the table. Horner and Gayton (1986) concluded that the table was not "usable by the general population" (p. 26).

Giles and Hutchinson (1991) examined the accuracy with which 8000 U.S. Army personnel reported their height. The researchers concluded that women tended to report their height more accurately than men when age was used as an independent variable. The rate of error increased with age, from one-quarter of an inch for the age range of 45 to 54, to one and one quarter inch between the ages of 65 to 74 (Giles & Hutchinson, 1991). An analysis of reported height and actual stature revealed that women reported more accuracy in height than did men.

In contrast, Yoon (1994) compared groups of women in their ability to perform self-measuring procedures typically used to order apparel from mail-order companies. One-hundred three subjects were asked to obtain measurements on a mannequin, themselves, and one other participant at 19 different measurement sites. All of the subjects were then measured by the researcher. The researcher found that self-measurement was sufficient for some key dimensions, but not for others. Of all the vertical measurements used in the study, waist height was suggested as a possible key dimension for garments designed for the lower body because it was the site with the least reported errors.

Commercial Standards for Tall Clothing

The sizing systems for Tall clothing began in 1958 with the Commercial Standard 215-58. As previously discussed in the anthropometric and sizing system section of this study, Tall clothing was represented in three classifications: (a) Misses', (b) Women's, and (c) Junior's. The standard was later updated by the Voluntary Product Standard 42-70, which reduced Tall clothing to only appearing in the Misses' classification.

According to PS 42-70, Misses' Tall range from 10T to 22T for heights 67.5 inches to 70.5 inches and the Misses' range from 6 to 22 with height ranging from 62.5 inches to 66.5 inches. Both the regular and tall sizes are labeled with even numbers (e.g., 10T, 12T, 14T) and each size represents different vertical measurements. The girth measurements of bust/waist/hip for Tall are the same as Misses'. This implies that the sizing system assumes that the bust/waist/hip of average height women are the same as tall women.

The vertical measurements for Tall clothing vary among the sizes. The measurements germane to this study are stature, cervical height, waist height, and ankle height. Stature represents the total height of a person from the sole of the feet to the crown of the head. Size 10T begins with a stature of 67.5 inches and increases by .5 inches and ends with 70.5 inches for size 22T. The cervical height and waist height also follow a similar increment pattern. The cervical height is measured as the back of the neck to the floor, the measurement begins at 58.5 and increases by .5 inches. The waist height is defined as the waist to the floor and it begins at 42.5 inches and increases by 3/8ths up to 44.75 inches. In contrast to the first three sites, the ankle height remains constant at 3 inches for all of the heights.

Many current manufacturers have adopted PS 42-70 as a guide for their own sizing systems. Companies such as J. C. Penney's and Spiegel use Misses' and Misses' Tall sizing systems and, as in PS 42-70, the bust/waist/hip measurements are the same for both sizing systems. For stature, the two catalogs have measurements that reflect the PS 42-70 influence. J. C. Penney's Fall/Winter 1996 catalog uses 68 inches to 71 inches for its Misses' Tall and Spiegel's Fall/Winter 1996 catalog uses 67.5 inches to 72 inches. By indicating specifications for sizes, it is assumed that the clothing in each catalog is designed to fit women who meet the indicated girth and height measurements. Therefore, women whose measurements are outside of these ranges may experience problems with the fit of the garments.

Fit Problems

In spite of the national attempts to develop and implement standardized sizing systems, consumers are still baffled by the search for good fitting clothing (Brown, 1992; Farmer & Gotswal, 1982). Workman (1991) suggests that consumer education in how to find correct sizing is the key to reducing the occurrences of fit problems.

LaBat and DeLong (1990) contended that the apparel industry bases its sizing system on the “ideal body” (p. 44), which has symmetrical and balanced proportions. The focus of their study was to extend the analysis of fit from physical dimensions to psychological consequences of fit and satisfaction. The sample consisted of 107 female subjects who were asked to rate their level of satisfaction with fit and their satisfaction with the fit of specific areas of their bodies. Of the body sites that are typically associated with vertical measurements, height received the highest satisfaction and legs received the lowest satisfaction. The researchers reported a positive correlation with body cathexis and reported satisfaction with fit and suggested that reports of low satisfaction may be due to women comparing themselves to an ideal. The recommendation from the study was for the apparel industry to develop more diverse sizing systems in order to allow women more systems from which to find a better fit and subsequently psychological satisfaction.

In Giddings and Boles’ (1990) study of anthropometric measurements of Black males and White males, the researchers found differences between the fit of pants for Black males and White males. The results showed that Black subjects reported more difficulty in finding good fitting pants than the White subjects. The problems were attributed to differences in the waist measurement, crotch length, vertical right buttock length, medial thigh circumference, sitting height, and buttocks curve height (Giddings & Boles, 1990). By making adjustments to a standard size pattern to incorporate the measurements of the Black subjects, Giddings and Boles (1990) were able to draft a pants pattern and construct a garment that received a good evaluation from the Black subjects.

Chowdhary and Beale (1988) found that fit and size were the major problems experienced by women who wore sizes that were larger than Misses’. The authors asked 71 large-size women to respond to questions that would reveal their level of clothing interests and their level of satisfaction with six selected garments (i.e., pants, skirts, blouses, suits, outerwear, dresses) and with seven variables (i.e., color, style, fit, size, fabric, selection, and fashion). The results of the study showed that the subjects reported fit problems with pants, skirts, and outerwear; however, the subjects also reported satisfaction with pants and outerwear and somewhat less satisfaction with skirts. The study does not report the source of the problems for the garments (i.e., too tight in waist, too short or long), but it appears that the fit problems reported by the subjects were not significant enough for the subjects to report dissatisfaction with those garments.

In Shim and Kotsiopulos’ (1990) study of women and ready-to-wear clothing, the researchers found that fit and size were problems for over one-half of the 514 subjects studied. The subjects’ sizes were grouped into petite, average, and tall/large. Each group rated their level

of satisfaction with seven attributes, one of which was the satisfaction with the general fit of garments. The results showed significant differences between the three height groups, meaning that each group had a different level of satisfaction with the general fit of ready-to-wear clothing. Of the three groups, the average size group reported the greatest satisfaction, followed by the tall/large group (Shim & Kotsiopoulos, 1990).

The majority of the problems experienced by the elderly subjects in Shim & Bickle's (1993) study were also fit and size. Eight-hundred seventy-two respondents from mail-order catalog companies were asked to provide information on their perceived height by indicating petite, medium, or tall, and their numerical height. The most frequently reported height for the tall category was 5 feet 6 inches, and the median was 5 feet 8 inches.

The respondents were also asked to rate their satisfaction with four garment categories (i.e., blouses/sweaters, pants, skirts/dresses, jackets) at specific points (i.e., sleeve length, skirt waist). The results supported the researchers' hypothesis that the respondents' reported satisfaction would differ according to the three height groups (petite, medium, tall). All of the respondents reported some dissatisfaction, but of the three, the petite and tall respondents reported more dissatisfaction; the petite group was the least satisfied. This finding supports the results of Shim and Kotsiopoulos' (1990) study of ready-to-wear clothing. The problems experienced by the tall elderly respondents were too short of length in crotch line and narrow widths in pant legs.

Fit Problems Associated with Height

Height has been used as a key dimension by the apparel industry in garment classifications (Chun-Yoon & Jasper, 1993), but the ranges for height dimension have varied over the years (Workman, 1991). The average height range contains the greatest number of consumers. Consumers who fall outside the average market have been identified as viable markets (e.g., Petite, Tall), and manufacturers have developed sizing systems to accommodate those consumers.

Anthropometric extremes were the focus of Haslegrave's (1986) study that used data from the Motor Industry Research Association (MIRA), a British organization. Haslegrave examined the characteristics of those persons whose measurements fell the farthest from the mean of a given population. The extremes used in the study represented the 5% woman (i.e., women whose heights and weight were 5% of the average height and weight of the population) and the 95% man (i.e., men whose heights and weights were 95 percent of the average height and weight of the population) (Haslegrave, 1986). The researcher reported low correlation between the extreme populations and the anthropometric measurements of the total population. Haslegrave recommended that in order to define the anthropometric measurements for the 5% population of women and the 95% for men, the median for each population should be calculated in order to find representative measurements for those populations.

In Workman's (1991) study of size variations, the researcher examined how the use of fit models contribute to the sizing variations in apparel by comparing employment advertisements for

fit models for 1976 and 1986. Four variables (i.e., height, bust, waist, hip) were used in the comparisons of measurement requirements for sizes 8 and 10. Height was the only vertical measurement used. The results showed that in 1976 the height requirements were the same for both sizes (i.e., 66 to 68 inches), but in 1986, the height requirements changed between sizes, for size 8 the requirements reduced to 62 to 68 inches and for size 10 the requirements increased to 65 to 70 inches (Workman, 1991).

Tall

Shim and Kotsiopolus (1990) used 120 tall women in their study of women's satisfaction with ready-to-wear apparel. The tall women were labeled as "tall/large" (p. 1032) and were defined as 5 feet 7 inches or taller; this group represented twenty-five percent of the respondents. The tall/large group scored in between the petite group and the average group when reporting satisfaction with the "general fit of clothing" (p. 1037). A one-way analysis of variance showed significant differences between all three groups which implies that there were distinct differences in the levels of reported satisfaction among the three height groupings.

Tall women's clothing problems were the focus of Kersch's (1986) study, which used members of a social organization for people 5'10" and taller. Approximately 43 per cent of the 114 subjects were over six feet tall. The clothing problems reported by the subjects were fit, style, and problem resolution. Kersch (1984) reported that, in general, the subjects had difficulty finding ready-to-wear clothing that fit, specifically with the fit of suit jackets, blouses, and pant legs. Some of the problems identified included too short lengths in the sleeves, crotch lines, torso, and pant legs. When the clothing problems were analyzed against demographic variables (i.e., age, income, occupation, education), the researcher reported that the clothing problems were not affected by demographic variables (Kersch, 1984).

In shopping for clothing, Kersch (1984) reported that the subjects usually shopped in specialty or department stores, but they also used catalogs as a source for clothing. One of the recommendations from the study was for retailers to distribute Tall clothing through the shopping venues that tall women already use (e.g., specialty and department stores) and the retailers should not have problems attracting tall consumers. One significant point made by Kersch (1984) was her comparison of the proportional problems experienced by tall women to the problems experienced by petite women and ready-to-wear clothing. The researcher implied that the problems experienced by tall women are inversely related to the fit problems experienced by petites. Although Kersch (1984) examined fit problems experienced by tall women, the research does not indicate whether Misses' or Tall clothing was the focus of the testing.

Petite

Petite fit problems are included in this review of literature, because the problems experienced by petite women are, in many cases, the direct opposite of the problems experienced by tall women. The opposing problems include lengths that are too long for petite and too short for tall women, or the detailing is too large for Petite size clothing and too small for Tall clothing.

The USDA (1941) study on women's measurements included women who were shorter than the current average height (5 feet 4 inches to 5 feet 7 inches). The median height of the study was 5 feet 3 inches, this height was also close to the mode (the most frequent height) in the study. In recent years, 5 feet 3 inches has been considered petite as opposed to the average height in earlier years (Frings, 1994; Tamburrino, 1992).

Huckabay (1992) examined petite women's body cathexis (e.g., perception of one's body) as it relates to garment fit, proportional problems, and styling of Petite clothing. The subjects, who were shoppers from a major catalog company, reported problems with fit of Petite size clothing. The problems were associated with the length of the garments and garment areas (e.g., too long in sleeves, skirts, pants, crotch lengths). To resolve many of the fit problems, the subjects usually had the clothing altered to achieve a more desirable fit. The subjects whose heights were near the shortest end of the height range experienced the most problems and reported using alterations the most. Approximately three-fourths of the 132 subjects reported dissatisfaction with the clothing available at the time of the study. The subjects wanted to have more stylish clothing, as found in ready-to-wear clothing for average-size women.

Petite and Misses' clothing was the focus of Kang-Park's (1992) study of sizing satisfaction. The results of the study showed that the Petite size subjects were less satisfied than the Misses' subjects, but both the Petite size and Average size subjects found the same clothing attributes as important (Kang-Park, 1992). This finding suggests that Average size women are being satisfied more often than Petite size women, in that, manufacturers and designers are incorporating those clothing attributes in average-size clothing but not Petite. The subjects who tended to "cross-over" in sizing systems when shopping for apparel reported less satisfaction than did the subjects who reported shopping from only one sizing system.

Kim (1993) investigated petite body proportions and the fit of Petite size clothing. Race was also a variable in the study. The findings showed that clothing for petite women was typically smaller versions of Misses', but without considerations for the differences in body proportions between the Petite size and Misses' women. The researcher recommended that manufacturers incorporate the proportional shifts from Misses' to Petite size in garments in order for the petite market to receive a satisfactory fit in their clothing. The researcher also found that body proportions differed generally according to race (i.e., Caucasian, Asian). The Caucasian subjects generally had longer torsos. Regardless of the race of the subjects, the body proportions were still significantly different from those for average size specifications (Kim, 1993). The researcher reported that the problems experienced by the body proportion differences were evident in the fit of jacket and pants.

In general, differences in body proportions can affect how manufacturers and designers create garments for specialty markets. Shim and Bickle (1993) suggested that the dissatisfaction reported by their elderly female subjects may be attributed to their lack of knowledge of how proportional differences influence fit and satisfaction. Some specialty catalogs such as E-Style women's catalog, a joint venture of Ebony Magazine and Spiegel, Inc., have addressed the issue

of proportional differences according to racial genetics. On pages throughout the catalog, statements are made regarding how proportional allowances, such as more hip allowances, are made to accommodate the market's average measurements..

Merchandising for Specialty Markets

The trend in marketing is to focus on niche marketing (Maynard, 1993; McMath, 1994; Delaney, 1995). Niche marketing is the process of identifying a smaller group of people, from a larger group, who have generally homogenous characteristics and providing products that are of interest to this population (Delaney, 1995). McMath (1994) used the saying that the United States is a “salad bowl” versus a melting pot, when he discussed how manufacturers of shoe polishes used niche marketing to target their customers. The “salad bowl” concept is that there are distinctive differences that stem from racial backgrounds to lifestyles that coexist with others, versus assimilating completely into the dominate culture or lifestyle.

Regardless of the reason for the differences, marketers and retailers have had success in focusing on a narrow market. Delaney's (1995) article on niche marketing includes an interview with two brothers who decided to focus on a small population of affluent women shoppers that lived in a New York suburban area. One strategy of the store owner was to provide a commodity to the small population that the larger companies were not doing, a retail site where the shoppers could purchase designer or upscale products without having to travel to New York's metropolitan areas. Both Maynard (1993) and Delaney (1995) agree that small companies have an advantage over the larger companies, in that, the smaller companies have more flexibility for changes in order to meet consumer demands.

Pepall (1992) presented a model that can be used when identifying a product and its perspective target market. The researcher defined the use of the word niche and how businesses who use niche marketing are affected by its use. The author explained that niche markets are small, homogenous markets that typically use the same type of products. Niche markets also tend to limit retailers or manufacturers because of the typically small size of the firms who service niche markets. Pepall (1992) then defines operating within a market niche as a business that creates a new product for an existing market that is different from what is currently on the market.

Kishel (1995) reviewed Segmenting the Women's Market: Using Niche Marketing to Understand and Meet the Diverse Needs of Today's Most Dynamic Consumer Market by E. J. Leeming and C. F. Tripp. The authors discussed how the market for women is diverse and should be marketed as such. In terms of women's apparel, niche markets have been defined by segments such as height (e.g., Petite, Average, Tall), body girths (e.g., Half-sizes, Women's sizes), culture (e.g., African-American, Asian, Latin), and situation (e.g., casual, career, eveningwear). Of all the markets, no one market is mutually exclusive (e.g., it is possible to have a market that focuses on Petite, career clothing for Asian women) (Kishel, 1995).

As the markets become further defined, the spread or location of the target market may become scattered throughout a region or the globe. In order for marketers to reach the target

market, they have to find the most effective and the most economic methods of distribution and marketing. According to Engel, Blackwell, and Miniard (1993), “Failure to adapt strategies to consumer shopping preferences can be the worst kind of marketing myopia” (p. 569). In addition to providing consumers access to the products, the manufacturers and retailers should also include an expedient vehicle to receive feedback from their consumers.

Product distribution methods for apparel include on-site locations (e.g., malls, plazas, independent stores), mail-order, television shopping, and electronic ordering through the computer. Engel et al. (1993) stated that, of the 60 per cent of U. S. consumers who ordered by in-home shopping methods, apparel purchases were listed as one of the more frequently ordered items. Shim and Kotsiopoulos (1990) reported that tall/large women viewed mail-order shopping more favorably than the other shopping venues, even though overall, there were no reported differences in shopping behaviors between three groups (i.e., petite, average, tall). The researchers suggested that the favorability to mail-ordering may be a result of the inability of tall/large-size women to find proper fitting clothing through retail sites such as malls. The implication of this finding to manufacturers of tall women’s clothing is that mail-order may prove to be a viable method for distributing tall women’s clothing.

Summary

The review of literature included the topics of consumer satisfaction, fit and style, anthropometry, anthropometry with racial backgrounds, sizing systems, prior research on specialty apparel markets, and marketing to specialty markets. The summation of anthropometric topics is presented at the end of the summary.

