

CLOTHING NEEDS OF TEEN GIRLS WITH DISABILITIES

By

BAILEY M. STOKES

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# CLOTHING NEEDS OF TEEN GIRLS WITH DISABILITIES

Abstract

by Bailey M. Stokes, M.A.  
Washington State University  
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Chair: Catherine Black

While research about clothing for people with disabilities has been an area of interest for decades among clothing scholars, a very limited amount of information exists about clothing and teens with disabilities.

The purpose of this study was to identify the perceived clothing needs of teen girls with disabilities. In order to identify these needs the Functional, Expressive and Aesthetic (FEA) Model (Lamb & Kallal, 1992) was used as the conceptual framework. An online survey was distributed to organizations and individuals known to serve people with disabilities. Those organizations and individuals who agreed to help sent a link to the survey by e-mail to clients perceived as potential participants. Thirty-three teen girls with disabilities responded to the online survey about their clothing interest, problems and needs. A new application of the FEA model was used to code the qualitative data and identify themes in survey responses while the quantitative data was analyzed using descriptive statistics.

The teens reported a wide range of clothing interest categorized as low, medium and high. Clothing satisfaction responses were mostly related to functional needs. The main clothing issues that emerged were related to fit, donning and doffing, and difficulty using fasteners. The

teens showed a strong desire for clothing that was stylish but had alternative fastener systems like Velcro®, snaps and elastic waistbands rather than buttons and zippers.

Additionally, a modification to the FEA Model was suggested. Currently the body-garment relationship falls under the aesthetic considerations category of the model. It is proposed in this study that the body-garment relationship does not belong to a single consideration type, but that it is an integration of the functional, expressive and aesthetic considerations.

# TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENT .....	iii
ABSTRACT.....	v
LIST OF TABLES .....	xi
LIST OF FIGURES .....	xii
CHAPTER	
1. INTRODUCTION	
Objectives .....	2
Rationale for the Study .....	2
Assumptions.....	3
Definitions of Terms .....	3
2. REVIEW OF LITERATURE	
The Functional, Expressive, and Aesthetic Model .....	5
Consumer Needs Model.....	7
Individuals with Disabilities .....	9
Clothing Interest.....	10
Considerations of the FEA Model .....	11
Functional Considerations.....	11
Fit .....	11

Comfort .....	12
Mobility.....	13
Safety .....	13
Donning and Doffing .....	14
Expressive Considerations .....	15
Aesthetic Considerations .....	16
Functional Clothing .....	18
Clothing for People with Disabilities.....	20
Selected Garment Type Research .....	20
Shirts, Blouses, and Coats .....	20
Necklines.....	21
Skirts and Dresses .....	22
Pants .....	23
Closure/Fasteners .....	24
Fabric .....	26
Teens and Clothing .....	26
Clothing for Teen Girls with Disabilities.....	27
Summary .....	29
<b>3. METHODOLOGY</b>	
Conceptual Framework.....	30
Instrument Development .....	31
Pilot Study.....	32

Selection and Description of Sample .....	33
Data Collection .....	34
Data Analysis .....	34
<b>4. FINDINGS AND DISCUSSION</b>	
Description of Sample.....	36
Discussion and Summary of Research Questions .....	39
Clothing Interest.....	39
Clothing Problems .....	39
Clothing Satisfaction.....	40
Coats .....	40
Pants .....	41
Skirts .....	42
Dresses .....	43
Shirts .....	44
Application of the FEA Model .....	45
Functional Considerations .....	45
Fit .....	46
Comfort .....	48
Donning and Doffing .....	48
Safety .....	49
Closures/fasteners .....	50
Expressive Considerations .....	51
Aesthetic Considerations .....	52



Assistive Device-Garment Relationship .....	54
Body-Garment Relationship and the FEA Model.....	55
5. SUMMARY AND RECOMMENDATIONS	
Summary of the Study .....	57
Summary of the Findings.....	58
Implications for Apparel Manufacturers and Designers.....	60
Recommendations for Future Research.....	61
REFERENCES .....	62
APPENDIX	
A. IRB APPROVAL.....	71
B. SURVEY .....	74
C. OPEN-ENDED RESPONSES .....	94
D. LIST OF CONTACTS.....	112

## LIST OF TABLES

1. Frequency, Percentage, and Mean Ages .....	37
2. State of Residence Frequency and Percentages .....	37
3. Disability and Assistive Mobility Devices .....	38
4. Clothing Interest.....	39
5. Frequency of Top Three Clothing Problems .....	40
6. Frequencies and Percentages Satisfaction with Coats .....	41
7. Frequencies and Percentages of Satisfaction with Pants .....	42
8. Frequencies and Percentages of Satisfaction with Skirts.....	43
9. Frequencies and Percentages of Satisfaction with Dresses.....	44
10. Frequencies and Percentages of Satisfaction with Shirts.....	45

## LIST OF FIGURES

1. The FEA Model .....	7
2. The Functional Design Process.....	18
3. Optimum Grip Area for Fasteners .....	25
4. Expanded FEA Model.....	31
5. Geographic Distribution of Sample .....	37
6. General Location of Colostomy Bag .....	48

## CHAPTER ONE

### Introduction

The population with disabilities in the United States faces a number of difficulties when it comes to clothing. Clothing may be seen as one small environmental problem among many for people with disabilities (Newton, 1984). After the passage of the Americans with Disabilities Act in 1990, increased involvement in the workplace and the community has caused additional need for appropriate clothing for individuals with disabilities (Carroll & Kincade, 2007). Male and female adults (Adkin, 1980; Carroll & Kincade, 2007; Reich, & Otten, 1991; Rice, 1971; Yep, 1977), children (Cannon, 1969; Frescura, 1963; Jordan, 1968; Reeves, 1967; Taylor, 1963), and college students (Feather, Martin, & Miller, 1979; Freeman, Kaiser, & Chandler, 1987; Wingate, Kaiser, & Freeman, 1985-1986) with disabilities have been the main focus of functional clothing design studies for this population segment. Teens have for the most part been overlooked by researchers. Therefore teens with disabilities are the focus of this study.

Teens are in the midst of preparing themselves for adult roles and establishing their personal identities (Daters, 1990) and dress can play a large role in establishing an identity. Teens with disabilities must live with the challenges of their disability and a lack of available clothing to accommodate their needs. During a time when conforming to peers is important to establishing identity (Damhorst, Miller-Spillman, & Michelman, 2005) teen girls with disabilities may have a difficult time with self esteem and feeling like they fit in with their classmates. While specially designed clothing may have some benefits for individuals with disabilities, they may also promote self stigmatization (Wingate, Kaiser, & Freeman, 1985).

There is a call for clothing that accommodates the needs of teen girls with disabilities that also allows them to feel like they fit in with their friends and peers reducing the stigma they may face on a daily basis. Therefore the purpose of this study assessed the perceived clothing needs of teen girls with disabilities.

### *Objectives*

The following objectives were developed based on the purpose of this study:

1. To assess the clothing needs among teenage girls with disabilities;
2. To assess the level of satisfaction with select garment types; and
3. To identify possible gaps in clothing needs among teenage girls with disabilities.

### *Rationale for the Study*

The lack of previous research on the clothing needs of limits the information available to designers, product developers, and manufacturers for the purpose of better meeting the clothing needs of teen girls with disabilities. From personal conversation with the founders of Logan Magazine (L. Olson, personal communication, April 18, 2009), a lifestyle magazine for young people with disabilities, it was found that the needs of this target market are not being met by most currently available ready-to-wear clothing manufacturers.

Measuring the clothing needs and the importance of these clothing needs provides information that can be used to improve clothing design for teen girls with disabilities. Using the steps of a design process may lead to the development of improved clothing satisfaction among teen girls with disabilities. Designers, product developers and manufacturers may be able to improve clothing needs of teen girls with disabilities.

### *Assumptions*

The assumptions for this study include:

1. Teen girls with disabilities have clothing needs that are not being met;
2. Teen girls were able to identify and describe their clothing needs; and
3. The sample responded honestly to the questionnaire.

### *Definitions of Terms*

**Aesthetics:** Elements such as line, form, color, texture and pattern that create a pleasing design (Lamb & Kallal, 1992).

**Comfort:** The satisfaction with physical attributes of a garment like bulk or texture (Sontag, 1985).

**Conformity:** Behavior adapted to some pre-existing norm; acceptance or adherence to the acceptable ways, customs, or dress of a particular social group (Horn, 1981).

**Disability:** “A physical or mental impairment that substantially limits one or more of the major life activities of such individual” (Americans with Disabilities Act, 1990).

**Doffing:** To remove or take off clothing (Nichols et al, 1999).

**Donning:** To put on or dress (Nichols et al, 1999).

**Ease:** The additional dimension allowed in developing a pattern beyond the related body measurement (Ashdown, 1984).

**Expressive:** Communicative and symbolic aspects of dress (Lamb & Kallal, 1992).

**Fit:** The relationship of the garment to the body (Ashdown, 1984).

Functional design process: “Involves a process that takes the designer step-by-step from the initial idea through an evaluation of the final design” (DeJonge, 1984, p. vii).

Needs assessment: A way to gather information reflecting the perspectives of a community in order to bring about change (Stevens & Gill, 1998).

Peer: A person of equal status, rank, age, education or some other identifying characteristic (Horn, 1981).

Style: A distinctive characteristic or way of expression; style in clothing describes the lines that distinguish one form or shape from another (Kefgen & Touchie-Specht, 1986).

Teen: Females from 13 years of age to 18 years of age. The term adolescents will be used interchangeably with teen in this study.

## CHAPTER TWO

### Review of Literature

The review of literature provides a foundation for the study of clothing needs of teen girls with disabilities based on a larger body of knowledge including existing research on individuals with disabilities; the Functional, Expressive, and Aesthetic (FEA) Model; Consumer Satisfaction Model; Individuals with Disabilities; Clothing Interest; Considerations of the FEA Model; Functional Clothing; Clothing for People with Disabilities; Selected Garment Type Research; Teens and Clothing; and Clothing for Teen Girls with Disabilities. Needs assessment research and research looking specifically at the needs of people with disabilities, contributed to the development of a framework to explore the clothing needs of teenage girl with disabilities. The purpose of this study is to identify the perceived clothing needs of teen girls with disabilities.

#### *The Functional, Expressive, and Aesthetic Model*

The framework developed by Lamb and Kallal (1992) takes the functional design framework developed by DeJonge (1984) one step further. Lamb and Kallal evaluate not only functional needs of the wearer but also expressive and aesthetic needs are considered (Figure 1.). Specific considerations such as fit and mobility were identified related to functional aspects of clothing similar to the functional design process. Expressive considerations of the FEA Model include the messages a garment sends such as status and self-esteem. The FEA model can be applied to both functional and fashion clothing design. Both function and fashion are considered



when designing clothing for people with disabilities. Using the FEA Model, the intended user is at the center of the design process intended to best meet their clothing needs. The conceptual aspects of the FEA Model are discussed in Chapter Three.

The model has been used to investigate the needs of competitive female sailors (Bye & Hakala, 2005) and high school soccer players (Holland, 2007). One piece uniforms were developed by Bye and Hakala (2005) after evaluating the functional, expressive and aesthetic needs of competitive female sailors. The sailors functional needs included thermal balance, safety, mobility, fit, and quality. The researchers took into account the way sailing uniforms made the wearer feel by examining the expressive needs. Feminine appearance and traditional design were the two aesthetic considerations used to design the new uniform. The most important features of the new design were feminine silhouette, toileting access, and one-piece design. Using the FEA Model it was possible to design a uniform that provided protection, maintains health, maintains safety, and improves the athlete's efficiency.

Holland (2007) also used the FEA Model as the theoretical framework for a needs assessment of high school soccer players. The most frequent gaps in satisfaction were found in fit (40 %) and impact protection (shorts;49%; tops; 44%) of soccer uniforms. The overall satisfaction with soccer uniforms was somewhat neutral which suggests a need for overall design improvement. A positive correlation between satisfaction with functional and aesthetic components was also identified ( $p < .01$ ).

The FEA Model not only provided the framework for this study but was used to code the qualitative data collected. Campbell and Horne (2001) previously evaluated satisfaction with trousers by categorizing qualitative data as either instrumental or expressive outcomes. Using a

similar approach, the functional, expressive, and aesthetic considerations were used to categorize and analyze the qualitative data of this study.



**Figure 1. The FEA Model (Lamb & Kallal, 1992)**

### *Consumer Satisfaction Model*

Similar to the FEA Model, Swan and Combs (1976) suggested two different performance dimensions related to satisfaction with consumer goods. The first dimension is the expressive performance which is similar to the expressive considerations of the FEA Model. The expressive performance of the Consumer Satisfaction Model relates to psychological performance, the example given by Swan and Combs is garment styling. The second dimension of the model is the instrumental performance of garments which is related to physical or functional attributes of clothing like fit or durability. Instrumental performance is similar to the functional

considerations of the FEA Model. The authors propose that satisfaction with clothing is associated with expressive performance and dissatisfaction is associated with instrumental performance. In their study, 60 undergraduate students were asked to describe and answer questions about specific clothing items that were especially satisfactory and especially dissatisfactory. The responses were then classified as either instrumental or expressive for analysis. Of the items described as satisfactory, 72% of respondents had higher proportion of expressive outcomes relative to instrumental outcomes. Items identified as dissatisfactory proportionally had a greater proportion of instrumental outcomes than expressive outcomes for 75% of respondents.