Apparel manufacturers have attempted to resolve the fit problems in ready-to-wear clothing by defining clothing systems designed to fit certain height and girth characteristics. In spite of these attempts, consumers still report problems with fit. The literature shows that there are women who have experienced fit problems with garments, but these women also reported satisfaction with the same garments. One reason subjects may be reporting satisfaction with specialty garments in which they have experienced fit problems, is that women may be accustomed to experiencing fit problems and the degree to which these problems occur may be less than what they have experienced in average size systems. If consumer satisfaction is measured by sales, it is possible that true dissatisfaction may not be reaching the attention of manufacturers and designers.

The answer to problems of fit with ready-to-wear clothing cannot be solved by having one standard sizing system, to do so would mean that only those persons with the same general measurements would have proper fitting clothing (Workman, 1991). In order to have sizing systems which address the needs of women outside the circle of the average-size, the special populations need to be identified and segmented. Once the population is identified, studies to obtain the average body measurements should be conducted to develop a more accurate reflection of the population (Halsgrave, 1986), after which better defined sizing systems could be

developed. Kang-Park's (1992) study reported that subjects who were not finding satisfaction with the clothing designed for their own sizing system were willing to search for clothing in other sizing systems to gain greater satisfaction.

The literature also shows that more research has been done to relay accurate and relevant sizing information to the consumer by descriptive labeling. A move towards a descriptive sizing system means manufacturers must make an effort to provide information on the dimensions of their garments (i.e., pertinent vertical and girth measurements), and consumers must be honest with themselves about their body dimensions (Workman, 1991). Even with more descriptive sizing systems, consumers should realize that they are not going to be able to fit every garment in their category, but the descriptions should assist consumers in discerning which garments will or will not fit without having to try on the garment.

For specialty sizing, as in Tall women's clothing, descriptive labeling is essential for providing consumers with information necessary to determine proper fit. Having this information assists consumers by reducing the search time necessary to find specialized clothing, but overall it should assist all consumers of apparel in searching for a proper fit.

According to the attributes that consumers use when shopping for apparel, style was an attribute included in the purchase decision (Abraham-Murali & Littrell, 1995; Eckman, Damhorst, & Kadolph, 1990). The literature shows that women in specialty sizes reported dissatisfaction with styles within their clothing sizing systems; their expectations of the styles in their sizes were not met. The women who wear the specialty sizes want more stylish clothing, as found in the average-size market. In light of this, manufacturers of specialty garments should implement methods to gather information on the desires of their market in terms of style. By offering products preferred by the consumer, the consumer's expectation of styles should be met and subsequently produce a more satisfied consumer. Although women whose measurements are outside of the Misses' (average) size have special needs, this should not imply that those women do not want to be as fashionable as the average-size consumer.

Prior research on women's apparel revealed that women who do not have height measurements within the average height range have experienced fit problems. Those fit problems can be attributed to proportional differences between the average-sizes and the specialty sizes. Shim and Kotsiopulos (1990) suggest that sizes other than the average (i.e., Petite, Tall) represent a significant percentage of the population and that efforts should be made on behalf of women's apparel manufacturers and retailers to address the needs of these specialty populations.

The literature showed that tall and petite women share inverse problems with apparel fit. In comparison to the number of research studies conducted on petite women with Petite clothing and average-size clothing, more research needs to be done to better define the opinions and needs of the tall market. This feedback would be helpful to the makers of Tall clothing, in that the manufacturers and designers could focus their attention on specifics rather than take a general approach.

Research that has been done on tall women have not addressed tall women's satisfaction with Tall clothing. One question that remained after reading Kersch's (1984) study was on which clothing system were the subjects basing their experiences? The researcher did not state from which sizing systems the subjects were reporting problems: average-size, tall size, or a combination of all available clothing in the market. In Shim & Kotsiopolus' (1990) study, the findings of tall women were reported with large-size women, the results of the study does not delineate the fit and size problems of tall women associated with height proportions and those associated with girths. To focus on the source of the problems with various types of clothing, tall women need to report their experiences with each sizing system independently.

From the literature, it appears that, differences in body proportions among races have been confirmed. The proportional differences should be considered by manufacturers, designers, and retailers in how the target market is selected, how garments are produced, and how garments are marketed to the ultimate consumer. In order for apparel manufacturers to address fit problems of ready-to-wear clothing experienced by special-size women (i.e., those who fall outside of the Misses' clothing range) and increase consumer satisfaction, manufacturers may have to look at the differences that exist within the specialty markets themselves.

The USDA's (1958) study of American women's body measurements used anthropometric methods for gathering data, but the study contains a limitation for generalizing the results, all of the 14,698 subjects were Caucasian. By restricting the race of the subjects, the results are best generalized to that one race or to races that have similar body characteristics. In order to fully state that the study represented body measurements of American women, a representative sample of all races, at that time, should have been included. Predominance of race is also a limitation in the Shim and Kotsiopolos (1990) study when generalizing the results to other racial populations. The racial make-up of the subjects was 92 percent Caucasian. This percentage was not reported by the researchers as being representative of the U.S. population, as with other demographic attributes (e.g., age, income, education, marital status, census region). Research should be conducted to determine if the differences in anthropometric measurements between Black subjects and White subjects exist when using measurement sites typically used in the apparel industry.

In conclusion, a relevant amount of literature was located on all of the topics in the review of literature, except for tall women and their clothing satisfaction with Tall clothing, for which none was located. The purposes of this study were to determine the level of satisfaction that tall women have with Tall clothing, in terms of fit and style, and to determine where tall women have located Tall clothing, all in comparison to Misses' clothing. In addition, anthropometric measurements of tall women were taken in order to examine the differences between the garment sizing dimensions used by the apparel industry and that of tall women, the existence of correlation with reported fit problems with Tall clothing, and differences between the measurements of Black tall women and White tall women.

Chapter III

Statement of the Problem

Chapter three consists of the statement of the problem, a discussion of the conceptual framework used in the study, as well as a list of objectives and hypotheses. The chapter concludes with a list of assumptions and limitations for the study.

Statement of Problem

Manufacturers produce clothing for tall women, but no empirical research was located that examined tall women's satisfaction with Tall clothing. Manufacturers need to know if their products are satisfying the needs of tall women, specifically with fit and style. Manufacturers also need to know if their products are accessible to the target market.

The adjustments made in Tall clothing generally address the problems of length where additional length is typically added to the hemline of garments (e.g., sleeves, pant cuffs). Without the proper overall proportional accommodations, the modified garments may be long enough, but the fit of the garment may not be satisfactory (e.g., too short crotch length, knee line too high, elbow allowance misplaced). These problems may be magnified if there are distinctive body proportion differences either associated with height or by race or if manufacturers are using outdated commercial sizing systems, which no longer represent the target population.

Purpose

The purpose of this study was to examine tall women's satisfaction with Tall clothing in terms of fit, style, and accessibility. This study also examined anthropometric measurements of tall women as they related to reported fit problems with Tall clothing, commercial sizing standards for Tall clothing and race.

Conceptual Framework

The theories used for this study were Consumer Satisfaction/Dissatisfaction (CS/D) (Oliver, 1980; Mowen, 1995) and anthropometric differences among races, specifically Black and White U.S. races (Malina, 1974).

Consumer Satisfaction/Dissatisfaction

Robert L. Oliver is recognized as one of the major leaders in the research on theories of consumer satisfaction and dissatisfaction (Engel, et al., 1993). Oliver's (1980) research has been used as supporting literature for studies on consumer satisfaction that have addressed topics such as service quality (Cronin & Taylor, 1992; Rust, Zahorik, & Keiningham, 1995; Spreng & Mackoy, 1996), factors that determine consumer satisfaction (Churchill & Surprenant, 1982), and external and logistical procedures that affect the measurement of consumer satisfaction (Peterson

& Wilson, 1992). Oliver continued his research by studying CS/D with consumption patterns (Westbrook & Oliver, 1991), examining CS/D in retail settings (Oliver, 1981), and investigating how disconfirmation theories relate to CS/D (Oliver & Bearden, 1985).

In Oliver's (1980) study of the antecedents and consequences of satisfaction, the researcher explained that a consumer has a preset expectation of a product or service, and it is the level at which those expectations are met that determines satisfaction. Tall clothing is designed for a specific market, thus consumers of that market should have certain expectations of the products designed for them. Manufacturers produce clothing for tall women specifically; therefore, that clothing should meet the performance and aesthetic expectations of tall women.

Mowen (1995) stated that consumer expectation is a component of consumer satisfaction/dissatisfaction, but the researcher states that the expectation factor does not affect the final satisfaction. Mowen (1995) explained that, if a consumer has expectations of dissatisfaction with a product and indeed at the point of consumption the consumer is dissatisfied with the product, the expectation was met but the consumer is still dissatisfied. Therefore, it is the consumer's final satisfaction with product performance that affects the purchase decision. The focus of this study was to determine the level of tall women's satisfaction with Tall clothing based on their consumption (e.g., trying on a garment) experiences.

Racial Anthropometric Differences

The theory of racial anthropometric differences as reported by Malina (1974) is the foundation for using racial background as a variable in this study. Malina's (1974) study has been used by other anthropometric researchers as a basis from which measuring techniques are defined (Knapp, 1990) and analyses of anthropometric measurements are formulated (Fields, Spiers, Hershkowitz, & Livshits, 1993).

Malina's (1974) theory stated that the Black population has, on average, longer extremities (i.e., arms, legs) than the White population, and the White population has a longer trunk area than the Black population (Malina, 1974; Malina & Bouchard, 1991). According to Malina (1988), "Population variation in anthropometric dimensions that may be ascribed to genetic differences occurs primarily in proportions and fat patterning" (p. 99), and "Body proportions vary among racial/ethnic groups..."(p. 99). The researcher further points out in his 1988 study, that the majority of the research done on racial or ethnic groups compared the body proportions of Caucasian and African-Americans age 6 to 11.

Malina (1973) stated that studies have been consistent in reporting proportional differences between American Blacks and Whites in the United States. In his review of prior research on the topic, Malina (1973) reports that research has shown that stature and proportional differences are evident between Black children and White children, but the differences in stature dissipate after the onset of adulthood. Malina (1974) used stature sitting height, subischial (i.e., the difference between stature and sitting height), acromion-olecranon (i.e., upper arm length) and the elbow to wrist length. The conclusion reached by the author was that the anthropometric

differences among Blacks and White children are in how the bodies are proportioned, not the overall stature between the two races.

The intent of the present study was not to replicate the measurement process of Malina's (1974) study, but to determine if anthropometric differences occur between Black and White tall women when using measurements typically used in the development of apparel. In addition, the anthropometric measurements were used to analyze reported fit problems with Tall clothing and to compare with standardized sizing systems for Tall clothing. Although the measuring sites slightly differ from Malina (1974), the same areas of the body were used (i.e., stature, length of back, length of arms, length of legs) in this study as in Malina's (1974).

Objectives

1. To describe the sample population according to age, income, education, profession, and racial background.
2. To examine the relationship between tall women's reported satisfaction with the fit and style of Tall garments and the reported satisfaction with the fit and style of Misses' garments.
3. To examine the relationship between tall women's height and reported satisfaction with the fit of Tall and Misses' garments.
4. To identify the fit problems tall women have experienced with Tall clothing and to examine the relationship between the anthropometric measurements and reported fit problems with Tall clothing.
5. To determine if anthropometric measurements differ between Black and White tall women.
6. To compare the measurements of tall women with commercial standards for Tall clothing.
7. To determine if a difference existed in where tall women reported locating Tall and Misses' garments.
8. To determine the importance of fit and style for tall women in regard to clothing.

Hypotheses

1. H_0 : There is no difference between tall women's satisfaction with the fit of Misses' clothing and tall women's satisfaction with the fit of Tall clothing.
2. H_0 : There is no difference between tall women's satisfaction with the style of Misses' clothing and tall women's satisfaction with the style of Tall clothing.

3. H_0 : There is no relationship between height and tall women's satisfaction with the fit of Misses' clothing.
4. H_0 : There is no relationship between height and tall women's satisfaction with the fit of Tall clothing.
5. H_0 : There is no relationship between tall women's anthropometric measurements and reported fit problems with Tall clothing.
6. H_0 : There is no difference between the anthropometric measurements of Black and White tall women.
7. H_0 : There is no difference between the measurements of tall women in this study and measurements for tall women in PS 42-70.
8. H_0 : There is no difference in where tall women locate, buy, and prefer to buy Tall clothing and where tall women locate Misses' clothing.
9. H_0 : There is no difference in how tall women prioritize the attributes of fit and style.

Assumptions

1. All subjects have experienced some type of fit problems with ready-to-wear clothing.
2. Subjects will accurately recall sizes and problems experienced with ready-to-wear clothing.
3. Subjects have an understanding of clothing sizing systems.

Limitations

1. The subjects were not randomly selected; non-probability sampling techniques (i.e., judgmental and snowball) were used to identify subjects .
2. The subjects were required to be between the ages of 18 and 54 years.
3. The subjects were required to be at least 5 feet 8 inches tall.
4. Subjects were asked to respond to questions based on cumulative experiences with Misses' and Tall clothing versus specific experiences.
5. Personal preferences for style may have influenced subjects' responses.

Justification

With the small amount of empirical research available on tall women, this study will contribute to the body of apparel literature by acting as a foundation from which additional studies can be conducted for this population as a whole and as marketable segments within the population. The intended contribution of this study to the apparel industry was to provide manufacturers and designers with a broad understanding of the opinions that the sample of tall women have of Tall clothing.

Chapter IV

Methodology

The purpose of this study was to examine tall women's satisfaction with Tall clothing in terms of fit, style, and accessibility. This study also examined anthropometric measurements of tall women and reported fit problems with Tall clothing, commercial sizing standards for Tall clothing and racial background. This chapter presents the methods that were used to accomplish the objectives, and provides a description of the instruments, subjects, pretest, and data collection procedures. The chapter concludes with a description of the data analyses.

Human Subjects Approval

Prior to the collection of data, the researcher submitted a brief description of this study, a Human Subjects' Approval form, and the Subject's consent form to Virginia Polytechnic Institute & State University's Institutional Review Board for approval. For this study, the participants were exposed to very little risk, thus an application for exemption was submitted and subsequently approved.

The consent form contained two parts: the subject's copy and the researcher's copy (Appendix A). The subject's copy contained a description of the project, the risk factor for participation in the study, the subject's responsibility during the study, and permission statements. Three telephone numbers were provided as contacts in the event the subjects had questions concerning the study at a later date. The second part of the consent form was the researcher's copy and it also required the subject's signature. The researcher's copy was composed of parts A and B. Part A required the subjects to verify that they had received the official consent form and it reiterated their agreement of voluntary participation. Part B was optional and asked for the subject's participation in future studies on Tall clothing conducted by the researcher. Each participant was required to read and sign both consent forms prior to participating in the study.

Subjects

The population for this study was women between the ages of 18 and 54 and who were 5 feet 8 inches or taller from Southwestern Virginia, specifically from the City of Roanoke and the Town of Blacksburg. The population of the two localities was approximately 46,802 for women age 18 to 54 (Survey of Buying Power Demographics USA, 1992). The methods used to identify subjects are explained in the Data Collection section. Women older than 54 years were excluded due to prior research that reports significant physical changes in elderly women (Goldsberry, Shim, & Reich, 1996; Goldsberry & Reich, 1989). The sample size was 75 women between the ages of 18 and 54, who stood at least 5 feet 8 inches or taller and were recruited from the Southwestern Virginia population.

Women who are between the ages of 18 to 54 and who are 5 feet 8 inches and taller represent approximately 7 percent of the U.S. population (U.S. Bureau of the Census, 1993). If

that 7 percent is applied to the combined population of 46,802 in the Roanoke and Blacksburg the result is 3,276. Based on the chart by Krejcie & Morgan (1970), the recommended sample for the study would be approximately 346 subjects. However, the intent of this study was to conduct an exploratory search into the topic of tall women and Tall clothing, therefore a small sample size of 75 subjects was used. Since the sample size for this study falls below the recommended size, statistical inferences on the results of the analyses are limited.

Touliatos and Compton (1988) explained that small sample sizes, sizes too small to reflect the total population, are often used in exploratory studies. The researchers also stated that small sample sizes can be used when the purpose of the study was to conduct analytical testing versus testing to generalize to a total population (Touliatos & Compton, 1988). The research in this study was exploratory for the purpose of examining tall women's experiences with Tall clothing and to conduct analytical testing on the anthropometric measurements of tall women. The benefits of using a smaller sample size are that it is less expensive to collect the data from subjects and the researcher can maintain better control over the study (Touliatos & Compton, 1988). Although the results of a small sample size cannot be generalized to the total population, the findings in a small sample do identify areas which would warrant further research with a larger sample size.

Instruments

Two instruments were used in this study: Ready-to-Wear Clothing for Tall Women questionnaire and an anthropometric measurements survey (Appendix B). The self-administered questionnaire was used to gather data on the sample's level of satisfaction with Tall clothing, to identify the clothing systems (e.g., Misses', Junior's, Tall) most often used when selecting garments, to identify where subjects have located Tall clothing, to examine how subjects prioritize the attributes of fit and style, to identify fit problems subjects have experienced with Tall clothing, and to collect demographic data. The second instrument, anthropometric measurements survey, was used to gather vertical measurements that are used in the construction of trousers and long-sleeve blouses. Patternmaking for Fashion Design (Armstrong, 1995) was used as a reference for the garment measurement sites. The measurement sites used were stature, neck to waist, waist to ankle, and shoulder to wrist. The specific techniques used to measure the sites were developed by the researcher.

Questionnaire

The questionnaire consisted of seven quantitative sections and one qualitative section. The first section, entitled Satisfaction, contained Likert-type statements that were designed to address hypotheses one and two--correlation between reported satisfaction with the fit and style of Misses' and Tall clothing. The statements were designed to identify levels of satisfaction subjects have experienced with Misses' and Tall clothing. The statements addressed satisfaction with fit and style for Misses' and Tall clothing in general and in reference to eight garment categories (i.e., jackets/blazers/coats, button-up blouses, dresses, pull-over/sweaters, skirts, jeans,

pants, lingerie). The subjects rated their level of satisfaction by circling 1 to 5, which corresponded to the following levels, respectively: Much less than Satisfactory, Less than Satisfactory, Satisfactory, More than Satisfactory, and Much more than Satisfactory. An additional option, #6 - "No Experience with Garment", was included for instances where the subject may not have had encounters with one or more of the garments listed for either Misses' or Tall.

The second section of the questionnaire, entitled Clothing Identification, was designed to gather data on the sizing systems most often used by the subjects when purchasing garments (i.e., jackets/blazers/coats, button-up blouses, dresses, pull-over tops/sweaters, skirts, jeans, pants, lingerie). The purpose of this section was to provide additional data that could be used in interpreting the results from testing hypotheses. The subjects were instructed to identify only one sizing category for each garment, by circling numbers 1 to 5 (i.e., Misses' - 1, Tall - 2, Juniors - 3, Women's - 4, Men's - 5). In order to determine if the subjects had ever worn Tall clothing, the subjects answered a direct question, and the response options were definitive, either yes or no. Also, included in this section were questions on how the subjects felt about their height. The subjects were asked if they ever wished to be taller or shorter, and if they were having a good day. The responses to these three questions were also definitive, either yes or no.

The third section of the questionnaire, entitled Accessibility, contained statements designed to identify where the subjects had seen, bought, and preferred to buy Tall clothing (i.e., department stores, specialty stores, discount stores, mail-order catalogs, television shopping channels, other). The subjects circled numbers 1 to 6, which represented a selection of sources where women's apparel are sold. The option of "N/A", was included for instances where information was not applicable to the subject. For comparison purposes, the subjects were also asked to identify where they had seen Misses' clothing by using the same sources as for Tall clothing.

The subjects' perceived importance of fit and style for Misses' and Tall clothing was the focus of the fourth section, Prioritization. The subjects were first asked to read prefabricated scenarios about fit and style and to identify how these situations affected their decision to purchase or to not purchase a Tall or Misses' garment. The scenarios presented for each sizing system were as follows: a garment fits and the subject liked the style; a garment that did not quite fit, but the subject liked the style; a garment fits, but the subject did not like the style; and a garment did not fit and the subject did not like the style. The subjects were also asked to indicate whether fit or style was more important for three clothing settings (i.e., casual, career, eveningwear). The responses were "A" for Style and "B" for Fit, numbers were not used so the subjects would not rank the attributes, but would be forced to select one option over the other. The purpose of this section was to determine whether or not the subjects viewed the necessity of fit or style differently depending on the type of activity.

An adaptation of Huckabay's (1992) study of the fit and style proportions with Petite garments was used in the fifth section, Problem Identification. The subjects identified the areas

where they generally experienced fit problems with eight garments (i.e., jackets, pants, jeans, blouses, tops/sweaters, dresses, skirts, and lingerie). The subjects indicated the type of problems experienced by selecting from columns of seven attributes (i.e., No Major Problems, Too Long, Too Short, Too Wide/Large, Too Narrow/Small, and Other). As in section one, the option of “No Experience with Garment” was included for items with which the subjects had no prior experience.

The sixth section addressed the shoe size of the subjects and the level of effort expended for shopping for their shoes in comparison to shopping for Tall clothing. The responses for this section were 1 to 3: More Effort, Same Effort, and Less Effort, respectively. This section was included in order to determine the level of difficulty experienced by subjects for other articles of attire.

Demographic data were gathered in the seventh and last quantitative section. The type of demographic data requested were age, income, education, occupation, and race. The age section started at the minimum requirement, 18 years old and ended with the range of ages of 55 and older. The ranges of income were \$15,000 and less to \$55,001 and over. The education component contained minimum levels of education, Some High School to the highest, Post Graduate level. The profession or career option included 11 defined options and one “Other” option for those that were not included in the previous 11 options. The last section was racial background. The subjects were given seven options: (a) African, African-American, Caribbean; (b) Asian, Pacific; (c) Caucasian, European; (d) Latin/Hispanic; (e) Native American; (f) Indian, Arabic; and (g) Other.

The last subject participation section was qualitative. Space was allotted after the demographics section to allow the subjects to express comments about the survey or the topic of Tall clothing. The comments were compiled and are listed in Appendix C.

Anthropometric Measurements

The gathering of anthropometric measurements was the second part of the study and was achieved by using two types of measuring devices: a metal retractable tape, marked in 1/16th inch increments and a plastic measuring tape which was marked in 1/8th inch increments. The metal tape was used to measure stature and the plastic tape was used to measure neck to waist, waist to ankle, and shoulder to wrist measurements.

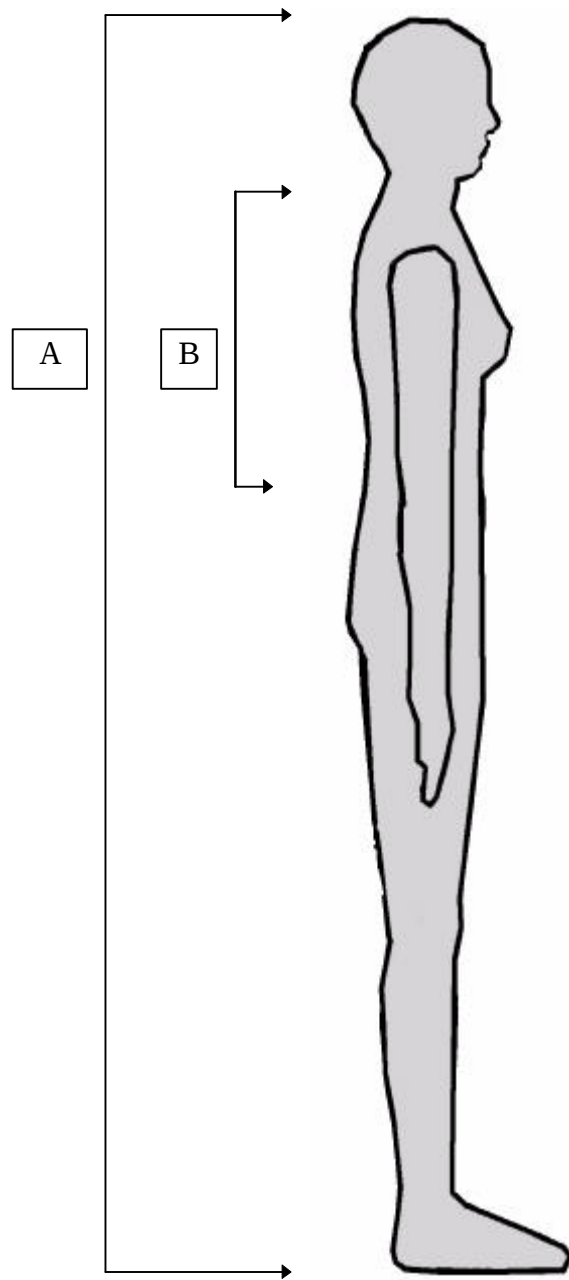
All of the anthropometric measurements were recorded directly on the subjects' surveys in the anthropometric measurements section. The purpose of gathering anthropometric measurements was to obtain data on measurements that are used to make garments for the torso and the lower and upper extremities. Additional purposes of the measurements were to determine if two body types existed, torso dominant or lower extremity dominant, and to determine if, on the average, the measurements of the Black subjects differed from the measurements of the White subjects.

The body measurement sites are limited to two overall vertical measurement sites used to make patterns for a long sleeve shirt and one measurement site for trousers. Those measurements included the base of neck to waist, length of the arm from the shoulder cap to the wrist, and waist to ankle measurements (see Figures 1 and 2). An eight foot measuring tape, that contained one-eighth inch markings, was used to obtain the measurements for the neck base to waist, length of arm, and waist to ankle. The measuring tape was a typical plastic sewing tape. A plastic tape was used to ensure that the tape would not succumb to stretching over the period of use.

Although the measurement sites were identified from Armstrong (1995), the techniques used to obtain the measurements were developed by the researcher and are illustrated in Figure 1 and Figure 2. The neck base to waist measurement was identified by first asking the subject to stand erect and bend their head forward in order to identify the seventh vertical vertebrae. Next, the measuring tape was run from the seventh vertical vertebrae, down the length of the back and stopped at the small of the back. For the measurements of the length of arm and the length of waist to ankle, the right side of the body was used for each subject. The length of the arm was measured from the shoulder to wrist while the subjects raised their right arm to the side of their body and parallel to the floor. Ordinarily, the length of the arms is measured with the arm placed at the side and the elbow slightly bent (Liechty, Pottberg, & Rasband, 1986; Armstrong, 1995) or with the hand place on the lower hip as in PS 42-70.

The shoulder to wrist measurement in this study was modified to reduce the variations in the degree of bending and to obtain a more linear form from which to take the measurement. The subjects were assisted by the researcher when necessary in order to achieve the correct arm position. A standard point was selected on the shoulder, the point where the top of the arm rotates within the shoulder cavity. The subjects were then asked to lower their right arm to their side. Again, the subjects were assisted when necessary in order to achieve the correct position. The measurement was taken from the point of shoulder rotation to the outside prominent wrist bone, the end of the radius. The waist to ankle measurements were taken by identifying the waist in relationship to where the neck to waist measurement ended and measuring down the right side to the outside and the base of the ankle bone. All the measurements were taken and recorded by the researcher in order to ensure that the same points of reference and measurement sites were used for all subjects.

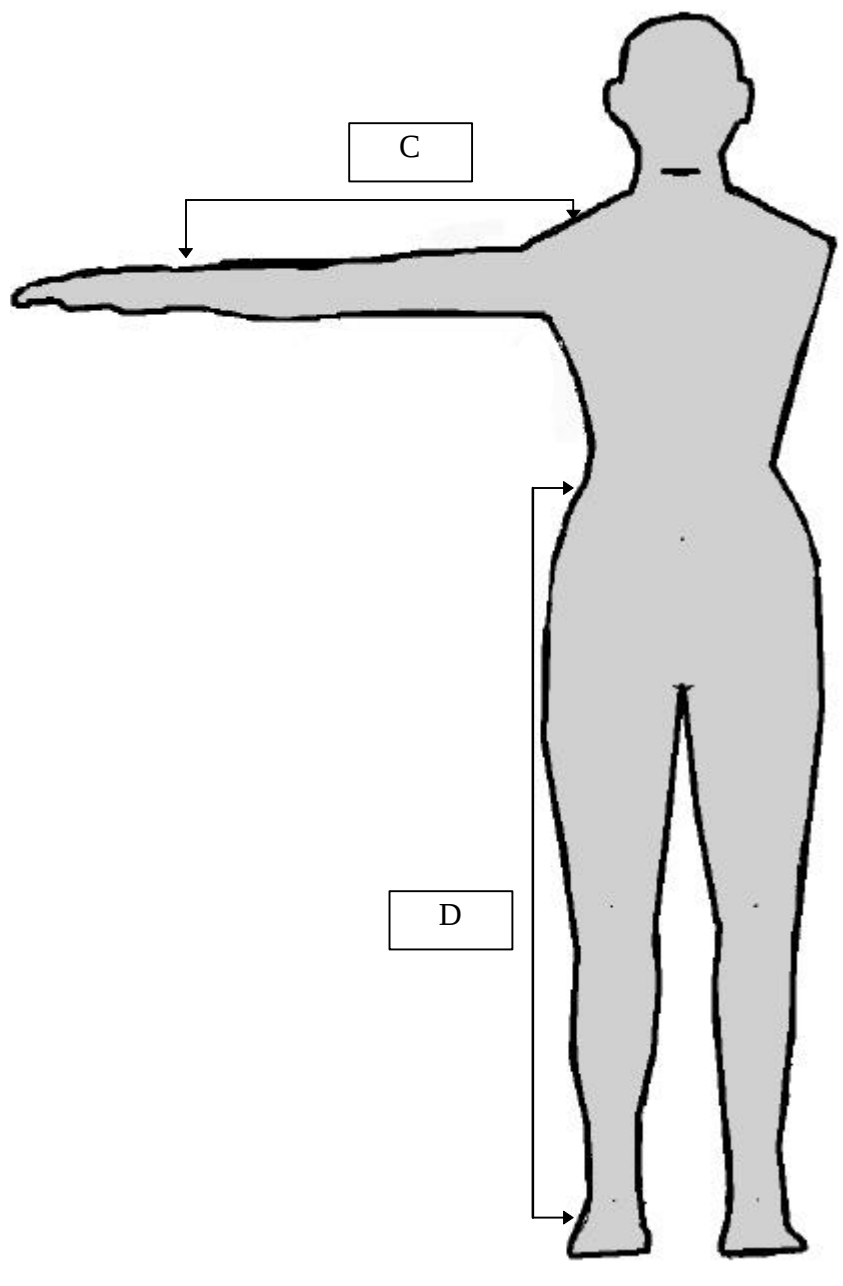
The stature was obtained by using a portable device, a standard carpenter's retractable and locking measuring tape. The tape was altered at the end by the addition of a 4 cm x 9.3 cm x 3.3 cm wooden block. The block was added to stabilize the measuring tape during the measuring process. The subjects were asked to remove their shoes where possible and stand with their backs to the researcher and place the right heel on the wooden platform. (In the cases where the subjects' could not or would not remove their shoes, the height of the heel of their shoes was measured and deducted from the stature.) The subjects were then asked to look straight ahead. The retractable tape was extended to the top of the subject's head and the researcher used visual estimation to round the stature into one-quarter inch measurements.



A - Stature

B - Neck to Waist

Figure 1. Anthropometric Measurements: Sites used to obtain stature and neck to waist measurements.



C - Shoulder to Wrist

D - Waist to Ankle

Figure 2. Anthropometric Measurements: Sites used to obtain shoulder to wrist and waist to ankle measurements.

Pilot Test

The pilot test was conducted on five subjects who were at least 18 years of age and 5 feet 8 inches. The questionnaire was pre-tested to establish face validity and content validity. The anthropometric measuring devices were pre-tested on the pilot subjects in order to check the reliability and validity of the instrument (i.e., measuring tape). Reliability was determined by repeating the measurements twice to ensure that the same results were achieved.

During the pilot test, a time estimate was obtained for administering both sections of the survey. The pilot subjects met all of the requirements for the study and their data were included in the sample. The results from the pilot test were positive with only minor changes in the anthropometric measurements. On the original survey, there were seven sites for measurements (stature, neck base to waist, shoulder cap to wrist, elbow to wrist, waist to crotch, crotch to ankle, mid-knee to ankle). The feedback from the participants resulted in a need to reduce the number of measuring sites. Subsequently, the number of measuring sites was reduced to four (stature, neck base to waist, shoulder cap to wrist, waist to ankle).

Data Collection Procedures

Data were collected during the months of March to May 1996. The sites used to obtain participants were a Southwestern Virginia university and three health and fitness centers, which were also located in Southwestern Virginia. Two of the health and fitness centers were women only facilities and the other was co-ed. Since the subjects for this study came from a specialized population (i.e., 5 feet 8 inches or taller and between 18 and 54 years old), random sampling was not used. The participants were identified using two nonprobability sampling techniques: (a) judgmental and (b) snowball. The judgmental technique was used to solicit passerbys from the university campus and the fitness centers and the snowball method was used to obtain additional participants from the subjects who had previously participated in the study.

Judgmental sampling is one of several nonprobability sampling techniques that is employed in exploratory research studies, studies where probability sampling techniques prove to be inefficient, and when a sample is drawn from a relatively homogeneous population (Aaker, Kumar, & Day, 1995). In this study, the sample size was purposefully small to maintain cost-efficiency and manageability. The sample was derived from a relatively homogenous population, women between the ages of 18 to 54 and whose heights were 5 feet 8 inches or taller. Random sampling would not have provided a sufficient number of participants given the fact that women with these particular attributes represent approximately seven percent of the United States population (U.S. Bureau of the Census, 1993). The second sampling technique used was the snowball method. The employment of this method requires subjects to provide referrals of other participants who meet the same qualifications of a study (Zikmund, 1994). This technique is used in studies that have specialized populations (Aaker, Kumar, & Day, 1995), as in the population in this study.

In both sampling techniques, the researcher's judgment is relied upon, which in itself

creates biases in the selection of subjects that might be alleviated with random sampling. The intent of the study was not to generalize the results and findings to the larger population of tall women, but to conduct a small exploratory study on a sample of tall women and their experiences with Tall clothing.

At the time subjects were identified, each subject was asked to read and to sign the subjects' consent form. In instances where the subjects appeared to be shorter than the researcher's height, the subject's height was taken prior to their participation in the study. The researcher was 5 feet 10 inches tall. This procedure was included to ensure that the subjects met the required minimum height of 5 feet 8 inches. For those subjects who appeared to be taller than the researcher, they were assumed to meet the height requirement. After the subjects were identified as meeting the minimum requirements, the subjects were asked to complete the remainder of the study. In most cases, the subjects completed the questionnaire prior to being measured for the anthropometric section. In cases where groups of subjects were simultaneously participating, some of the subjects were measured first while others completed the written portion. To complete the self-administered questionnaire, the participants were supplied with writing utensils and sitting areas.