Campbell and Horne (2001) applied this consumer satisfaction theory (Swan & Combs, 1976) to their study of women's trousers. One objective of their research was to identify the instrumental and expressive outcomes of two different trouser prototypes. Prototypes were developed and given to participants to wear while keeping a diary about their wear-test experience. To measure the instrumental and expressive outcomes, participants were asked why they were either satisfied or dissatisfied with the pants prototype. The responses to this question were recorded, transcribed and classified as either instrumental or expressive outcomes for each prototype. The number of instrumental and expressive outcomes were counted and the proportions of the outcomes were calculated. Attributes like color and appearance were considered expressive and attributes like texture, ease of care and breathability were considered instrumental. Both trouser prototypes elicited twice as many instrumental outcomes as expressive outcomes in this study.

The clothing needs of bicycle patrol officers was examined by Black and Cloud (2007). A portion of the survey distributed to police stations across the country was open-ended. These

open-ended questions were meant to assist in identifying all potential clothing concerns raised by participants. The responses to this portion of the survey were evaluated by qualitative content analysis. Three coders were used to identify responses related to instrumental and expressive aspects of their bicycle patrol uniforms. Officers indicated a need for improved instrumental and expressive uniform attributes.

### *Individuals with Disabilities*

In 1990 the Americans with Disabilities Act (ADA) was signed into law to ensure the civil rights of people with disabilities. An individual with a disability is defined by the ADA as someone who has a documented physical or mental impairment that impacts one or more major life activities (Smart, 2001). Disability can be viewed differently based on the model used to define it. The most common model has been the medical model which views disability as pathological with physicians providing the defining characteristics of disability. This categorizes people as “normal” and “abnormal” and conceives that the problem is the individual with a disability rather than the socially constructed environment. More recently, this medical model has been replaced by the social model of disability that does not blame the individual with the disability, but rather the individuals’ surroundings. While the ADA definition will be used to define disability, clothing design for people with disabilities will be approached using the social model of disability.

The social model of disability describes disability as being constructed by society’s environment and attitudinal barriers. The focus is self-help rather than the medicalization of living with a disability. The specialists’ expertise as a source of knowledge about disability is replaced by the life experiences of the individual. Rather than a body being responsible for

difficulties with clothing, it is external factors and the barriers constructed by society that are responsible (Crow, 1996). By using the social model, rather than assuming people have dressing problems because of their functional limitations, designers could ponder why so many garments require fine motor skills to don and doff (Lamb, 2001).

### *Clothing Interest*

Clothing interest scales have been used in studies about female in-line skaters (Dickson & Pollack, 2000), female cyclers (Casselmann-Dickson & Damhorst, 1993a, 1993b), and female dancers (Turk, 2002). Dickson and Pollack (2000) looked at the level of clothing interest of female in-line skaters. The findings showed that on average the skaters were uncertain about performance enhancing features of in-line skating clothing made specifically for the sport. Results from the study also suggested the skaters placed more value on comfortable clothes than they did on fashionable clothes.

In a study comparing the clothing interest of highly involved and less involved female cyclers, Casselmann-Dickson and Damhorst (1993a, 1993b) found the clothing importance scale seemed to measure more the attitudes of conformity rather than the actual behavior. Because of a need for distinction of self from others, individuals may not be able to see clearly the degree to which they dress like their peers. The cyclists were also not concerned with standing out and expressing themselves through their cycling clothing, rather they preferred to look neat and aesthetically attractive.

Tharp (1956) conducted a qualitative study that investigated the clothing design for women with a variety of physical disabilities that caused exaggerated physical asymmetry. The study was broken into three parts, one of which was focused on high school age (15-19) girls.

During the in-depth interviews of the students, Tharp looked at the garments the girls were wearing and then asked where they preferred to shop and if they altered their clothing to improve the fit. Of the 26 high school students interviewed, 19 were interested in learning more about altering patterns and garments. This desire to improve the fit and appearance of their clothing supports that teen girls with disabilities have an interest in clothing. To further understand the importance of clothing the following research question was proposed:

1. What is the level of clothing interest of teens with disabilities?

### *Considerations of the FEA Model*

There are three considerations of the FEA Model, functional considerations, expressive considerations and aesthetic considerations. Together these considerations provide an integrated framework for apparel design.

#### *Functional Considerations*

Lamb and Kallal (1992) define functional considerations as those that relate to the utility of the garment. Fit, mobility, comfort, protection, donning and doffing are all examples of these functional considerations.

#### *fit*

Fit is an important aspect in the comfort of clothing as identified in the FEA model, the following research are selected examples pertaining to the current research. Even though proper functioning of clothing depends on the factor of fit (Ashdown, 1985), women with or without disabilities have expressed many problems with the fit of ready-to-wear clothing. Clothing that fits well not only looks more attractive but it also feels more comfortable to wear (Kefgan & Touchie-Spect, 1986). Although there is usually an optimal fit for clothing, wearer perception of

garment fit is an important factor that every designer should keep in mind (Watkins, 1984). A properly fitted garment will have enough ease for movement, the body will not be bound or restricted, the garment will be comfortable to wear and there shouldn't be problems with wrinkling (Horn, 1981).

According to Labat and DeLong (1990) the most obvious reason for dissatisfaction with fit of clothing is that it does not conform to the body. The factors that affect satisfaction with fit include social ideal and the apparel industry ideal of fit according to the two authors. The social ideal emphasizes a symmetrical, proportional, and balanced human figure. Apparel industry ideals include the presentation of products on taller and thinner idealized bodies and the pattern slopers used to create ready-to-wear garments are based on symmetrical bodies with pleasing proportions in an upright stance (Labat & DeLong, 1990). Because of these idealized expectations, women often blame themselves for clothing not fitting properly. Often they experience different levels of satisfaction in different regions of the body. Labat and DeLong (1990) found that women showed the least satisfaction with the fit of garment for the lower body. The thigh had the least satisfying fit followed in order by the hip, buttocks and abdomen.

#### *comfort*

Negative reactions to the way a garment feels and the way it looks can lead to feelings of discomfort according to Watkins (1984). Sontag (1985) describes three dimensions of comfort which include physical, psychological, and social comfort. Physical comfort is described as the satisfaction with physical attributes such as garment bulk, weight, and texture. Sontag found that responses to some of the physical attributes result in a subjective assessment of comfort. Psychological comfort is the psychological satisfaction with the desired affective states like femininity or elegance. This can impact the wearer's sense of self and feeling of enhancement.