For the subjects who were identified through referrals, appointments were made to meet the subjects and to collect the data as described above. Arrangements were made with the managers of fitness centers to attend on the days that had the highest attendance by women. An area was provided near the main entrance for the women only facilities, and an area between the women's locker room and the aerobics room was provided by the co-ed fitness center. An 18x22 inch poster describing the project was made to advertise the project. The poster was placed in the testing area at the beginning of the collection period and remained until data had been collected from the last subject for that period.

Once the subjects completed the study, the researcher placed the surveys in one envelope and the consent forms were placed in a separate envelope. This measure was done to maintain anonymity as stated in the consent forms.

Data Analyses

Schulman's (1992) Statistics in Plain English with Computer Applications was used as the statistical guide for the data analysis. The remainder of this section discusses each hypothesis and the statistical methods used to analyze the data.

Guidelines provided by Huck, Cormier, and Bounds (1974) were used for interpreting correlations for the data analyses. For negative correlation the interpretations were: (a) none = -.10 to .00, (b) low = -.49 to -.11, (c) moderate = -.79 to -.50, and (d) high = -1.00 to -.80. Positive correlations were defined as (a) none = .00 to .10, (b) low = .11 to .49, (c) moderate = .50 to .79, and (d) high = .80 to 1.00. Table 1 shows a matrix of hypotheses, objectives, variables, questionnaire items, and the related statistics. All nine hypotheses are stated in the null.

Table 1

Matrix of Hypotheses, Objectives, Variables, & Statistics

Hypotheses	Objectives	Variables	Questionnaire Items	Statistics
	1	Demographics	13a - 13e	Descriptive
H1	2	Fit Satisfaction w/ Misses Clothing	1, 3	t-test
		Fit Satisfaction w/ Tall Clothing		
H2	2	Style Satisfaction w/ Misses Clothing	2, 4	t-test
		Style Satisfaction w/ Tall Clothing		
H3	3	Fit Satisfaction w/ Misses' Clothing	1	t-test, Pearson correlation coefficient
		Stature	Anthropometric Measurements	
H4	3	Fit Satisfaction w/ Tall Clothing	3	t-test, Pearson correlation coefficient
		Stature	Anthropometric Measurements	
H5	4	Fit Problems with Tall Clothing	11	Cross Tabulation
	5	Fit Problems w/ Tall Clothing	11	Chi-square
		Anthropometric Measurements	Anthropometric Measurements	
H6	6	Race	13e	t-test
		Anthropometric Measurements	Anthropometric Measurements	
H7	7	Commercial Standard PS 42-70	PS 42-70	t-test
		Anthropometric Measurements	Anthropometric Measurements	

Table 1

Matrix of Hypotheses, Objectives, Variables, & Statistics, cont.

H8	8	Location of Tall Clothing	7a, 7d	Cross Tabulation
		Location of Misses' Clothing		
		Currently Buy Tall Clothing	7b, 7c	Cross Tabulation
		Prefer to Buy Tall Clothing		
H9	9	Fit of Misses Clothing	8a - 8d	Cross Tabulation
		Style of Misses Clothing		
		Fit of Tall Clothing	9a - 9d	Cross Tabulation
		Style of Tall Clothing		
		Fit of Casual/Career/ Evening Wear	10a - 10c	Cross Tabulation
		Style of Casual/Career/ Evening Wear		

1. H₀: There is no difference between tall women's satisfaction with the fit of Misses' clothing and tall women's satisfaction with the fit of Tall clothing.

The variables are fit satisfaction with Misses' clothing and fit satisfaction with Tall clothing. The possible responses for the variables were on a five point scale and ranged from "much less than satisfactory" to "much more than satisfactory".

Based on the literature that showed that tall women's satisfaction with clothing is significantly different than petite and average height women (Chowdhary & Beale, 1988), t-tests were used to test the difference between the means for the variables of fit satisfaction with Misses' clothing and fit satisfaction with Tall clothing. If the probability score was less than .05, it was concluded that a significant difference did exist between the two variables and the null hypothesis was rejected.

2. H₀: There is no difference between tall women's satisfaction with the style of Misses' clothing and tall women's satisfaction with the style of Tall clothing.

The variables are style satisfaction with Misses' clothing and style satisfaction with Tall clothing. The possible responses for the variables were on a five point scale and ranged from "much less than satisfactory" to "much more than satisfactory".

As stated in hypothesis one, the literature that showed that tall women's satisfaction with clothing is significantly different than petite and average height women (Chowdhary & Beale, 1988), t-tests were used to test the difference between the means for the variables of style satisfaction with Misses' clothing and style satisfaction with Tall clothing. If the probability score was less than .05 it was concluded that a significant difference did exist between the two variables and the null hypothesis was rejected.

3. H₀: There is no relationship between height and tall women's satisfaction with the fit of Misses' clothing.

The variables are tall women's height and satisfaction with the fit of Misses' clothing in general. Hypotheses three consists of ordinal and continuous variables. ANOVA was used to test for difference between the means according to height. Three height groups were used. Group A consisted of statures 68 inches and 69 inches, Group B consisted of 70 inches to 71 inches, and Group C, 72 inches to 76 inches.

Pearson's product moment correlation was used to test for the relationship between height and satisfaction with the fit of Misses' clothing. Pairwise scores were used to identify significant correlation based on $\alpha=.05$. If the probability score was less than .05 the null hypothesis was rejected, otherwise the hypothesis was accepted.

4. H₀: There is no relationship between height and tall women's satisfaction with the fit of Tall clothing.

The variables are tall women's height and satisfaction with the fit of Tall clothing in general. Hypotheses four also consists of ordinal and continuous variables. ANOVA was used to test for the differences between the means according to height by using the same height groupings, (i.e., A, B, C) as in hypothesis three.

Pearson's product moment correlation was used to test for the relationship between height

and satisfaction with the fit of Tall clothing. Pairwise scores were used to identify significant correlation based on $\alpha=.05$. If the probability score was less than .05 the null hypothesis was rejected, otherwise the hypothesis was accepted.

5. H₀: There is no relationship between tall women's anthropometric measurements and reported fit problems with Tall clothing.

The variables are anthropometric measurements (i.e., neck to waist, waist to ankle, shoulder to wrist) and reported fit problems with Tall clothing. Pearson's chi-square was used to test for the relationship between the numeric and nominal variables. The significance of the chi-square statistic was based on $\alpha=.05$. If the probability score of the Pearson statistic was less than .05, the null hypothesis was rejected, otherwise the hypothesis was accepted.

To decrease the possibility of low numbers in each chi-square cell, the respondents were grouped into categories of measurements. For stature, the groups were as described in hypotheses three and four. The neck to waist sites were placed in group "A" for subjects with measurements of 15 inches to 16 inches, group "B" represented those with measurements of 17 inches, and group "C" represented those with measurements of 18 inches to 19 inches. The waist to ankle sites were placed in group "A" for subjects with measurements of 40 inches to 42 inches and group "B" represented those subjects with measurements of 43 inches to 46 inches. The shoulder to wrist sites were placed in group "A" for subjects with measurements of 22 inches to 23 inches, group "B" represented those with measurements of 24 inches, and group "C" represented those with measurements of 25 inches to 28 inches.

Each measurement site was analyzed with the garments that cover the corresponding body part. For neck to waist, jackets/blazers/coats, blouses, dresses, pull-over tops/sweater, and full slips were used for the analysis; for shoulder to wrist - jackets/blazers/coats, blouses, dresses, and pull-over tops/sweaters were used. For the waist to ankle measurements, skirts, pants, jeans, and half-slips were used for the analysis.

6. H₀: There is no difference between the anthropometric measurements of Black and White tall women.

The variables are anthropometric measurements of Black tall women and anthropometric measurements of White tall women. T-tests were used to test the difference between the means of the two groups for each of the measurement sites. Based on $\alpha=.05$, if the probability of the *t*-test score was less than .05 the null hypothesis was rejected, otherwise the hypothesis was

accepted.

- 7: **H₀: There is no difference in the measurements of tall women in this study and the commercial standard measurements for Tall clothing.**

For objective seven, the measurements used from PS 42-70 are derived values. To obtain the comparable neck to waist measurement, the waist height was deducted from the cervical height (i.e., back of neck to the floor) and the waist to ankle measurement was obtained by deducting the ankle height from the waist height (i.e., waist to floor) measurement.

Independent *t*-tests were used to test the differences between the mean of the subject's measurements and the measurements from PS 42-70. A significance level of .05 was used.

8. **H₀: There is no difference in where tall women locate, buy, and prefer to buy Tall clothing and where tall women locate Misses' clothing.**

A frequency table was created to summarize the responses. The results were reported by the total number of responses and by percentages. The differences were determined by examining the items with the highest number of responses.

9. **H₀: There is no difference in how tall women prioritize the attributes of fit and style.**

A frequency table was created to summarize the responses. The results were reported by the total number of responses and by percentages. The differences were determined by examining the items with the highest number of responses.

Chapter V

Results and Discussion

The purpose of this study was to examine tall women's satisfaction with Tall clothing in terms of fit, style, and accessibility. This study also examined anthropometric measurements of tall women as they related to reported fit problems with Tall clothing, commercial sizing standards for Tall clothing and differences between the measurements of Black and White tall women. Data were collected from 75 women who were 5 feet 8 inches and taller and who were between the ages of 18 and 54 years. Data were analyzed using Pearson's product moment correlation coefficient, *t*-tests, ANOVA's, and cross tabulations.

Chapter five reports the results of the data analyses with related discussion. Each objective is presented along with the related hypothesis. The chapter concludes with a summary of findings.

Description of Sample

The sample consisted of 75 women, who were between 18 and 54 years of age and stood at a minimum of 5 feet 8 inches or taller in stocking feet. The participants were volunteers from two Southwestern Virginia localities, the City of Roanoke and the Town of Blacksburg. All of the subjects were required to be at least 5 feet 8 inches and at a minimum, 18 years old in order to participate. A summary of the demographic variables is presented in Table 2.

The cumulative age range for the subjects was 18 to 54 years. The age range that had the greatest number of subjects was "18 to 24", which represented 43 percent of the respondents. The range of income for the sample was \$15,000 to over \$55,000. The greatest number of respondents reported income in the "\$15,000 or less" category, which represented 48 percent of the sample. All of the respondents reported at least a high school diploma. The two education levels that contained the majority of the subjects were "Some College" and "College Degree - 4 yr.", representing 35 percent and 31 percent of the sample respectively.

The most frequently selected profession was "Student", which represented 44 percent of the total sample. The large number of students was anticipated because one of the sites for data collection was in a university. The second most frequently selected profession category was "Other" which represented 29 percent. Of the seven options provided for the subjects to identify their racial background, the top two categories were "Caucasian, European" and "African, African-American, Caribbean". The two groups together represented 90 percent of the total sample, individually the groups represented 78 percent and 12 percent, respectively.

Satisfaction with Fit

Table 3 reports fit satisfaction means for the eight garment categories of Misses' and Tall clothing (i.e., items 1b to 1i and 3b to 3i). For Misses' clothing, the means show that subjects

Table 2

Summary of Demographics

Variables	n	%
Age		
18 to 24	32	43
25 to 29	17	23
30 to 34	7	9
35 to 44	8	11
45 to 54	10	14
Income		
15,000 or less	35	48
15,001 to 20,000	9	12
20,001 to 25,000	7	10
25,001 to 35,000	8	11
35,001 to 45,000	5	7
45,001 to 55,000	5	7
55, 001 and over	4	5
Education		
High School/GED	1	1
Some College	26	35
College Degree 2 yr.	9	12
College Degree 4 yr.	23	31
Graduate Degree	8	11
Post Graduate	7	10
Profession		
Secretary	5	7
Manager	3	4
Nurse	3	4
Laborer (Un)Skilled	1	1
Researcher	2	3
Professor, Teacher, Librarian	6	8
Student	32	44
Other	21	29
Ethnic Background		
African, African-American, Caribbean	9	12
Caucasian, European	58	78
Latin/Hispanic	1	1
Native American	4	5
Other	2	3

Table 3
Means and Standard Deviations of Fit Satisfaction with Misses' and Tall Clothing

	<u>n</u>	<u>M</u>	<u>SD</u>
Misses' Fit			
general	67	2.43	.74
pull-over tops/sweaters	73	2.86	.85
lingerie	66	2.82	.94
skirts	72	2.68	.80
button-up blouses	73	2.62	.95
dresses	72	2.57	.84
jackets/blazers/coats	72	2.39	.90
jeans	71	1.82	.87
pants	73	1.74	.79
	<u>n</u>	<u>M</u>	<u>SD</u>
Tall Fit			
general	67	3.42	1.10
jeans	69	3.58	1.46
pants	72	3.56	1.43
jackets/blazers/coats	58	3.55	1.10
skirts	55	3.55	1.17
dresses	51	3.47	1.05
button-up blouses	54	3.46	1.09
lingerie	37	3.41	1.19
pull-over tops/sweaters	50	3.40	1.14

1 = Much Less Than Satisfactory

2 = Less Than Satisfactory

3 = Satisfactory

4 = More than Satisfactory

5 = Much More than Satisfactory

were less than satisfied with fit for all eight garment groups. The lowest means were reported for jeans ($\mu = 1.82$) and pants ($\mu = 1.74$). The means for the Tall garment groups were 3.40 and above, indicating greater satisfaction than with Misses' clothing. The greatest satisfaction was reported for jeans ($\mu = 3.58$) and pants ($\mu = 3.56$), which is the direct opposite of what was reported for Misses' clothing. In Table 4, a summary of the subjects' reported use of sizing systems is presented. The subjects reported using the Tall system for purchasing jeans and pants, which also supports the finding that the subjects reported dissatisfaction with the fit of Misses' jeans and pants. Comments in Appendix C show that the subjects often compromise between Misses' and Tall clothing systems in search of a proper fit.

The subjects reported using the Misses' sizing system most frequently to purchase jackets/blazers/coats, button-up blouses, dresses, pull-over tops/sweaters, skirts, and lingerie. The Tall sizing system was used most frequently to purchase jeans (59%) and pants (57%).

The means of the subjects' satisfaction with the fit of Misses' and Tall clothing were examined by race. The results, which are shown in Table 5, show that on average both races reported dissatisfaction with the fit of Misses' clothing. Similarly, both races reported satisfaction with the fit of Tall clothing; however, the White subjects reported greater satisfaction with the fit of Tall clothing.

Satisfaction with Style

For the individual garment categories for Misses' clothing, the means in Table 6 show that the subjects reported satisfaction with the style of all eight garment groups. The greatest satisfaction was with "jackets/blazers/coats" ($\mu = 3.41$) and lingerie ($\mu = 3.36$). Although the mean for the style of Tall clothing, in general, was 2.86, the respondents reported satisfaction with the style of five of the eight garment categories (i.e., jeans, pants, pull-over tops/sweaters, skirts, jacket/blazers/coats).

The means of the subjects' satisfaction with the style of Misses' and Tall clothing were examined by race and are reported in Table 7. For the style of Misses' clothing the subjects differed in their responses. The White subjects reported satisfaction with the general style of Misses' clothing and with each of the eight garment categories. In contrast, the Black subjects reported dissatisfaction with the style of Misses' clothing in general and with all of the garments. For the style of Tall clothing, both races reported dissatisfaction with the general style of Tall clothing, but when the eight garment categories were examined by race, White subjects were more than satisfied (i.e., satisfactory ≥ 3.00) with all eight garment categories and the Black subjects were satisfied with all categories except the style of skirts and pants. The differences in style preferences between the two groups are similar to prior findings by Feather, Ford, and Herr (1996), who reported Black subjects' preferences for design features in athletic uniforms were significantly different than the preferences of White subjects.

Table 4

Frequencies of Sizing System Use

	MISSES		TALL		JUNIORS		WOMEN'S		MEN'S	
Garments	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
jackets/ blazers/coats	37	49	19	25	1	1	11	15	7	9
button-up blouses	40	53	7	9	7	9	18	24	3	4
dresses	42	56	15	20	6	8	12	16	0	0
pull-over tops/sweaters	38	51	5	7	9	12	14	19	9	12
skirts	42	57	14	19	8	11	10	14	0	0
jeans	15	20	44	59	1	1	4	5	10	14
pants	19	25	43	57	3	4	4	5	6	8
lingerie	44	62	7	10	3	4	17	24	0	0

Table 5

Means of Fit Satisfaction for Misses' and Tall Clothing by Race

	Black (n=9)	White (n=58)
Fit of Misses'		
general	2.56	2.19
jackets/blazers/coats	2.22	2.36
button-up blouses	2.56	2.52
dresses	2.78	2.48
pull-over tops/sweaters	2.22	2.86
skirts	2.67	2.60
jeans	2.00	1.88
pants	2.00	1.69
lingerie	3.00	2.98
Fit of Tall		
general	3.33	3.28
jackets/blazers/coats	3.67	4.16
button-up blouses	3.78	4.24
dresses	4.33	4.19
pull-over tops/sweaters	4.22	4.28
skirts	3.89	4.12
jeans	3.44	3.76
pants	3.11	3.66
lingerie	4.00	4.81

1 = Much Less Than Satisfactory

2 = Less Than Satisfactory

3 = Satisfactory

4 = More than Satisfactory

5 = Much More than Satisfactory

Table 6

Means and Standard Deviations of Style Satisfaction with Misses' and Tall Clothing

	<u>n</u>	<u>M</u>	<u>SD</u>
Misses Style			
general	68	3.34	.99
jackets/blazers/coats	70	3.41	.91
lingerie	67	3.36	.93
button-up blouses	69	3.33	.95
pull-over tops/sweaters	71	3.30	.96
dresses	70	3.26	1.10
skirts	71	3.25	.94
pants	71	3.03	1.15
jeans	70	3.01	1.17
	<u>n</u>	<u>M</u>	<u>SD</u>
Tall Style			
general	63	2.86	1.08
jeans	69	3.25	1.28
pants	70	3.04	1.28
pull-over tops/sweaters	52	3.04	1.12
skirts	56	3.02	1.15
jackets/blazers/coats	59	3.00	1.11
lingerie	35	2.94	1.33
button-up blouses	54	2.81	1.15
dresses	52	2.75	1.15

1 = Much Less Than Satisfactory

2 = Less Than Satisfactory

3 = Satisfactory

4 = More than Satisfactory

5 = Much More than Satisfactory

Table 7

Means of Style Satisfaction for Misses' and Tall Clothing by Race

	Black (n=9)	White (n=58)
Style of Misses'		
general	2.67	3.18
jackets/blazers/coats	2.56	3.31
button-up blouses	2.11	3.19
dresses	2.67	3.14
pull-over tops/sweaters	2.44	3.21
skirts	2.56	3.14
jeans	2.44	2.97
pants	2.67	2.88
lingerie	2.56	3.34
Style of Tall		
general	2.78	2.83
jackets/blazers/coats	3.56	3.50
button-up blouses	3.44	3.62
dresses	3.67	3.43
pull-over tops/sweaters	3.56	3.83
skirts	2.89	3.64
jeans	3.11	3.33
pants	2.67	3.14
lingerie	3.89	4.43

1 = Much Less Than Satisfactory

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5 = Much More than Satisfactory

Anthropometric Measurement Summary

Four measurements were taken of each subject: stature, neck base to waist, waist to ankle, and shoulder to wrist. The measurements were rounded to the nearest whole number and the frequencies are reported in Table 8. The means for each measurement site are reported in Table 9. Stature was taken for all 75 subjects and the range was 68 inches to 76 inches. The greatest number of subjects were in the 69 inches (31%) and 70 inches (27%) groups. The neck base to waist measurements ranged from 15 to 19 inches, and of the 75 subjects the majority (90%) had measurements of 16 inches to 18 inches. The measurement group that had the greatest frequency (36%) was in the 18 inches group.

For the waist to ankle site, the subjects' measurements ranged from 40 to 46 inches. Due to an oversight, there were only 74 subjects for this measurement site. The measurement categories with the greatest number of subjects were 42 inches (30%) and 43 inches (28%). The shoulder to wrist measurement of the subjects ranged from 22 inches to 28 inches. The measurement category with the greatest number of subjects was 24 inches (36%). As shown in Table 8, the greatest number of subjects had shoulder to wrist measurements of 23 inches, 24 inches, and 25 inches, representing 85% of the sample. An examination of the anthropometric measurements by height shows that the neck to waist measurements and the waist to ankle measurements increased as stature increased, up to 74 inches (see Table 10). The shoulder to wrist measurements increased as stature increased, up to 73 inches.

Further examination of the sample involved a comparison of the means for each of the measurement sites by height and racial group. The results are reported in Table 11. The means for the Black subjects' shoulder to wrist and waist to ankle measurements were larger than the White subjects. For neck to waist measurements, only the Black subjects whose heights were 68 inches and 69 inches had larger measurements than the White subjects.

Fit Problems

A summary of the reported fit problems with Tall clothing is presented in Table 12. Of the problems reported for jackets/blazers/coats, the greatest number of problems were with sleeves and hemlines being too short and bustlines being too wide/large. Similar problems were reported for buttoned blouses, dresses, and with pull-over tops and sweaters. For skirts, pants, and jeans, the subjects reported that hemlines were too short and waistlines were too wide/large on Tall clothing. The subjects also reported problems with the crotch height of pants and jeans as being too long. The majority of the subjects had either no experience or no major problems with lingerie for Tall sizes.

Hypothesis One

There is no difference between tall women's satisfaction with the fit of Misses' clothing and tall women's satisfaction with the fit of Tall clothing.

Table 8

Summary of Anthropometric Measurements

Measurements (inches, rounded)	<u>n</u>	<u>%</u>
Stature		
68	8	11
69	23	31
70	20	27
71	8	11
72	8	11
73	5	7
74	2	3
76	1	1
Neck to Waist		
15	3	4
16	20	27
17	20	27
18	27	36
19	5	7
Waist to Ankle		
40	3	4
41	7	9
42	22	30
43	21	28
44	14	19
45	6	8
46	1	1
Shoulder to Wrist		
22	1	1
23	19	25
24	27	36
25	18	24
26	8	11
27	1	1
28	1	1

Note: Due to rounding, the percent totals for each measurement site may exceed 100 percent.

Table 9

Means of Anthropometric Measurements (inches)

Measurement Site	<u>n</u>	<u>M</u>	<u>SD</u>
Stature	75	70.01	1.58
Neck to Waist	75	17.12	1.04
Waist to Ankle	74	42.70	1.21
Shoulder to Wrist	75	24.14	1.09

Table 10
Anthropometric Measurements by Stature (inches)

		Neck to Waist		Waist to Ankle		Shoulder to Wrist	
Stature (rounded in inches)	<u>n</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
68	8	16.92	1.03	41.92	1.31	23.67	.67
69	23	16.80	.90	41.94	.74	23.68	.97
70	20	17.04	1.05	42.53	.74	24.03	.99
71	8	17.00	1.21	43.41	.71	24.03	.91
72	8	17.50	.66	43.55	.99	24.91	.55
73	5	17.75	.90	44.38	.73	25.40	.86
74	2	19.25	.18	45.44	.62	24.81	.97
76	1	18.38	*	44.50	*	27.75	*

* = no response

Table 11

Means and Standard Deviations of Anthropometric Measurements by Stature and Race

	Black (n=9)		White (n=58)	
	Neck/ Waist			
Stature (inches)	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
68	17.69	.97	16.80	1.05
69	16.88	1.19	16.84	.93
70	16.56	.44	17.07	1.12
71	n/a	n/a	17.05	1.30
72	n/a	n/a	17.50	.66
73	16.50	*	18.06	.65
74	n/a	n/a	19.25	.18
76	18.38	*	n/a	n/a
	Waist/ Ankle			
Stature (inches)	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
68	43.00	1.06	41.38	1.30
69	42.33	.19	41.76	.68
70	42.50	1.41	42.48	.68
71	n/a	n/a	40.73	.75
72	n/a	n/a	43.55	.99
73	44.38	*	44.38	.85
74	n/a	n/a	45.44	.62
76	44.50	*	n/a	n/a
	Shoulder/ Wrist			
Stature (inches)	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
68	24.00	.71	23.63	.76
69	23.67	.29	23.58	1.10
70	25.00	2.12	23.90	.85
71	n/a	n/a	20.34	.93
72	n/a	n/a	24.91	.55
73	26.25	*	25.19	.83
74	n/a	n/a	24.81	.97
76	27.75	*	n/a	n/a

* = only one respondent

n/a = no respondents

Table 12

Summary of Fit Problems with Tall Clothing

Questionnaire Item	No Experience w/ Garment 1	No Major Problems 2	Too Long 3	Too Short 4	Too Wide/ Large 5	Too Narrow /Small 6	Other 7	Total
jackets/blazers/coats								
sleeves	19	19	9	19	3	4	0	73
hemline	21	28	8	12	0	1	0	70
shoulder line	20	28	4	4	7	9	0	72
bustline	20	23	2	3	14	11	0	73
buttoned blouses								
sleeves	23	22	6	17	2	2	0	72
hemline	25	33	4	10	0	0	0	72
shoulder line	24	27	1	4	9	7	0	72
bustline	24	28	0	1	11	9	0	73
dresses								
hemline	17	35	7	14	0	0	0	73
sleeves	18	28	5	19	1	2	0	73
waistline	17	27	8	6	11	2	2	73
bustline	17	33	1	2	13	7	0	73
pull-over tops/sweaters								
hemline	24	32	7	9	0	0	0	72
sleeves	24	22	7	17	1	1	0	72
shoulder line	24	30	3	4	5	6	0	72
bustline	24	32	1	1	10	4	0	72
skirts								
hipline	19	38	3	6	3	3	0	72
hemline	18	35	7	12	1	0	0	73
waistline	18	34	1	4	12	3	1	73
jeans								
hemline	6	37	10	20	0	0	0	73
crotch height	6	39	14	12	0	0	2	73
waistline	6	35	3	3	19	6	1	73
pants								
hemline	4	32	14	23	0	0	1	74
crotch height	4	37	18	12	0	0	2	73
waistline	4	39	2	4	16	6	1	72

Table 12
Summary of Fit Problems with Tall Clothing. (cont.)

Questionnaire Item	No Experience w/ Garment 1	No Major Problems 2	Too Long 3	Too Short 4	Too Wide/ Large 5	Too Narrow/ Small 6	Other 7	Total
lingerie - full slips								
bustline	38	16	0	3	10	6	0	73
waistline	37	22	1	3	6	2	2	73
hemline	37	22	4	8	1	0	1	73
lingerie - half slips								
waistline	39	26	1	3	3	0	1	73
hemline	39	20	4	8	2	0	0	73

The means of the two variables were examined using a t-test to determine if the level of reported satisfaction differed for the fit Misses' clothing, in general, and the fit of Tall clothing, in general. Table 3 shows that the respondents rated the fit of Tall clothing as satisfactory ($\mu = 3.42$) and the fit of Misses' clothing as unsatisfactory ($\mu = 2.43$). The t-test results ($t = -10.850$, $p = .00$) indicated that the subjects' level of satisfaction with the fit of Misses' was significantly different from their level of satisfaction with Tall clothing. Therefore, the null hypothesis was rejected. To further support this, frequency of responses indicate that 55% of the subjects were at least less than satisfied with Misses' clothing and more than 70% were satisfied with Tall clothing. The frequency results for satisfaction with fit for the general statements and the specific garment categories are reported in Appendix D.

T-tests were conducted for each of the eight garment categories. The results, which are reported in Table 13, revealed that for each garment category, there was a significant difference between the subjects' satisfaction with the fit of Misses' clothing and with the fit of Tall clothing. This implies that the subjects were more satisfied with the fit of Tall clothing overall than with the fit of Misses' clothing. This further supports the rejection of the null hypothesis.

Hypothesis Two

There is no relationship between tall women's satisfaction with the style of Misses' clothing and tall women's satisfaction with the style of Tall clothing.

A t-test was used to determine whether a difference existed between the means for the subjects' level of satisfaction with the style of Misses' clothing, in general, and with the style of Tall clothing, in general. The mean for Misses' clothing was 3.34 and for Tall clothing was 2.86. The results of the t-test ($t = 4.021$, $p = .00$) indicated that the subjects' mean for satisfaction with the style of Misses' clothing, in general, was significantly different from the mean for satisfaction with the style of Tall clothing. Therefore, the null hypothesis was rejected. The subjects appear to be more satisfied with the style of Misses' clothing than with the style of Tall clothing. Seventy-nine percent of the subjects reported the style of Misses' clothing as satisfactory, in contrast to 65% who reported the style of Tall clothing as satisfactory. The frequency results for satisfaction with style for the general statements and the specific garment categories are reported in Appendix F. In the comments in Appendix C, the subjects described the style of Tall clothing as "grandma-ish", "dorky", "frumpy" and "out of style", which aids in explaining why the subjects were dissatisfied with the style of Tall clothing.

T-tests were conducted for each of the eight garment categories and are reported in Table 14. The results revealed that jackets/blazers/coats, buttoned blouses, and dresses were the only categories in which the subjects responses were significantly different. For these three garment categories, all of which pertain mainly to the upper body, the subjects' reported more satisfaction with the style of Misses' clothing than with Tall clothing. This further supports the rejection of the null hypothesis.

Table 13

Paired T-test Results for the Eight Garment Categories for Satisfaction with the Fit of Misses' Clothing and Tall Clothing

<u>Garment Categories</u>	<u>Difference Misses - Tall</u>	<u>Standard Error</u>	<u>df</u>	<u>t</u>
jackets/blazers/coats	-1.32	.18	56	-7.14*
buttoned blouses	-1.02	.18	51	-5.63*
dressess	-.92	.19	48	-4.76*
pull-over tops/sweaters	-.53	.18	48	-2.91*
skirts	-.92	.20	52	-4.72*
jeans	-1.82	.19	66	-9.83*
pants	-1.81	.17	69	-10.71*
lingerie	-.68	.23	33	-2.89*

* $p \leq .05$

Table 14

Paired T-test Results for the Eight Garment Categories for Satisfaction with the Style of Misses' Clothing and Tall Clothing

<u>Garment Categories</u>	<u>Difference Misses - Tall</u>	<u>Standard Error</u>	<u>df</u>	<u>t</u>
jackets/blazers/coats	.46	.18	55	2.55*
buttoned blouses	.56	.22	49	2.53*
dressess	.61	.22	48	2.84*
pull-over tops/sweaters	.20	.20	48	1
skirts	.26	.21	52	1.28
jeans	-.29	.21	65	-1.38
pants	-.06	.22	66	-.27
lingerie	.15	.28	32	.54

* $p \leq .05$

Hypothesis Three

There is no relationship between height and tall women's satisfaction with the fit of Misses' clothing.

ANOVA was used to compare height with the subjects' responses to the general statement regarding satisfaction with the fit of Misses' clothing. Although the results approached significance ($F = 2.53$, $p = .0878$), indicating a relationship between height and satisfaction with fit, the null hypothesis was not rejected. When R^2 was examined, the result showed that height only contributed 7% ($R^2 = .07$) to the variance in the subjects' reported level of satisfaction with Misses' clothing.

The Pearson's product moment correlation was used to determine the direction of the relationship. The coefficient was negative ($r = -.18$) suggesting that as height increased, satisfaction with the fit of Misses' clothing decreased. Further examination revealed that the mean rating of satisfaction for each height group decreased as height increased. The means for height groups A, B, and C were 2.58, 2.50, and 2.07 respectively.

ANOVA was used to test the difference between the means of the three height groups for each of the eight garment categories. The results, which are reported in Table 15, were significant for the jackets/blazers/coats category. As shown in the table, the subjects' satisfaction with fit for this category significantly decreased as height increased. Although buttoned blouses and dresses revealed a similar pattern, the differences were not significant.

Hypothesis Four

There is no relationship between height and tall women's satisfaction with the fit of Tall clothing.

ANOVA was used to compare height with the subjects' responses to the general statement regarding satisfaction with the fit of Tall clothing. The results revealed no significant relationship ($F = .1910$, $p = .8266$) between height and satisfaction with fit, the null hypothesis was not rejected. When R^2 was examined, the result showed that height only contributed 4% ($R^2 = .04$) to the variance in the subjects' reported level of satisfaction with Tall clothing.

The Pearson's product moment correlation was used to determine the direction of the relationship. The coefficient was low and positive ($r = .14$), suggesting that as height increased, satisfaction with the fit of Tall clothing increased. Further examination revealed that the mean rating of satisfaction for each height group increased as height increased. The means for height groups A, B, and C were 3.35, 3.40, and 3.56 respectively.

ANOVA was used to test the differences between the three height groups for each of the eight garment categories. The results, which are reported in Table 16, showed no significant differences for any of the eight categories. These findings suggest that the subjects' satisfaction

Table 15

Means and ANOVA Results for Fit Satisfaction for Misses' Clothing by Stature Groups

		Stature Groups			
	<u>n</u>	A	B	C	F -ratio
General	67	2.58	2.50	2.07	2.53
jackets/blazers/coats	72	2.63	2.46	1.81	5.01*
buttoned blouses	73	2.83	2.63	2.19	2.51
dressess	72	2.67	2.62	2.31	1.00
pull-over tops/sweaters	73	2.87	3.04	2.56	1.57
skirts	72	2.66	2.81	2.50	.79
jeans	71	1.97	1.85	1.47	1.72
pants	73	1.83	1.85	1.5	1.18
lingerie	66	2.64	2.83	3.13	1.34

* $p \leq .05$

1 = Much Less Than Satisfactory

2 = Less Than Satisfactory

3 = Satisfactory

4 = More than Satisfactory

5 = Much More than Satisfactory

Table 16

Means and ANOVA Results for Fit Satisfaction for Tall Clothing by Stature Groups

		Stature Groups			F -ratio
	<u>n</u>	A	B	C	
General	67	3.35	3.40	3.56	.19
jackets/blazers/coats	58	3.52	3.57	3.58	.01
buttoned blouses	54	3.33	3.35	3.85	1.05
dressess	51	3.45	3.43	3.60	.09
pull-over tops/sweaters	50	3.37	3.35	3.55	.11
skirts	55	3.5	3.48	3.75	.23
jeans	69	3.59	3.58	3.57	.00
pants	72	3.48	3.59	3.63	.06
lingerie	37	3.33	3.25	3.78	.59

* $p \leq .05$

1 = Much Less Than Satisfactory

2 = Less Than Satisfactory

3 = Satisfactory

4 = More than Satisfactory

5 = Much More than Satisfactory

with the fit of Tall clothing did not vary by height.

Hypothesis Five

There is no relationship between tall women's anthropometric measurements and reported fit problems with Tall clothing.

The purpose of hypothesis five was to determine where the fit problems were most prominent for each measurement group. The results of the Pearson's chi-square are presented in Tables 17 to 19. The results are discussed according to the garments worn in the area of the measurement site.