The third dimension of comfort, social comfort, is expressive of appropriateness of one's clothing to an occasion or event. It can also be the satisfaction with the degree of desired conformity to the dress of peers. One dimension may impact one or both of the other dimensions or be experienced alone. For the sake of this study, the focus will be on the physical attributes of comfort.

#### *mobility*

The movement of clothing is essential to its function (Watkins, 1985). There are two basic approaches to increasing mobility in clothing according to Watkins (1985). The first is selecting a fabric that moves easily with the body and the second is designing a garment that promotes mobility. Ideally both these approaches should be used to maximize mobility. Since physical movement may already be challenging for a person with a disability, creating clothing that allows for the most mobility possible can be helpful. Clothing design features like pleats, gussets, and panels that can add to the mobility of garments will be discussed later in this chapter.

#### *safety*

The safety of a garment is important for any consumer, and perhaps especially for those who use crutches, wheelchairs, or other ambulatory devices. Garment size and shape must be taken into consideration in order to insure safety. Bulky clothing can interfere with the ability to use assistive devices and cause injury if the garment gets caught while the wearer is in motion. Kidd (2006) designed special occasion garments for young women with disabilities and discussed the desire for floor length gowns and the drawbacks of such length. The four individuals in the study used crutches and floor length gowns could get caught underneath the crutches causing the wearer to fall or tear the dress. It is also mentioned in this study that long



sleeves are not ideal either for those who use crutches because the sleeve may get caught while walking resulting in damage to clothing and potential injury of the wearer. Clothing should not cause safety problems and it is important for designers to consider the wide range of mobility devices used while coming up with new ideas.

### *donning and doffing*

Garment donning and doffing are important elements in independence and convenience in everyday living (Todd & Norton, 1996). To don and doff clothing, a considerable amount of coordination, sensation, dexterity, balance, range of motion and muscular strength is required (Newton, 1976). Because of all these physical requirements, donning and doffing clothing have been identified as one of the greatest clothing problems for people with disabilities (Newton, 1976). The functional clothing design process can help designers to create garments that help people with disabilities to dress without assistance from someone else. Having the ability to dress and undress oneself creates a sense of independence and confidence (Rice, 1971). Ease in donning and doffing clothing also allows the wearers to use their time and energy in ways that are more enjoyable and productive. Newton (1976) indicated that design ideas that can save time and energy not only assists the wearer but the rest of society and should be incorporated into the ready-to-wear market. In multiple studies, women reported they liked features that allowed them to dress themselves (Lamb, 1991; de Klerk & Ampousah, 2002; Scott, 1959). These specific design features discussed later in this review of literature can be used to make clothing more inclusive of people with disabilities and make dressing and undressing an easier task for personal assistants.

As described in this section of the literature review, there may be functional considerations of clothing that may not be meeting the needs of people with disabilities. In order to find out if this is true for teens the following research questions were proposed:

2. What is the level of satisfaction of teen girls with disabilities in regards to functional considerations of clothing?
  - a. What is the level of satisfaction of teens with disabilities in regards to clothing fit?
  - b. What is the level of satisfaction of teens with disabilities in regards to clothing comfort?
  - c. What is the level of satisfaction of teens with disabilities in regards to clothing donning?
  - d. What is the level of satisfaction of teens with disabilities in regards to clothing doffing?
  - e. What is the level of satisfaction of teens with disabilities in regards to clothing safety?

### *Expressive Considerations*

The expressive considerations of the FEA Model (Lamb & Kallal, 1992) are described as the symbolic and communicative aspects of dress. Examples of these considerations include values, roles, status, and self-esteem.

Clothing helps people of all age groups express personal identity, relationships with others and the types of situations in which the wearer is involved. A great deal amount of information is communicated nonverbally through dress (Damhorst, Miller-Spillman, & Michelman, 2005).

Conformity among teenagers is extremely high, especially when it comes to conforming to the norms of their peer group (Horn, 1981). The willingness to conform to peer groups usually occurs as a result of trying to fit in. Fitting in provides a sense of security because of the encouragement of others in the group (Anderson & Meyer, 2000). One of the most visible ways to fit in is by dressing similar to the peer group (Kelley & Eicher, 1970; Littrell & Eicher, 1970). Compared to their male counterparts, teen girls use clothing more to gain approval, feel good about themselves, and to earn validation (MacGillivray & Wilson, 1997). To meet the expressive needs of a teen girl with a disability, it is important to design clothing that allows her to fit in with her peers. Clothing that sets her further apart would not meet her expressive needs.

Linthicum (2006) conducted a quantitative study about dress and disability. In response to the available “self-help” clothing books and pamphlets one participant describes the lack of emphasis on expression: “In a way [the self-help literature] assessment’s probably fairly accurate, but it says nothing about being funky or stylish or powerful, glamorous or elegant or anything of those kind of strong words.” (p. 314) Because the expressive considerations of clothing appear to important to adults with disabilities is previous studies, the following research question was proposed.

3. What is the level of satisfaction of teens with disabilities in regards to the expressive considerations of clothing?

#### *Aesthetic Considerations*

Lamb and Kallal (1992) describe the aesthetic considerations as the human desire for beauty. Included in their model are art elements, design principles, and body-garment relationship.

Fashionable clothing that reflects current trends is important to people with disabilities (de Klerk & Ampousah, 2002; Kidd, 2006). The majority of functional garments on the market do not meet the aesthetic needs of the target market. Most ready-to-wear fashion clothing does not accommodate people with disabilities (de Klerk & Ampousah, 2002).