The results of the Pearson's chi-square revealed two significant associations between anthropometric measurements and reported fit problems. Subjects in group B (43 inches to 46 inches) for the waist to ankle measurements reported that the hiplines of skirts were too short ($r = 9.643$, $p = .02$) (see Table 17). Subjects in group C (25 inches to 28 inches) for the shoulder to wrist measurements reported that hemlines ($r = 5.880$, $p = .05$) on buttoned blouses were too short (see Table 18). There were no significant findings for the neck to waist measurement site (see Table 19).

Hypothesis Six

There is no difference between the anthropometric measurements of Black and White tall women.

The purpose of hypothesis six was to determine if anthropometric differences existed between the two races, when using apparel industry measurement sites for the torso, arms, and legs (i.e., stature, lengths of arms, back, waist to ankle). Table 20 reports the average anthropometric measurements for each racial group. The means by race show that Black subjects were taller and had longer waist to ankle and shoulder to wrist measurements (i.e., legs and arms, respectively), but had shorter neck to waist measurements (i.e., length of back to waist). These results are similar to findings by Malina (1974) and Malina & Bouchard (1991).

Table 20 also reports the results of the *t*-tests which were used to test for the significant differences between the measurements of the two racial groups. The results show that only shoulder to wrist measurements approached significance ($t = 1.82$, $p = .07$), therefore Hypothesis Six was not rejected. Overall, it appears that no significant differences between the Black and White groups existed when using the measurement sites typically used in constructing apparel. However, for this study the lack of significance could be due to the low sample size of Black subjects as compared to the White subjects.

Table 17

Results of Pearson Chi-Square Analyses for Waist to Ankle Measurements and Reported Fit Problems with Tall Clothing

	Chi Square	Probability
skirts		
hipline	9.64	.02*
hemline	2.41	.30
waistline	7.13	.13
jeans		
hemline	.41	.52
crotch height	2.49	.29
waistline	5.37	.25
pants		
hemline	2.52	.28
crotch height	2.33	.31
waistline	2.97	.56
lingerie - half slips		
waistline	2.31	.51
hemline	1.75	.42

* = $p \leq .05$

Table 18

Results of Pearson Chi-Square Analyses for Shoulder to Wrist Measurements and Reported Fit Problems with Tall Clothing

	Chi Square	Probability
jackets/blazers/coats		
sleeves	9.58	.14
hemline	2.63	.62
shoulder line	9.11	.17
bustline	7.89	.25
buttoned blouses		
sleeves	11.39	.08
hemline	5.88	.05*
shoulder line	6.51	.37
bustline	6.15	.19
dressess		
hemline	2.92	.23
sleeves	9.15	.17
waistline	14.30	.07
bustline	10.67	.10
pull-over tops/sweaters		
hemline	3.81	.15
sleeves	6.18	.40
shoulder line	7.95	.24
bustline	5.25	.51

* = $p \leq .05$

Table 19

Results of Pearson Chi-Square Analyses for Neck to Waist Measurements and Reported Fit Problems with Tall Clothing

	Chi Square	Probability
jackets/blazers/coats		
sleeves	9.03	.17
hemline	5.62	.23
shoulder line	8.77	.19
bustline	3.87	.69
buttoned blouses		
sleeves	6.77	.34
hemline	.28	.87
shoulder line	6.43	.38
bustline	2.59	.63
dressess		
hemline	.18	.94
sleeves	5.68	.46
waistline	7.68	.47
bustline	4.84	.56
pull-over tops/sweaters		
hemline	.80	.67
sleeves	4.94	.55
shoulder line	7.39	.29
bustline	3.87	.69
lingerie - full slips		
bustline	3.66	.45
waistline	7.78	.46
hemline	5.48	.48

* = $p \leq .05$

Table 20

Means and Standard Deviations of Subjects' Measurements by Race

	Black n=9		White n=58		Results	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>t</u>	<u>p</u>
Stature	70.17	2.55	70.11	1.46	0.10	0.92
Neck to Waist	17.11	0.96	17.19	1.08	0.20	0.84
Waist to Ankle	42.99	1.07	42.67	1.27	0.71	0.48
Shoulder to Wrist	24.78	1.63	24.06	1.01	1.82	0.07

Hypothesis Seven

There is no difference between the measurements of tall women in this study and measurements for Tall women in PS 42-70.

The purpose of this hypothesis was to compare the anthropometric measurements of tall women in this study to that of a commercial standard for apparel sizing system for tall women. The Voluntary Product Standard 42-70 was used. The measurement sites used for comparison were stature, neck to waist, and waist to ankle. The shoulder to wrist measurement was not used due to the difference in the data collection method used by PS 42-70 and this study.

In Table 21, the neck to waist and waist to ankle measurements from the subjects and from the PS 42-70 are presented along with the differences. T-tests were used to test the differences between the means of the anthropometric measurements of the subjects and the measurements for PS 42-70. The results, of the t-tests are reported in Table 21. The differences between the neck to waist measurement for the subjects in this study and PS 42-70 for each stature group were significant at the .05 level. The difference between the waist to ankle measurements for the subjects in this study and PS 42-70 for each stature group were also significant at the .05 level.

For each stature group, the subjects had larger neck to waist and waist to ankle measurements than the standard sizing system. The findings indicate that if apparel were constructed using PS 42-70 as a guide, the garments would not properly fit the tall subjects. The stature range for PS 42-70 is 67.5 inches to 70.5 inches and the height range for the subjects for this study was 68 inches to 76 inches. Based on the commercial standard, women whose heights are over 70.5 inches would not be accommodated; approximately 31% of the subjects in this study were over 70.5 inches in height.

Hypothesis Eight

There is no difference in where tall women locate, buy, and prefer to buy Tall clothing and where tall women locate Misses' clothing.

The objective of exploring tall women's accessibility to Tall clothing was to determine if a difference existed between the location in which they found Tall clothing and Misses' clothing by examining frequencies for each. Additional purposes were to determine if differences existed among where tall women had seen, purchased, and preferred to purchase Tall clothing.

The scores for each location were analyzed using frequency tables. Table 22 contains the summary of where subjects reported seeing Misses' clothing and Tall clothing. The table also includes summaries of subjects' preferred locations for purchasing Tall clothing.

The subjects reported seeing Tall clothing in Mail Order Catalogs (32%) more often than any other venue. The next highest frequency was Specialty Stores (28%). In comparison to Tall

Table 21

Comparison of Neck to Waist and Waist to Ankle Measurements for Subjects in this Study and the PS 42-70 Standard

	Neck to Waist (inches)					
Stature	Current Study					
	<u>M</u>	<u>SD</u>	PS 42-70	Difference Current Study <u>M</u> - PS 42-70 Measurement	<u>t</u>	<u>p</u>
68	16.92	1.03	16.13	.79	2.36	.05*
69	16.80	0.90	16.38	.42	2.62	.02*
70	17.04	1.05	16.63	.41	2.05	.05*
	Waist to Ankle (inches)					
Stature	Current Study					
	<u>M</u>	<u>SD</u>	PS 42-70	Difference Current Study <u>M</u> - PS 42-70 Measurement	<u>t</u>	<u>p</u>
68	41.92	1.31	39.88	2.04	4.81	.00*
69	41.94	0.74	40.68	1.26	9.67	.00*
70	42.53	0.74	41.38	1.15	8.14	.00*

* Significant at the .05 level

Table 22

Accessibility to Misses' and Tall Clothing with Percentages of Store Type

	Seen Misses' Clothing		Seen Tall Clothing		Buy Tall Clothing		Prefers to Buy Tall Clothing	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
Department Store	74	22	50	23	35	27	41	34
Specialty Store	60	18	59	28	30	23	26	21
Discount Store	67	20	23	11	15	11	17	14
Mail Order Catalogs	67	20	68	32	37	28	20	16
Television Shopping	44	13	7	3	2	2	3	2
Other	13	4	5	2	3	2	3	2
N/A	4	1	2	1	9	7	12	10

clothing, the reported frequencies for where Misses' clothing was seen was more spread out across the choices: Department Stores (22%), Discount Stores (20%), and Specialty Stores (18%).

The subjects were asked to identify all of the locations from which they currently purchase Tall clothing and where they would prefer to buy Tall clothing. The results showed that Mail-Order Catalogs (28%) were most frequently used to purchase Tall clothing. In regards to where they would prefer to purchase Tall clothing, the greatest number of responses was reported for Department Stores (34%). The difference in where the subjects prefer to purchase Tall clothing and where they actually purchase may indicate that the method of distribution for Tall clothing may not be meeting the accessibility needs of the market. Comments from the subjects were "disappointed with the availability of apparel for tall women" and that Tall clothing is "virtually impossible" or "difficult" to find. Also, the subjects stated that shopping through mail-order catalogs was "too expensive" and "small fortune" was spent on shipping fees (see Appendix C).

Some subjects expressed the "need for more Tall specialty stores" and that department stores were where they "most often shop". Although a clothing interest scale was not used which would measure clothing interest, it appears as though the subjects are aware of what is being offered to them as a tall market. In addition, subjects reported locating Misses' clothing in almost all of the locations which suggests that tall women are aware of what is being provided to other markets. Based on the differences in the frequencies reported, the null hypothesis was rejected.

Hypothesis Nine

There is no difference in how tall women prioritize the attributes of fit and style.

The purpose of hypothesis nine was to determine how tall women prioritize fit and style for clothing by responding to prefabricated scenarios. The results, which are reported in Table 23, show the responses to how fit and style affected the decision to purchase or to not purchase apparel. For Misses' clothing, style appeared to be more important than fit. A comparison of the responses for "Did not fit and liked style" with "Fit and did not like style" showed that 30% of the respondents would purchase a garment with a favorable style that did not fit, while only 3 percent would purchase a garment with an unfavorable style that fit. The identical scenarios were presented for Tall clothing. The results were similar in that 31 percent of the respondents would purchase a favorable style that did not fit, however, a few more than what was reported for Misses' were willing to purchase an unfavorable style (12%) that fit in Tall clothing. It was expected that the subjects would be less willing to purchase Tall clothing that did not fit, because it was predicted that tall women would have higher expectations of fit for Tall clothing than the fit of Misses' clothing. It appears that style was more important than fit for Misses' and Tall clothing, therefore, the null hypothesis was rejected. Comments from Appendix C show that some subjects were willing to purchase "ill-fitting" clothing in order to have satisfaction with the

Table 23

Prioritization of Fit and Style

	Buy		Don't Buy	
	<u>n</u>	%	<u>n</u>	%
Misses'				
Fit and Liked Style	73	99	1	1
Did not Fit and Liked Style	22	30	52	70
Fit and Did not like Style	2	3	72	97
Did not Fit and Did not Like Style	0	0	74	100
Tall				
Fit and Liked Style	72	96	3	4
Did not Fit and Liked Style	23	31	51	69
Fit and Did not like Style	9	12	65	88
Did not Fit and Did not Like Style	0	0	74	100

styling of a garment.

Table 24 summarizes the subjects' responses which prioritize fit and style for three clothing categories (i.e., casual, career, eveningwear). The results showed style as the most important attribute for Casual wear and Career wear, 61% and 67% respectively. For eveningwear, the subjects reported fit as the most important attribute (52%). Assuming that eveningwear is not considered daily attire, the findings suggest that style was chosen as the most important attribute for garments that are most frequently worn and fit was selected most often for occasionally worn clothing. Based on the profile of the average subject, (e.g., student with low income) the occasion to purchase eveningwear may not be as prominent had the average subject been older with higher income and a professional career. In addition, the styles of most eveningwear have a fitted silhouette, which would increase the need to have a garment that fits properly.

Summary of Findings

The comparisons of fit and style for Misses' and Tall clothing revealed a significant difference between how the subjects rated satisfaction with Misses' clothing and satisfaction with Tall clothing. The subjects were dissatisfied with the general fit of Misses', but were satisfied with the fit of Tall clothing. In spite of the dissatisfaction, the Misses' sizing system was identified as the most frequently used sizing system for garments. The responses to fit satisfaction were analyzed with race, the Black and White subjects both rated the fit of Misses' clothing as unsatisfactory and Tall clothing as satisfactory.

Style satisfaction was tested in the same manner as fit satisfaction. The results showed that the subjects' satisfaction with Misses' clothing differed significantly from their satisfaction with Tall clothing. The subjects were more satisfied with the style of Misses' clothing than with Tall clothing. This rating was not consistent across racial groups. Although the Black subjects were dissatisfied with the general style of Misses' clothing, the White subjects reported satisfaction. For the style of Tall clothing, both groups reported dissatisfaction. Additional findings for style indicated that style, instead of fit, was the dominate clothing attribute.

Subjects reported that they would be willing to purchase a garment if they liked the style but the garment did not quite fit. This was reported for Misses' and Tall clothing. Style was also selected as being the important attribute for casual and career clothing, garments which are worn on a frequent basis.

When asked to identify distribution venues for Tall clothing, mail order catalogs and specialty stores were the most frequently reported location for where the subjects had seen Tall clothing. Mail order catalogs and department stores were locations most frequently identified as where the subjects purchased Tall clothing; however, the subjects selected department stores as the location that they would prefer to purchase Tall clothing. In comparison to Tall clothing, the subjects reported locating Misses' clothing almost equally in the selection of locations (e.g., department stores, specialty stores, discount stores).

Table 24

Fit and Style Priorities in Three Clothing Settings

Clothing Setting	Fit		Style	
	<u>n</u>	%	<u>n</u>	%
Casual Clothing	29	39	45	61
Career Clothing	24	33	49	67
Evening Wear	38	52	35	48

Results of the ANOVA revealed no significant relationship between height and satisfaction with the fit of Misses clothing and Tall clothing. However, Pearson's product moment correlation revealed that as height increased, reported fit satisfaction with Misses' clothing decreased and the reported satisfaction with Tall clothing increased. The means for height supported the directions of the correlation.

Pearson's chi-square was used to determine where the fit problems were most prominent for each measurement group. Waist to ankle measurements were significantly associated with skirts, where hiplines of skirts were reported as too short. Shoulder to wrist measurements were significantly associated with buttoned blouses; subjects reported the hemlines as being too short.

The means of the Black and White subjects' anthropometric measurements were compared and the results showed that the Black subjects had longer stature, waist to ankle, and shoulder to wrist lengths, but shorter neck to waist lengths. A statistical means comparison was conducted and the results revealed that the differences were not significant. The lack of significance is not conclusive due to the imbalance in sample size between the two racial groups.

Another test with the subjects' anthropometric measurements showed that the subjects' measurements differed significantly from those of commercial standard PS 42-70. For each set of measurements (i.e., neck to waist and waist to ankle), the subjects' measurements were larger, indicating that the sizing system is not reflective of the subjects' physical body measurements.

Chapter VI

Summary, Conclusion, and Recommendations

The purpose of this exploratory study was to compare tall women's satisfaction with Tall clothing as compared with Misses clothing. Fit, style, and accessibility were the variables used to investigate the experiences of tall women with Tall clothing. Additional purposes were to compare the anthropometric measurements of tall women with those of commercial standard PS 42-70, to investigate relationships between the subjects' anthropometric measurements and reported fit problems with Tall clothing, and to determine if differences existed between the measurements of Black and White tall women.

The review of literature presented numerous studies, which reported problems with fit and style for consumers of Tall, Petite, and Large-size apparel. The basis for many of these problems appears to be with the sizing system manufacturers use for their basic pattern (Brown, 1992), as well as the fit model manufacturers use to determine the ideal fit (Brown, 1992). Since sizing systems are based on the average populations, individuals who are not average size generally experience the most problems with fit (Chowdhary & Beale, 1988). Apparel manufacturers have attempted to resolve the fit problems in ready-to-wear clothing by defining clothing systems designed to fit certain height and girth characteristics. In spite of these attempts, consumers still report problems with fit.

Although manufacturers produce clothing for tall women, no empirical research was located that examined tall women's satisfaction with Tall clothing. Apparel manufacturers need to know if their products are satisfying the needs of tall women, specifically with fit and style, and manufacturers also need to know if their products are accessible to the target market.

Haslegrave (1986) reported that extreme populations should be analyzed as a separate entity with their own set of means. Haslegrave's (1986) definition is interpreted for the purpose of this study as persons whose height measurements are outside the average height range for women as established by the apparel industry. Based on that interpretation, tall women are a special apparel market that will have clothing needs. It is the exploration of these needs that was the incentive to conduct this study of tall women's satisfaction with Tall clothing.

The sample for this study consisted of 75 women between the ages of 18 and 54 years and who were at least 5 feet 8 inches or taller. The shortest subject was 5 feet 8 inches and the tallest was 6 feet 4 inches. Forty-four percent of the sample was college students, and the income range with the highest number of subjects was \$15,000 or less. All of the subjects had at least a high school diploma and 99% of the subjects had some college experience or more. The majority (79%) of the sample population was in the Caucasian/European racial group. The African/African-American/Caribbean racial group represented 12% of the sample population, this is similar to the population of Blacks in the United States (Survey of Buying Power, 1995).

Nine hypotheses were formulated for the study. T-tests were used to test hypotheses one,

two, six, and seven. ANOVA was used to test hypotheses three and four and chi-squares statistics were used to test hypothesis five. Hypotheses eight and nine were tested based on analyses of the frequencies.