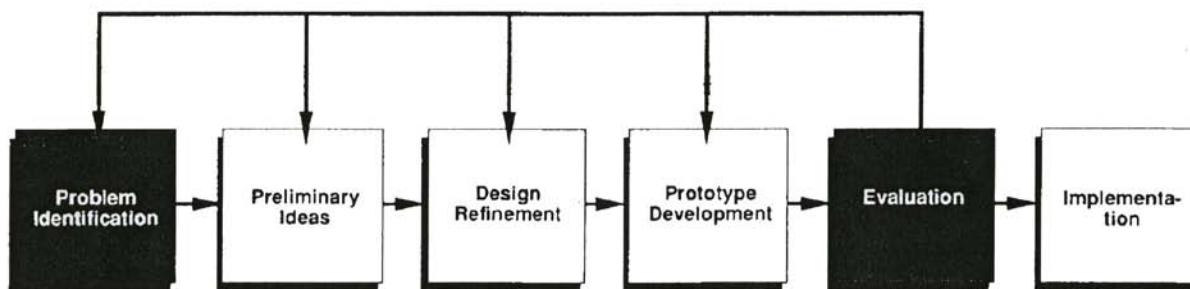
Freeman, Kaiser, and Wingate (1985) found that college students with disabilities evaluating functional garments often liked a design feature as long as it was fashionable and decorative, but not if they knew it was functional. It has been suggested that people with disabilities may try to appear more attractive and dress more fashionably to improve the social consequences of their visible difference from the norm (Kaiser, Wingate, Freeman, & Chandler, 1987). Fashionable dress could be used to deflect attention away from a disability and to receive positive feedback from those who see disability as the center of identity (Kaiser et al, 1987). Kaiser, Freeman, and Wingate (1985) reported that management of appearance by those with disabilities, individuals like to receive compliments on their clothing and appearance (92%). Sixty-four percent of the people with disabilities also indicated when they are attractively dressed they are more likely to be noticed for themselves rather than for their disability. This finding would seem to concur that being well dressed improves an individual's self-esteem. Since clothing trends have been described as important to adults with disabilities in previous studies and because conformity to peers is an important aspect of dress for teens the following research questions were proposed.

4. What is the level of satisfaction of teens with disabilities in regards to the aesthetic considerations of clothing?
  - a. What is the level of satisfaction of teens with disabilities in regards to clothing style?

### *Functional Clothing*

Functional clothing falls into two different categories. The first category is functional design for occupations that require specialized clothing. The second category is for those who need functional clothing for daily living.

As previously mentioned (pg. 1), the functional design process (Figure 2.) has been used to research the clothing needs of bicycle patrol officers (Black & Cloud, 2008), pear farmers (Choi & Ashdown, 2002), firefighters (Huck & Kim, 1997), female dance students (Mitchka, Black, Heitmeyer, & Cloud, 2009), and clean room workers (Brandt & Corey, 1989) to name a few respectively. Functional design keeps the consumer and the desired effects of the clothing designed at the center of the design process and allows designers to do much more than fashion design (Watkins, 1984). The specific functions of clothing are considered in the process of assessing the wearer's needs and product properties throughout the development of the design (Watkins, 1984).



**Figure 2. The Functional Design Process (DeJonge, 1984)**

An advantage of this approach when designing for people with disabilities is that the focus is on improving the garment rather than the disability (Lamb, 1991). Research has focused on creating garments that are functional for people with disabilities. The goal of functional apparel designs in this sense is to contribute to the independence of a person with a disability, which may also contribute to an increase in confidence and sense of self (Rice, 1971). In regards to people with disabilities, functional clothing is any clothing which is specially designed, altered or adapted to eliminate or lessen clothing problems and which at the same time is pleasing to the wearer (Bright, 1974).

While functional clothing can be beneficial for people with disabilities, there needs to be a balance of both form and function. Garments that appear to serve just functional needs of disability can make the wearer feel as though they look increasingly disabled and further separated from peers who do not have disabilities (Freeman et al., 1985). People with disabilities do not want functional garments that are unappealing or that convey a stigmatized image (Lamb & Kallal, 1992). Even when functional features were discrete, Kaiser et al. (1985) found college students still saw garments as stigmatizing. Even invisible features may result in self-devaluation of the wearer if it is viewed as symbolically different than the norm (Freeman et al., 1985). Thoren (1994) found that participants in her study shared a feeling of lost personal integrity when ordering clothing from companies that specifically design for people with disabilities. It is possible that this feeling of loss is related to clothing manufacturers for people with disabilities have not given serious consideration to the symbolic values of clothing. Designers need to consider whether the functionality of a garment is worth the social costs (Kaiser et al., 1985).

### *Clothing for People with Disabilities*

Designers of consumer goods generally take only the abilities of the majority into consideration when designing products (Kumar, 1991). Thus, people with disabilities can experience problems with ready-to-wear clothing which usually require extensive alteration to improve fit (Reich & Shannon, 1980; Taylor, 1963). de Klerk and Ampousah (2002) looked at the clothing availability for women with disabilities and found that the majority of the sample had major problems with the fit and style of available fashionable clothing. Clothing stores do not cater to the needs of people with disabilities and one of the greatest challenges is the inconvenience, and often the impossibility of shopping for their own clothing. Finding fashionable clothing that suit an individual's disability is difficult.

### *Selected Garment Type Research*

Since the 1950s clothing designed to specifically meet the needs of people with disabilities has been a topic of research. Techniques used to assess clothing problems of people with disabilities include observation of dressing procedures, recommendations from people with disabilities and case studies of people with disabilities (Dallas, 1982). The following are reoccurring clothing suggestions from researchers that may help designers meet the clothing needs of those with disabilities.

#### *Shirts, Blouses, and Coats*

Shirts, blouses, and coats should allow for ease of movement in the shoulders and sleeves to increase comfort, ease of donning and doffing, and mobility for the wearer. Raglan and kimono sleeves can improve mobility for those with limited arm and shoulder movement (Frescura, 1963; Gamwell & Joyce, 1966; Kernaleguen, 1978; Reeves, 1967). Bias underarm

gussets, knit inserts and action pleats in the shoulder are other design features that can also provide greater freedom in movement (Kernaleguen, 1978; Reeves, 1967). Three quarter length sleeves prevent interference with the use of wheelchairs and crutches (Cookman & Zimmerman, 1961; Reeves, 1967) but if long sleeves are preferred, the opening should be wide enough to easily get arms in and out of the garment. Designers need to understand that getting arms into sleeves can be difficult for people with limited range of motion (Gamwell & Joyce, 1966) and if sleeves are too long they can interfere with the use of wheel chairs and crutches (Cookman & Zimmerman, 1961).

The same difficulties with shirts and blouses also occur in coats. Coats were described as difficult to don, the wrong length and often too heavy by Gamwell and Joyce (1966). Wheelchair users expressed that finding well designed short coats to accommodate the seated position were often too bulky and restricted the freedom of movement (Gamwell & Joyce, 1966). One study that looked at the clothing difficulties of forty South African women with disabilities and found 60% said they had major problems with the fit of jackets (de Klerk & Ampousah, 2002).

Tam (1991) examined the clothing problems of women with Down's Syndrome and found that coats tended to be too tight in the bust and hips if the shoulders fit appropriately. She also found that when the waistline of a coat or a shirt was appropriate the bust was too tight. Sleeves were found to be too long while darts and pockets ended up being too low. In response to these fit issues, pattern construction rules were developed specifically for women with Down's Syndrome.

#### *necklines*

Necklines can also be chosen to increase the usability of clothing. According to Reich and Shannon (1980) turtle necks cause the most problem for dressing and wearing activities



whereas V-necks, button- up and jewel necklines did not seem to cause any problems.

Expandable necklines that use elastic were suggested by Reeves (1967) to enable users to pull garments on over head. Frescura (1963) used wider necklines to eliminate the need for closures and enable wearers to slip shirts on over their heads, however problems with gapping did occur for some of the participants in the study.

### *Skirts and Dresses*

Reoccurring suggestions from researchers for skirt and dress design often include different ways to add fullness. Dallas (1965), Kernaleguen (1978), and Rice (1967) all suggest pleats and gores to add to the fullness of skirts and dresses so bands from leg braces go unnoticed. Cookman and Zimmerman (1961) also state that fuller skirts look elegant in a seated position which can be flattering for those who use a wheelchair. Lining skirts and dresses helps increase durability and without a hem, the risk of catching on crutches or a wheelchair is reduced. The lining may also help protect against oil stains from the hinges of braces showing through to the exterior of the garment. Protrusion from pelvic bands and full leg braces can create a lumpy silhouette and the sample of women from one study felt there was not enough fullness in current garments available to cover the lumps and bumps in their silhouette (Rice, 1971). Eighty-six percent of women interviewed by de Klerk and Ampousah (2002) indicated they had problems with the style and fit of dresses available and that the dresses did not work with their disability.

For women who are unable to dress themselves and need a personal assistant to dress them, Broome (1975) suggests that dresses open all the way down the front with either button or zipper closure. This way the personal assistant is able to dress their client in a reduced amount of time and with greater ease while the client is lying down

## *Pants*

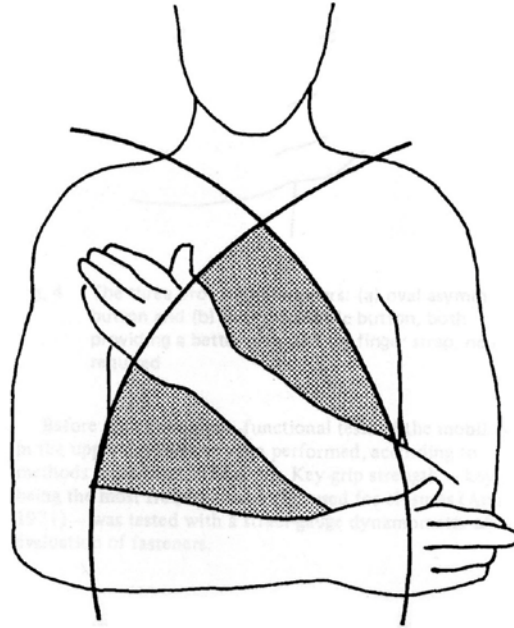
Kaiser et al. (1985) found that women who use wheelchairs preferred wearing pants to skirts or a dress to help disguise a lack of thigh muscle tone. However de Klerk and Ampousah (2002) found that 91% of their sample said pants were too tight. Rice (1971) looked at ways to improve pants by giving the women with disabilities in her study a list of suggested clothing adaptations and asked them to pick which suggestions they felt would be most helpful. The group of women who had a limb amputated felt that increased pants width and a zipper in the side seam on the afflicted side would be helpful. Reeves (1967) also mentions the need for wide pant legs so braces underneath are not easily visible. Points of wear, like the knee, should be enforced to better endure wear and tear. For the seated figure a short front rise combined with a long back can reduce stress in the crotch and over the knees resulting in a smoother appearance and a more comfortable fit (Reeves, 1967). Two other modifications that could be helpful to those who use wheel chairs are removing centerback seams and back pockets to reduce the likelihood of pressure sores (Wingate, Kaiser, & Freeman, 1985-1986).

Gamwell and Joyce (1966) found fly fasteners on pants to be the greatest source of problems experienced by their sample. Additionally, those who had tried them deemed adaptations made to the fly closure were unsatisfactory.

Women with Down's Syndrome have an especially difficult time with the fit of pants because their lower bodies tend to be more developed than those who do not have Down's Syndrome (Tam, 1991). When pants fit in the waist, the hips and seat are too tight. The crotch measurement was found to be too short to accommodate full hips and abdomen which in turn cause discomfort and exposure of the lower back. Elastic waist bands were suggested as a way to provide greater ease in dressing and flexibility in fit for women with Down's Syndrome.

### *Closures/Fasteners*

Fasteners are often a critical element that determines if a garment functions properly and should be one of the primary concerns of designers (Watkins, 1985). People with disabilities may find fasteners to be the most difficult clothing problem to deal with (Reich & Shannon, 1980; Watkins, 1985). Small buttons, hooks and eyes and zippers can be a challenge to use when hand dexterity is impaired. There are simple solutions suggested by the research that can reduce the difficulty of opening and closing a garment. Having fasteners that are large enough to grasp and in a place where the wearer can reach them are important factors to consider when designing for people with disabilities and limiting the number of fasteners may also be beneficial (Frescura, 1963; Kernaleguen, 1978). Watkins (1985) suggests openings be located in the front of the garment from the midchest to the lap to allow the wearer to dress themselves. Sperling and Karlsson (1989) evaluated fasteners for long-term hospital patients with disabilities by having the subjects wear an adjustable vest with different fasteners located in different places and the researchers observed the process of study participants using the fasteners. A diagram was then developed to depict optimal placement for clothing fasteners (Figure 3.)



**Figure 3. Optimum Grip Area for Fasteners (Sperling & Karlsson, 1989)**

Large flat buttons larger than  $\frac{5}{8}$  of an inch are recommended to help those with limited hand dexterity and can be sewed on using elastic thread which makes the buttons easier to use and may allow for enough stretch so the individual may dress without unbuttoning the garment (Kernaleguen, 1978). Zippers can become easier to use with the addition of a larger zipper-pull, tassel or ring to grasp (Kernaleguen, 1978). Another suggestion is to use Velcro® underneath buttons sewn over the button hole to give the appearance of a regular button hole (Kernaleguen, 1978; Reeves, 1967). However, Velcro® can be difficult to line up and pull apart (Dallas, 1982) and over time lint can built up leaving the fastener useless (Watkins, 1985). Velcro® is also bulky and can snag and damage other clothing when it isn't closed. If not closed properly, it may also irritate the skin (Watkins, 1985). Aside from the functional problems of Velcro®, people with disabilities have shown a dislike for this closure because of its stigmatizing affect.