Hypothesis one stated there is no difference between tall women's satisfaction with the fit of Misses' clothing and tall women's satisfaction with the fit of Tall clothing. The t-test results indicated a significant difference between the two variables. An analysis of the means revealed that tall women were more satisfied with the fit of Tall clothing than Misses' clothing. Furthermore, subjects were dissatisfied the fit of all eight garment categories in the Misses' system, but especially with jeans and pants which received the lowest ratings. When subjects were asked to identify the sizing systems used to purchase garments in the eight categories, the subjects reported using the Misses' system for all garments except for jeans and pants. For the latter two garments, the subjects used the Tall sizing system. Consequently, jeans and pants had the highest satisfaction ratings in the Tall sizing system.

Kang-Park (1992) reported that subjects who are dissatisfied with clothing in their own sizing system often search other sizing systems in order to find a better fit. This is not true of the subjects in this study, who appear to purchase clothing from the Misses' sizing system even though they report dissatisfaction with the fit of the clothing. It appears that another factor may be causing the subjects to purchase clothing that they do not find satisfactory. The answer may be in the attribute of style. Style or the aesthetic quality of garments have a strong influence on the purchase decisions of consumers (Eckman, Damhorst, & Kadolph, 1990; Frings, 1994).

Hypothesis two examined the difference between tall women's satisfaction with the style of Misses' clothing in general and the style of Tall clothing in general. T-test results were also significant, indicating that tall women were more satisfied with the style of Misses' clothing than with the style of Tall clothing.

Seventy-nine percent of the subjects reported the style of Misses' clothing as satisfactory, in contrast to 65% who reported the style of Tall clothing as satisfactory. Further analysis of the data revealed that the subjects were satisfied with the style of all eight garment groups for Misses clothing, but especially with "jackets/blazers/coats" and lingerie. Although Tall clothing in general was rated as unsatisfactory, the respondents did report satisfaction with the style of five of the eight garment categories (i.e., jeans, pants, pull-over tops/sweaters, skirts, jacket/blazers/coats). T-test results indicated that the subjects were more satisfied with the style of three of the eight garment groups for Misses' clothing than for Tall clothing. The garments were jacket/blazers/coats, buttoned blouses, and dresses.

Researchers have reported that the fit of a garment is the deciding factor in the purchase process (Eckman, Damhorst, & Kadolph, 1990). In this study, the subjects appeared to use style as the deciding factor. Fit may not rank as high as style because the subjects are in a specialized apparel market, meaning that the subjects may be accustomed to not finding garments that provide a proper fit. Frings (1994) stated that consumers typically will not wear garments if the

styles are dated. This is evident in the findings that showed the subjects were satisfied with the styles of Misses' clothing and purchased Misses' garments even though they were dissatisfied with the fit. In Chowdhary and Beale's (1988) study of large-size women, the researchers' recommendation to manufacturers of special size apparel was that manufacturers and designers should be cognizant of the fact that physical size does not diminish consumers' interest in aesthetic qualities in garments. This recommendation also appears valid for the tall subjects in this study.

For hypotheses one and two, the means were also analyzed based on two racial groups, Black and White subjects. For satisfaction with the fit of Misses' and Tall clothing according to race, the results showed that, on average, both races were dissatisfied with the fit of Misses' clothing. The White subjects reported lower satisfaction than the Black subjects for the majority of the garment categories. Similarly, both races were satisfied with the fit of Tall clothing; however, the means for White subjects reflected greater satisfaction with the fit of Tall clothing.

For satisfaction with the style of Misses' and Tall clothing, the results differed between the two racial groups. The White subjects were satisfied with the general style of Misses' clothing and with each of the eight garment categories. In contrast, the Black subjects were dissatisfied with the style of Misses' clothing in general and with all of the garment categories. For Tall clothing, both races reported dissatisfaction with the general style of Tall clothing, but this dissatisfaction was not apparent in the results for the White subjects. The White subjects reported satisfaction with each of the eight garment categories, but the Black subjects reported satisfaction with all categories except the style of skirts and pants. The differences in style preferences between the two racial groups extends prior findings by Feather, Ford, and Herr (1996), who reported Black subjects' preferences for design features in athletic uniforms were significantly different from the preferences of White subjects.

Hypotheses three addressed height and fit satisfaction with Misses' clothing in general. Hypothesis three stated that there is no relationship between height and tall women's satisfaction with the fit of Misses' clothing. The results of the ANOVA showed that small differences existed between the height groups. The Pearson correlation coefficient for the two variables showed a low and negative relationship, suggesting that as height increased the reported satisfaction with the fit of Misses' clothing decreased. ANOVA results for the eight garment categories revealed that, for the jackets/blazers/coats category, satisfaction with fit decreased as height increased.

Hypothesis four examined the difference between height and tall women's satisfaction with the fit of Tall clothing. The results of the ANOVA revealed no significant differences between the heights and reported satisfaction. The Pearson coefficient revealed a weak and positive relationship, as height increased the reported satisfaction with the fit of Tall clothing increased. For hypotheses three and four, the means for each sizing system according to height substantiated the results of the correlation scores.

Hypothesis five addressed the relationship between anthropometric measurements of the

subjects in the study and reported fit problems with Tall clothing. Pearson's chi-square was used to test the hypotheses. The results showed two significant relationships, one between waist to ankle measurements and too short hiplines in skirts and another for shoulder to wrist measurements and too short hemlines in buttoned blouses.

An examination of the reported fit problems with Tall clothing revealed that the majority of the subjects either had no experience with Tall clothing or reported no major problems with the fit of Tall clothing. The lack of significant findings for this hypotheses may be due to the results of hypothesis one, which indicated that the subjects were satisfied with the fit of Tall clothing in general and with each of the eight garment categories.

Hypothesis six examined the differences between the anthropometric measurements of Black tall women and White tall women. The results of the *t*-tests revealed that the means of the two groups were not significantly different. The examination of anthropometric means did show that Black subjects were taller, and had longer leg and arm lengths and shorter back lengths than the White subjects. These results are similar to findings by Malina (1974), Malina & Bouchard (1991), and Frisancho (1990).

Hypothesis seven stated that there is no difference between the measurements for tall women in commercial standard PS 42-70 and the measurements of tall women in this study. The results of the *t*-tests revealed that the neck to waist and waist to ankle measurements of the subjects were significantly different from the same measurements in PS 42-70. This finding is similar to the findings by Goldsberry, Shim, and Reich (1996), who reported that the body measurements of their subjects, women 55 years and older, were vastly different from any of the sizing systems as prescribed by PS 42-70. The means of the subjects in the current study were larger than the measurements for PS 42-70, which indicate that if apparel were constructed using PS 42-70 as a guide, the garments would not properly fit the tall subjects.

Hypothesis eight was to determine if a difference existed in where tall women reported locating Tall and Misses' garments. When asked to identify distribution venues for Tall clothing, mail order catalogs and specialty stores were the most frequently reported location for where the subjects had seen Tall clothing. Mail order catalogs and department stores were locations most frequently identified as where the subjects purchased Tall clothing, but the subjects selected department stores as the location that they would prefer to purchase Tall clothing. Kersch (1986) also reported that the tall subjects tended to use department and specialty stores for purchasing garments. In comparison to Tall clothing, the subjects reported locating Misses' clothing almost equally in the selection of locations (e.g., department stores, specialty stores, discount stores).

The last hypothesis, nine, was to examine the difference in how tall women prioritize fit and style. Survey results indicated that style, instead of fit, was the dominate clothing attribute. Subjects reported that they would be willing to purchase a garment if they liked the style but the garment did not quite fit. This was reported for Misses' and Tall clothing. Style was also selected as being the important attribute for casual and career clothing, garments, which are worn

on a frequent basis. These findings support the results of hypotheses one and two in which the subjects reported greater satisfaction with the style of Misses' clothing than with Tall clothing, but were less satisfied with the fit of Misses' clothing than with Tall clothing. The subjects also reported purchasing more garments from the Misses sizing system than from the Tall sizing system.

Conclusions

The major purpose of this study was to investigate tall women's satisfaction with the fit and style of Tall women's clothing. Anthropometric data were also collected to examine relationships with reported fit problems and commercial standard PS 42-70 and to examine differences between Black tall women and White tall women.

The results of the study revealed that tall women were more satisfied with the fit of Tall clothing than with the fit of Misses' clothing. However, they were not satisfied with the overall style of Tall clothing. When asked to prioritize fit and style, subjects placed more emphasis on style for garments such as casual wear and career wear, which are worn more frequently. Given that the subjects were more satisfied with the style of Misses' clothing and reported purchasing garments in the Misses' category, it would appear that the subjects sacrificed satisfaction with fit. The findings of this study suggest that manufacturers of Tall apparel need to place greater emphasis on the aesthetic qualities of Tall clothing, which is where subjects expressed greater dissatisfaction, if they expect to be successful at marketing their products. Comments provided by the subjects indicated that they considered the style of tall clothing "old fashioned", "dorky", and "grandma-ish".

Although the subjects were satisfied with the fit of Tall clothing, Chi-square analyses revealed significant associations between reported fit problems with Tall clothing and measurements used in the development of apparel products. Subjects with longer shoulder to wrist measurements reported problems more frequently with the length of the hemlines in buttoned blouses being too short. Subjects with waist to ankle measurements of 43 inches to 46 inches reported problems with the hipline of skirts being too short. These findings could suggest that manufacturers of Tall clothing need to increase the length of torso garments such as blouses, as well as, pay closer attention to the position of the hipline on fitted skirts especially. It is obvious that body measurements play a key role in the development of better fitting garments. In addition, since body measurements may be a key in identifying potential problems with apparel, more information about the physical dimensions of a garment should be included on the hang tags. Having the additional information would allow consumers to make better decisions about fit when purchasing apparel.

The use of commercial standards to guide the development of apparel products is prevalent in the apparel industry. However, this research has shown that the measurements from PS 42-70 for tall women may be inadequate. Therefore, manufacturers who use PS 42-70 as a guide to produce garments for tall women may not be satisfying the fit needs of that market. This

may be the basis for the subjects' reported fit problems with Tall clothing. The measurements of the subjects in this study were significantly larger than those in the commercial standard. This is similar to the findings of Goldsberry et. al (1996) who found that elderly women's measurements in their study were significantly different from those in PS 42-70. When measurements of Black subjects and White subjects were compared, it appeared that the Black subjects had longer arms and legs but shorter back lengths than the White subjects. Further research with a larger number of subjects is needed to determine the significance of the differences.

It seems that manufacturers of Tall clothing are not developing clothing that meets the style or fit needs of Tall women in this study. Given that women in this study were taller than the commercial standard, the commercial standard needs to be revised to reflect the current averages of tall women, as well as to accommodate the needs of women who are taller than the 70 inch upper limit that is currently used in the PS 42-70.

Recommendations

The recommendations from this study address the topics of ability to generalize the results to the larger population of tall women, testing for reliability, and future research possibilities. The sample for this study was acquired using non-random techniques, therefore, the findings cannot be generalized to the larger population of tall women. Further research needs to be conducted using a random sample that is derived from various geographical regions in the United States. In doing so, future studies should strive to conduct the study with the intent of being able to generalize the results to the larger population of tall women; possibility updating PS 42-70 for Tall clothing.

The pilot test addressed the face validity of the questionnaire. Thus, it is recommended that, if this study is replicated, the questionnaire should be pre-tested to determine the levels of reliability.

Future studies on tall women and their apparel needs to be conducted using actual garments. When doing so, the garments should remain unidentified as to the manufacturer and retailer so that the subjects are evaluating the garments versus evaluating the garments of a particular manufacturer or retailer. Style was found to be a significant attribute in this study. Further research could be conducted to define the relationship of fit and style in the Tall market and to determine how to market styles to the larger population.

The amount of literature on tall women and apparel is limited and thus this area has the potential for a vast amount of research. Since manufacturers and designers have recognized tall women as a target market within the apparel market, any additional research should address tall women with the apparel that is designed specifically for them.

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Appendix A

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Informed Consent for Participants
of Investigative Projects

Title of Project: Ready-to-Wear Clothing for Tall Women: Fit, Style, Accessibility and Anthropometric Differences

Investigator: Michelle Jones

I. The Purpose of this Research/Project

This project will explore the perceptions tall women have about the clothing that is designed for them. The focus of the project is to identify tall women's level of satisfaction with the fit and style of tall women's clothing, and to determine where tall women report access to tall women's clothing. An additional focus of the study is to determine if distinctive body types exists within the tall women's population. Approximately 200 women who are 5 feet 8 inches and taller and at least 18 years old will be used in this project.

II. Procedures

Each participant is to read and complete the consent form prior to participating in the project. The project consists of two parts: 1) vertical body measurements and 2) a questionnaire. The researcher will take the vertical measurements and record the data on the questionnaire for each participant. The participant will then complete the questionnaire and return the completed questionnaire to the researcher. The estimated time for completing the complete process is 10 minutes.

III. Risks

There are no identifiable risks as a result participating in this project.

IV. Benefits of this Project

The aggregate results of the study will be made available to manufacturers of tall women's clothing. The results can be used by the manufacturers to produce improved products for tall women or to provide better access to the products. The results of this study can also be used by other researchers who want to address the needs of tall women's clothing.

V. Extent of Anonymity and Confidentiality

In order to maintain anonymity and confidentiality, the consent forms and questionnaires will be kept separate. At no time will the researcher release identifiable results of the study to anyone other than individuals working on the project without your written consent. The aggregate results of the study will be submitted for journal publication.

VI. Compensation

Participation in this project is strictly voluntary. No monetary or other compensation will be given to any participant in this project.

VII. Freedom to Withdraw

Each participant is free to withdraw from participating in the project at anytime without penalty.

VIII. Approval of Research

This research project has been approved, as required, by the Institutional Review Board for Research Involving Human Subjects at Virginia Polytechnic Institute and State University.

IX. Participant's Responsibilities

I voluntarily agree to participate in this study.

X. Subject's Permission

I have read and understand the Informed Consent and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent for participation in this project.

If I participate, I may withdraw at any time without penalty. I agree to abide by the rules of this project.

Name_____

Date_____

Should I have any questions about this research or its conduct, I may contact:

Michelle Jones,
Investigator
(540)231-5205

Dr. Valerie Giddings,
Faculty Advisor
(540)231-6177

Dr. E. R. Stout,
Chair, IRB -Research Division
(540)231-9359

RESEARCHER'S COPY

Investigator: Michelle Jones

Name _____ **Date** _____

[illegible]

_____ **YES**, I would like to participate in future studies on clothing for Tall Women, but I am under no obligation to participate.

Name _____

Mailing Address _____

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Appendix B

Ready-to-Wear Clothing for Tall Women

Spring 1996

Virginia Polytechnic Institute & State University

Satisfaction

Complete items **1a - 4i** based on your clothing experiences with **MISSES'** and **TALL** size clothing. Circle the response (1-6) that best completes the statements.

		Much Less than	Less than	Satisfactory	Better than	Satisfactory	Much Better than	No Experience with
		Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Garment
1. Fit								
	I find the fit of MISSES' size clothing	1	2	3	4	5	6	
	I find the fit of MISSES' size							
	(b) jackets, blazers, or coats	1	2	3	4	5	6	
	(c) button-up blouses	1	2	3	4	5	6	
	(d) dresses	1	2	3	4	5	6	
	(e) pull-over tops/sweaters	1	2	3	4	5	6	
	(f) skirts	1	2	3	4	5	6	
	(g) jeans	1	2	3	4	5	6	
	(h) pants	1	2	3	4	5	6	
	(i) lingerie	1	2	3	4	5	6	
2. Style								
	I find the styles of MISSES' size clothing	1	2	3	4	5	6	
	I find the style of MISSES' size							
	(b) jackets, blazers, or coats	1	2	3	4	5	6	
	(c) button-up blouses	1	2	3	4	5	6	
	(d) dresses	1	2	3	4	5	6	
	(e) pull-over tops/sweaters	1	2	3	4	5	6	
	(f) skirts	1	2	3	4	5	6	
	(g) jeans	1	2	3	4	5	6	
	(h) pants	1	2	3	4	5	6	
	(i) lingerie	1	2	3	4	5	6	
3. Fit								
	I find the fit of TALL size clothing	1	2	3	4	5	6	
	I find the fit of TALL size							
	(b) jackets, blazers, or coats	1	2	3	4	5	6	
	(c) button-up blouses	1	2	3	4	5	6	
	(d) dresses	1	2	3	4	5	6	
	(e) pull-over tops/sweaters	1	2	3	4	5	6	
	(f) skirts	1	2	3	4	5	6	
	(g) jeans	1	2	3	4	5	6	
	(h) pants	1	2	3	4	5	6	
	(i) lingerie	1	2	3	4	5	6	
4. Style								
	I find the styles of TALL size clothing	1	2	3	4	5	6	
	I find the style of TALL size							
	(b) jackets, blazers, or coats	1	2	3	4	5	6	
	(c) button-up blouses	1	2	3	4	5	6	
	(d) dresses	1	2	3	4	5	6	
	(e) pull-over tops/sweaters	1	2	3	4	5	6	
	(f) skirts	1	2	3	4	5	6	
	(g) jeans	1	2	3	4	5	6	
	(h) pants	1	2	3	4	5	6	
	(i) lingerie	1	2	3	4	5	6	

Clothing Identification

5. For each garment listed below (5a - 5h), indicate the clothing size that you most often wear by circling **one** size per garment.