### *Fabric*

Durable fabrics able to withstand the strain of stiff joints and the abrasion of crutches and braces are needed in order to have long lasting garments. The fabric should also be comfortable against the skin, wrinkle resistant and easy to care for (Frescura, 1963). Knits seem like a potentially comfortable fabric however they snag easily on crutches and braces causing unsightly runs in the fabric. The benefits of woven stretch fabric were investigated by Reeves (1967) in her research of clothing for boys with disabilities. Reeves suggests that woven stretch fabrics are more durable and wrinkle resistant than non-stretch options. Comfort, ease of care and dimensional stability were also found to be benefits of woven stretch fabrics. Printed fabrics have the potential to camouflage drooling and other soiling stains and have been recommended by researchers.

### *Teens and Clothing*

The occurrence of conformity among teenagers is extremely high, and this age group spends a great deal of time working on their appearance and learning what their peers wear and how they can present the same image (Horn, 1981). Teenagers put more emphasis on appearance than any other age group (Rosenblad-Wallin, 1985) making the clothing needs of teen girls with disabilities an important issue to address. Regardless of physical ability, clothing holds the same meaning for teenagers (Smiley 1971), one study found that girls with Cerebral Palsy preferred the same clothing as girls without any physical disabilities (Dallas, 1965). Because teenage girls with disabilities can already be different from their peers, it is important that they have clothing that does not set them further apart (Smiley, 1971). One objective for designers should be to create garments as close to current fashion as possible (Kidd, 2006). The

teen years are a difficult life stage because of the physical and psychological changes that occur and appearing to be different is the teen's greatest fear. Physical disabilities that set a teenager apart from their peers can increase anxiety about one's body (Liskey-Fitzwater, Moore, & Gurel, 1993).

### *Clothing for Teen Girls with Disabilities*

Limited research is available about the clothing needs and problems of teenage girls with disabilities, Liskey-Fitzwater et al. (1993) compared the clothing interests and self perception of adolescent females with scoliosis and adolescent females without scoliosis. They found no significant difference between the two groups when it came to conformity in clothing, modesty in clothing, psychological awareness of clothing and interest in clothing. However the girls with scoliosis rated themselves significantly lower on a scale measuring the use of clothing to enhance self-concept scale. The authors propose that this may have been due to the difficulty or camouflaging back braces worn by the girls. The sample with scoliosis also had lower mean scores on all the domains of self-perception.

Dallas (1965) interviewed teen and young adult aged women with Cerebral Palsy about their clothing preferences in regards to aesthetic and functional features in relation to everyday clothing. Garments worn and preferred by the young women with Cerebral Palsy were similar to those of young women who do not have Cerebral Palsy. One difference was the young women with Cerebral Palsy preferred center front closures they were able to reach while the young women without Cerebral Palsy preferred center back closures. Fuller skirts with flare, gores or pleats were preferred more by the sample with Cerebral Palsy, whereas those without Cerebral Palsy preferred a more tubular shaped skirt. After the interviews Dallas designed two outfits for

the young women with Cerebral Palsy that met both the aesthetic and functional needs of the group. These were the two studies found that focus primarily on teenage girls with disabilities and their clothing.

Other studies have looked at portions of this age group, Smiley (1971) compared the clothing perceptions of early adolescent girls with and without orthopedic disabilities and found there to be no significant difference between the psychological clothing perception or the self-perception of girls with orthopedic disabilities and girls without orthopedic disabilities. Kidd (2006) designed special occasion dresses for four women ages 16-20 who use crutches, braces and wheelchairs and emphasized the importance of fit and safety. Frescura (1963) designed clothing for girls with specified disabilities, three of the participants were in their teens. It was found that the type of disability did not determine what clothing styles were most suitable and that some style feature that were easy to manage for one subject maybe difficult for another subject. However she created a list of design features that were the most beneficial over all for the participating subjects. While these studies provide information in great detail for individual subject, there has not been any quantitative research that looks at the clothing needs of teenage girls with disabilities.

In order to improve the clothing situation for teenage girls with disabilities, a needs assessment is essential. By reviewing previous studies, designers can begin to understand clothing needs but since little information exists that specifically look at teens with disabilities there is a need to learn more about this market segment.

### *Summary*

The social model of disability describes disability as constructed by environmental factors, clothing can be included as one of these factors that contribute to the formation of disability. Currently, the clothing needs of people with disabilities of all ages are not being met by ready-to-wear manufacturers and investigating the needs and wants of teen girls will create new awareness about a specific age group that is known for its focus on appearance. The methodology for this study, described in the next chapter, is based on Lamb and Kallal's (1992) FEA model in order to explore targeted user's needs and preferences.



## CHAPTER THREE

### Methodology

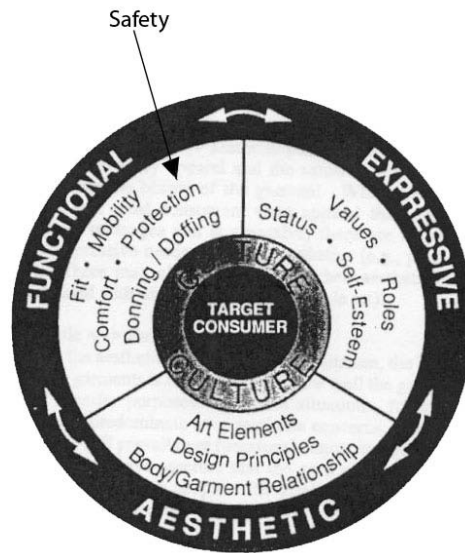
The clothing needs of teen girls with disabilities were evaluated in this study. This chapter describes the conceptual framework, development and description of the instrument used, selection and description of the sample, the procedure used to collect data, and the data analysis.

#### *Conceptual Framework*

The first three steps of DeJonge's (1984) functional design process are used to investigate the clothing challenges teenage girls with disabilities may encounter. The first three steps of this design process are: 1) request made, 2) design situation explored, and 3) problem structure perceived. Once this information is gathered for these first three steps, designers will be able to follow the final four steps to improve the design of clothing for teenage girls with disabilities. These steps include: 4) specifications described, 5) design criteria established, 6) prototype development, and 7) design evaluation.

The Functional, Expressive, and Aesthetic (FEA) Model developed by Lamb and Kallal (1992) was also used to specifically investigate the functional, expressive and aesthetic considerations (Figure 4.) of the sample. This model allows designers to think of designing for specific needs as a part of the general design framework while fulfilling the third step of DeJonge's functional design process. Examples of the functional considerations include fit, mobility, comfort, protection, donning and doffing. Expressive considerations are the values,

roles, status and self-esteem of the wearer. Finally the aesthetic considerations are defined as the art elements, design principles and the body-garment relationship (Lamb & Kallal, 1992). One adaption made to the functional considerations of model was the addition of safety. Safety was considered important relative to assistive mobility devices used by teen girls with disabilities.