GARMENTS	MISSES'	TALL	JUNIORS	WOMEN'S	MEN'S
(a) jackets/blazers/coats	1	2	3	4	5
(b) button-up blouses	1	2	3	4	5
(c) dresses	1	2	3	4	5
(d) pull-over tops/sweaters	1	2	3	4	5
(e) skirts	1	2	3	4	5
(f) jeans	1	2	3	4	5
(g) pants	1	2	3	4	5
(h) lingerie	1	2	3	4	5

6. Please answer the following questions (6a - 6d) by circling **1** for YES and **2** for NO:

	YES	NO
(a) Have you ever worn clothing for TALL women?	1	2
(b) Have you ever wished to be taller?	1	2
(c) Have you ever wished to be shorter?	1	2
(d) Are you having a good day today?	1	2

Accessibility

7. Complete the following statements (7a - 7d) by circling the appropriate response(s) (1-6) (**Circle All That Apply**):

	Department Stores	Specialty Stores	Discount Stores	Mail-Order Catalogs	Television Shopping	Other	N/A
(a) I have seen Tall size clothing in	1	2	3	4	5	6	7
(b) I buy Tall size clothing from	1	2	3	4	5	6	7
(c) I prefer to buy Tall size clothing from	1	2	3	4	5	6	7
(d) I have seen Misses' size clothing in	1	2	3	4	5	6	7

Prioritization

Complete each of the following statements (8a - 10c) with the remark that best fits your answers:

8. If a **Misses'** size garment:
- | | Buy | Don't Buy |
|--|-----|-----------|
| (a) fit and I liked the style | 1 | 2 |
| (b) did not quite fit and I liked the style | 1 | 2 |
| (c) fit and I did not like the style | 1 | 2 |
| (d) did not fit and I did not like the style | 1 | 2 |
9. If a **Tall** size garment:
- | | Buy | Don't Buy |
|--|-----|-----------|
| (a) fit and I liked the style | 1 | 2 |
| (b) did not quite fit and I liked the style | 1 | 2 |
| (c) fit and I did not like the style | 1 | 2 |
| (d) did not fit and I did not like the style | 1 | 2 |
10. For each clothing category, the most important feature is: (circle only one)
- | | Style | Fit |
|---------------------------|-------|-----|
| (a) Casual Clothing | A | B |
| (b) Career Clothing | A | B |
| (c) Evening Wear | A | B |

Problem Identification

11. Complete the grid based on your prior experiences with each of the TALL garments listed below.

GARMENTS	No Experience W/ Garment	No Major Problems	Too Long	Too Short	Too Wide/ Large	Too Narrow/ Small	Other
Jackets/blazers/coats							
sleeves							
hem line							
shoulder lines							
bust line							
Buttoned Blouses							
sleeves							
hem line							
shoulder lines							
bust line							
Dresses							
hem line							
sleeves							
waist line							
bust line							
Pull-over Tops/Sweaters							
hem line							
sleeves							
shoulder line							
bust line							
Skirts							
hip line							
hem line							
waistline							
Jeans							
hem line							
crotch height							
waistline							
Pants							
hem line							
crotch height							
waistline							
Lingerie - Full Slips							
bust line							
waist line							
hem line							
Lingerie - Half Slips							
waist line							
hem line							

Shoes

12. Please list your shoe size:_____

	Same Effort	Less Effort	More Effort
Compared to finding TALL size clothing, I find that shopping for my shoe size requires	1	2	3

Demographics

13. Mark each section (**12a - 12e**) by placing a check on the line that best describes you.

a. Age Range

- ____(1) 18 to 24
- ____(2) 25 to 29
- ____(3) 30 to 34
- ____(4) 35 to 44
- ____(5) 45 to 54
- ____(6) 55 and older

b. Income

- ____(1) 15,000 or less
- ____(2) 15,001 to 20,000
- ____(3) 20,001 to 25,000
- ____(4) 25,001 to 35,000
- ____(5) 35,001 to 45,000
- ____(6) 45,001 to 55,000
- ____(7) 55,001 and over

c. Education completed

- ____(1) Some High School
- ____(2) High School/GED
- ____(3) Some College
- ____(4) College Degree - 2 yr.
- ____(5) College Degree - 4 yr.
- ____(6) Graduate Degree
- ____(7) Post Graduate

d. Profession

- ____(1) Secretary
- ____(2) Manager
- ____(3) Salesperson
- ____(4) Executive
- ____(5) Lawyer
- ____(6) Nurse
- ____(7) Medical Doctor
- ____(8) Laborer (Skilled/Unskilled)
- ____(9) Researcher
- ____(10) Professor, Teacher, Librarian
- ____(11) Student
- ____(12) Other _____

e. Ethnic Background

- ____(1) African, African-American, Caribbean
- ____(2) Asian, Pacific
- ____(3) Caucasian, European
- ____(4) Latin/Hispanic
- ____(5) Native American
- ____(6) Indian, Arabic
- ____(7) Other _____

14. **THANK YOU** for participating in this survey. Your comments and suggestions for this study are encouraged, please use the space below:

Anthropometric Measurements

(to be completed by researcher)

1. Stature _____ inches
2. Neck base to Waist _____ inches
3. Shoulder cap to Wrist _____ inches
4. Elbow to Wrist _____ inches
5. Waist to Crotch _____ inches
6. Crotch to Ankle _____ inches
7. Mid-Knee to Ankle _____ inches

Appendix C

ID	COMMENTS
B2	I am truly disappointed in the availability of apparel for taller women. I <u>always</u> have problems with pant lengths (for my proper size) and sleeve lengths. I am small and tall, so everything is usually too short.
B4	I find with tall women's clothing that the hips are often too big. I believe that women's suits should come a wide variety of sizes that men's suits do. Our legs are not all the same length nor our arms. I am a very slim woman and I often cannot fit tall women's clothing because they are too big. All tall women are not over weight.
B5	I feel that many clothes cater to two groups only. Either you are average height (up to 5' 7") or you are tall (6'0 and above) there is not an in between. Also manufactures think that the taller you are the slimmer you are which is not true. I have a plea that this problem is corrected.
B6	I do not buy tall clothing too often because it is always too big in the waist and crotch areas, and the pants are way too long. Misses clothing (size 8) is definitely my size, but often the pants are an inch or so too short. So I'm caught in limbo! Often, I will buy the Misses size because it does fit me better. The people who make clothing for tall women should realize that people who are tall are not 50 feet wide. There are some tall women who are just as small as a petite woman, but she has more length not width. Also, every tall woman is not 7') tall. Therefore there is some variation within the tall category. There is a big difference between 5'8" and 6'4". therefore, the clothing should reflect that variation. Sorry, this carried over so long. I just had a lot to say. Thanks for the opportunity to allow me to express my concerns and point of view.
B7	Sorry for the mess-up. I've never bought tall blouses, dresses, jackets, lingerie, or skirts. I was basing the answers on the typical sizes on the shelf. the only tall garments I've bought are pants and jeans.
B8	Question 10 forces you into a category. I take both style and fit into consideration when I buy all of my clothes. For casual, style is more important but fit is still a factor. For business, fit is more important but style is still a factor. Maybe ranking would be more appropriate. Good luck and if you need further assistance from me please give me a call.
B9	I really haven't had a lot of experience with Tall clothing. I do wish more was available.
M1	Pants and jeans always fit too high in the waistline buttoning above the belly button. I hate that. I usually buy men's jeans and pants. Sleeves are always a joke. When I do find something to fit it looks so dorky - so out of style. Cute clothes and shoe are always in small sizes.
NA2	I have a hard time finding a good selection of Tall sizes in this area.

W01	I find it hard to buy clothes that really fit. Basically because I am large in the hips and then not proportional with my waist measurements. Slacks and jeans are very difficult to buy even in tall styling. I can wear Misses' dresses, but I have problems with the bodice fitting because I have a small bust. If you need additional information from me let me know.
W07	I buy Misses' often because I only like classic tailored clothing styles. So my suit jackets are too short. It is often hard to find Women's suits in a "nice" brand. I usually have to but Ultra Tall for pants. Often I buy short sleeve shirts to avoid them being too short, and if they are a size to large (?) then it makes it a little longer to fit in my pants. I have major problems buying shoes and even worse is sneakers. No one carries narrow shoes.
W08	Bought Tall in Houston. Not available in Roanoke. Quality very important.
W09	-sleeves are too short on Misses' clothing -shoulder width too small on Misses' compared to waist and back length on jackets/blazers - pants - waists size too big - styles for larger women are often "old" looking/grandma-ish - should have included swimwear - usually too short in bodice
W10	Finding stores that carry tall size garments is difficult. The clothing types that I have the most difficulties with are pants, jeans, and blazers - all 3 categories are often too short and then too big in the waist.
W11	I find it difficult to purchase ready made clothing because of fit. The hems are almost always too short, so I purchase men's long sleeved shirts and jeans that have waist and length measurements. I make almost all of my own clothing because I cannot buy anything that fits in the styles I want. The tall women's wear doesn't have wide enough shoulders and the waists are almost always too short.
W12	Clothing for tall women is scarce to none. When I can find tall clothing, sometimes the styles and colors are not the best. The need for more specialty tall women store is out there and with a very high demand. I am also finding the need for tall maternity for actually just maternity clothing in general. There are not enough maternity clothing stores with reasonable prices out there.
W13	In the prioritization category, the level of fit that determines if I buy goes - if a little too big in top or sleeves are too short, I'll still buy, otherwise won't buy. The main problems that I have are sleeves that are too short or pants that are too short. This leads me to men's jeans.
W14	This study is a wonderful idea because its really difficult to find clothing that fits tall women. I hope this experiment will help in the production and sales of more tall women's clothes.
W15	I have noticed that more stores are providing longer/tall clothing. It also seems that better clothing that isn't labeled as "tall" fits better for tall women.

W16	Jeans are impossible to find a good fit/style. I find myself wearing men's GAP jeans. Jackets/blazers I wear men's as well even though I would like to wear a fitted jacket/blazer.
W17	I enjoyed being apart of this study. I hope that studies like this lead to better clothing for tall women! The selection of tall women's clothing are very limited and I think that research will prove that manufacturers need to expand their markets.
W18	Through-out the years, it has been difficult to find suitable tall clothing. The main problem seems to be fining pants that are long enough. Usually, pants that are long enough have large waists to accompany them! It is also hard to find shirts that have sleeves that are long enough. Lingerie almost never fits.
W19	I do not find "tall" clothing readily available in department stores where I most often shop - and when I do, usually too tall, or too narrow. There is not much available for my size(kind of in between "normal" and "tall").
W26	I find it extremely difficult to find tall sizes especially dresses. They are almost always too short-waisted. therefor, I ware more separates. If I do find tall clothes, they are often boring in style.
W27	I spend a small fortune on shipping fees, ordering clothing that doesn't fit properly - tall pants are too long in crotch, but also very inconsistent. I can't "shop the sales" like other women can. Tall clothing is expensive e for lower quality and poor styles. Help!! and why do shoe companies stop making half-sizes, above 11?
W28	Tall jeans and slacks need more variety and need to be in more stores.
W30	Although I am relatively tall, I feel my legs are long and my torso/arms are normal. My shoulders are broad (from swimming). I found as I lost weight and went from size 12 to and 8/9 it was harder to find the right length for pants and jeans.
W31	I have never seen lingerie for tall sizes. Slip and bra straps are always too short in Misses sizes. Night gowns are also too short in length. Would love to find a brand that solves the problem. Fitted dress - same problem too short in torso and most tall are just longer at the hem.
W32	I find tall garments assume you weight 300 lb. as well as being tall. I have given up on trying them on - except for pants and jeans.
W34	I seem to have difficulty in Misses size garments with sleeve length and short-waistedness. Tall size garments sometimes don't fit well in the bust, and I have a hard time fining skirts and other items that don't look "old", "frumpy" or "nerdy". I would like to see a wider variety of styles in tall sizes.
W36	I like Misses' cloth(es), it is more my style. But it is hard to find some I can fit in. Tall cloth(es) fit a little bit better, but they are so old fashioned.
W37	Tall pants usually a problem with long crotch. I am thin which makes a difference.

W40	In terms of being able to find tall clothing I think it depends on your location. In this area (New River Valley) the stores do not carry tall sizes hardly at all. But in Roanoke area you can find some stores that carry tall
W41	I have trouble finding tall sizes in styles I like. Also, many times the waistline on pants is too high and the crotch too low.
W44	When I was size 10 & 12, had much more problem with sleeves too short, shirt tails too short, pants too short on Misses' sizes. If sleeves long enough, body too loose. Now that I'm a 16, it's easier to find Misses' that fit, especially the well-made clothes. Of course when I was size 10 & 12, I was further down the pay scale, often buying cheap clothes (or trying to).
W45	My biggest problem is finding pants that are long enough and not too big in the waist. I found some jeans at Lerner's that are for tall, but the waist is still a little too big.
W47	Difference needed between Misses' and Women's for question #5. Could have used plus-size for this question. Question 8, 9 you assume we have money to buy with. Many times the price of the garment is a major factor in the buy-don't buy.
W48	Finding tall clothing to fit in stores is virtually impossible. Labels that indicate a clothing article as tall often incorrect or at least the added length is minimal. Most tall clothing I see is in catalogs, i.e., Penneys and the style is horrible.
W49	Tall jeans are very hard to find. Swimwear is also hard to get a good fit. If the length is good/bust is large. It seems if you are tall you must also be larger all over. You were very professional in conducting this sizing/survey explanations.
W50	Tall garments such as jeans are usually too long for me in lengths. Tall garments such as swimwear and blouses tend to fit me better than Misses' size clothing. Sleeve length is a real problem. The sleeves in Misses' sizes rarely are ever long enough. I wear a lot of blazers which are half sleeves for this reason. The blazers with roll up sleeves that fit between the elbow and wrist in length look best on me.
W51	I believe there is a bigger variety of "normal" clothes to choose from. We need a bigger interest in taller women and their clothes!!
W53	Styles in clothing and shoes are lacking in taste. It seems that manufacturers change to uglier, non-appropriate styles as you get taller, wider, bigger, this especially goes for dress clothes and dress shoe. We don't all like to wear drab, plain colors just because we are larger/taller than the norm. Give me color and variety any day and I'll buy.
W54	-I don't have much experience with tall clothing as I grew up in a small town, I find most catalog tall clothing too expensive. -Usually, I wear men's jeans, pants and most of my shoes. -I have the most trouble with hemlines and waist lines in dresses - it's hard for me to get nice clothing that fits. (They're too short) -My sense of style is fairly far from mainstream, so it is even more difficult to find clothes that fit and that I like. Usually I go for ill-fitting clothes that I like.

W55	My biggest problem is finding pants that are long enough. I don't feel that the taller clothes are as stylish as the "regular" clothes. Thanks!
W59	Thank You! And good luck. With concerned designers like you, I can count on finding a pair of pants that fit in the length, without being too big in the waist...someday!

Appendix D

Summary and Percentages of Fit Satisfaction Responses

	Fit of Misses'				Fit of Tall			
	Less than Satisfactory /Much Less than Satisfactory	Satisfactory	More than Satisfactory /Much More than Satisfactory		Less than Satisfactory /Much Less than Satisfactory	Satisfactory	More than Satisfactory /Much More than Satisfactory	
	n=	1 & 2	3	4 & 5	n=	1 & 2	3	4 & 5
Fit in General	67	37	27	3	67	15	20	32
jackets/blazers/coats	72	40	27	5	58	9	17	32
button-up blouses	73	32	30	11	54	9	18	27
dressess	72	33	33	6	51	9	15	27
pull-over tops/sweaters	73	24	37	12	50	11	14	25
skirts	72	28	37	7	55	11	13	31
jeans	71	59	9	3	69	20	9	40
pants	73	64	7	2	72	20	12	40
lingerie	66	22	30	14	37	7	13	17
Percentages								
Fit in General	67	55	40	4	67	22	30	48
jackets/blazers/coats	72	56	38	7	58	16	29	55
button-up blouses	73	44	41	15	54	17	33	50
dressess	72	46	46	8	51	18	29	53
pull-over tops/sweaters	73	33	51	16	50	22	28	50
skirts	72	39	51	10	55	20	24	56
jeans	71	83	13	4	69	29	13	58
pants	73	88	10	3	72	28	17	56
lingerie	66	33	45	21	37	19	35	46

Appendix E

Summary and Percentages of Style Satisfaction Responses

	Style of Misses'				Style of Tall			
		Less than Satisfactory /Much Less than Satisfactory	Satisfactory	More than Satisfactory /Much More than Satisfactory		Less than Satisfactory /Much Less than Satisfactory	Satisfactory	More than Satisfactory /Much More than Satisfactory
	n=	1 & 2	3	4 & 5	n=	1 & 2	3	4 & 5
General Style of Misses'	68	14	28	26	63	14	28	26
jackets/blazers/coats	70	9	34	27	59	9	34	27
button-up blouses	69	11	36	22	54	11	36	22
dresses	70	19	27	24	52	19	27	24
pull-over tops/sweaters	71	14	33	24	52	14	33	24
skirts	71	13	35	23	56	13	35	23
jeans	70	20	29	21	69	20	29	21
pants	71	22	27	22	70	22	27	22
lingerie	67	8	34	25	35	8	34	25
Percentages								
General Style of Tall	68	21	41	38	63	35	41	24
jackets/blazers/coats	70	13	49	39	59	27	44	29
button-up blouses	69	16	52	32	54	39	33	28
dresses	70	27	39	34	52	44	27	29
pull-over tops/sweaters	71	20	46	34	52	29	40	31
skirts	71	18	49	32	56	36	34	30
jeans	70	29	41	30	69	26	33	41
pants	71	31	38	31	70	33	33	34
lingerie	67	12	51	37	35	31	40	29

VITA

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