**Figure 4. Expanded FEA Model (Adapted from Lamb & Kallal, 1992)**

*Instrument Development*

The clothing interest of teenage girls will also be assessed using a Likert scale adapted from previous studies that looked at the clothing interest of female in-line skaters (Dickson & Pollack, 2000), female cyclers (Casselmann-Dickson & Damhorst, 1993a, 1993b), and female dancers (Turk, 2002). Statements regarding clothing were adapted by substituting mention of cycling/ in-line skating/dancewear with clothing worn for everyday activities such as pants or coats. Inquiring about clothing interest is important because if teenage girls with disabilities who

do not show interest in clothing may not find it necessary to modify current ready-to-wear clothing.

Top clothing problems of the teens were also assessed as a part of the survey. A list of problems identified by previous research was provided and the teens were asked to mark their top three problems in order from the most challenging problem to the third most challenging problem. Participants also had the opportunity to write in an “other” problem should they feel there was something missing on the list of options.

To assess the needs and preferences of teen girls with disabilities a needs assessment questionnaire adapted from Black (1988), Turk (2002), and Yoo (1996) was used. This is an attitude scale format with partially open ended questions which was developed to measure the perceived clothing needs of teenage girls with disabilities. The questions were designed to measure the satisfaction with clothing (Appendix B). The six areas of focus were style, fit, comfort, safety and ability to dress and undress. A short section of the survey was open ended and used to assess past clothing problems with each garment type.

The final section of the questionnaire consisted of demographic variables that describe the sample. The questionnaire was administered through an online survey site because it was deemed most accessible and usable for the desired sample.

### *Pilot Study*

A pilot study was conducted to ensure that questions and language of the survey were appropriate. Students were identified by a faculty member at the Disability Resource Center on the Washington State University Campus as potential participants. Modifications were made based on suggestions made by the pilot participants. One individual suggested asking at the

beginning of each clothing satisfaction section if the garment type is even worn and if it is not worn to explain why. This resulted in a rich source of information about different clothing types and the problems teens with disabilities encounter.

### *Selection and Description of Sample*

The purposive sample for this study is teenage girls in the United States with disabilities. The accessible sample was the readers of Logan Magazine. Logan Magazine is a lifestyle magazine for young people with disabilities based in Spokane, Washington. The founders of the magazine are willing assisting the researcher in contacting readers of the magazine. The subjects were teen girls between the ages of 13 and 18 who have a disability as described by the ADA and live in the United States. Purposive sampling was seen as the most appropriate way to reach the specific desired sample. A random sample would not have warranted enough of the information being sought. Human subjects approval was obtained prior to data collection (Appendix A). The number of responses from participants contacted through Logan Magazine was not considered satisfactory, so camps, schools, independent living centers and other organizations serving people with disabilities around the country were contacted in an effort to reach more participants for the study. Despite all efforts, the number of response was lower than anticipated. After contacting 74 individuals and organizations by phone and e-mail over the course of three months a total of 33 teens responded to the survey, however 10 of the surveys were not completed to their entirety. It is suspected that the survey may have been too long for some of the participants to complete. The 23 who did complete the entire survey shared not only information about their interest in clothing and their levels of satisfaction with clothing but they also reported their demographic information. The Internet was seen as a tool to reach teens with

disabilities successfully for a number of reasons. First, teens spend time using the internet for school and leisure activities so it seemed like an ideal way to reach this age group. The second reason for using the Internet was an attempt to make the survey as inclusive as possible. Typing is seen as more inclusive method to record answers than writing by hand for people with disabilities. The third reason for using the internet was to protect the privacy of participants. Because of confidentiality policies many of the organizations contacted could not provide the researcher with a list of individuals to take the survey. However if a link to the survey was sent to the organizations they could distribute it to clients without revealing any identifying information. Based on the low number of responses it is thought perhaps a more personal interview process would have been more successful rather than distributing an Internet based survey.

#### *Data Collection*

An online multiple choice and short answer survey was administered to participants for this study. The participants were reached by e-mail and through the online community facebook. Posting a link to the survey on an online chat forum for people with disabilities were also used to recruit participants however none were successful found using this method. Responses were collected and analyzed after the number of desired participants had taken the survey.

#### *Data Analysis*

Descriptive statistics were used to show means, frequencies, and percentages of Likert scale and multiple choice subject responses. Open-ended response were broken down and classified as Functional, Expressive or Aesthetic based on the described considerations of the

FEA Model. The author and two colleagues coded the responses separately and then discussed their findings to insure inter-rater reliability. A similar method of content analysis was used by Campbell and Horne (2001) in their study of women's trousers.

## CHAPTER FOUR

### Findings and Discussion

The purpose of this study is to assess the perceived clothing needs of teen girls with disabilities. An online questionnaire that evaluated the functional, expressive, and aesthetic clothing needs was distributed to the sample by e-mail and facebook.

Chapter four will review the findings and their relationship to the purpose, review of literature and the proposed research questions. A description of the sample, demographic characteristics, and a summary of the research questions will be included.

#### *Description of Sample*

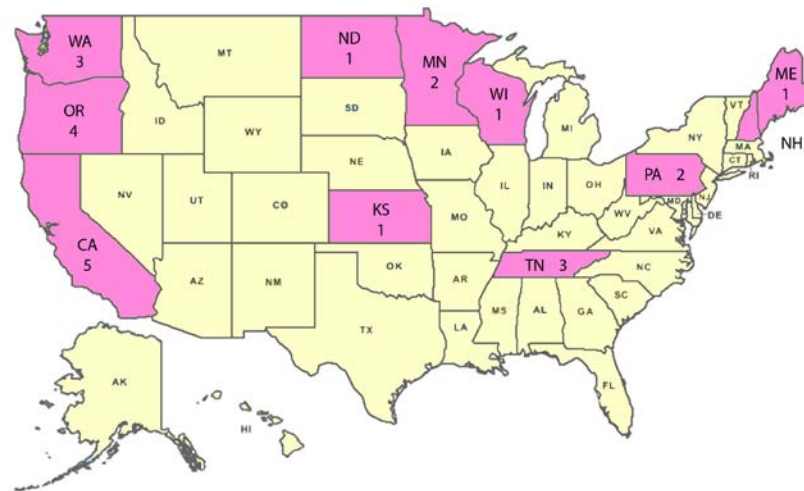
Demographic information requested included age, city and state of residence. The type of disability and assistive mobility device(s) used and the frequency of use were also requested. The purposive sample ranged between 13-18 years of age (Table 1) with 69% ages 16-18. Participants live in 10 different states around the U.S (Table 2 and Figure 5) including California, Kansas, Maine, Minnesota, North Dakota, New Hampshire, Oregon, Pennsylvania, Tennessee, and Washington.

Table 1  
*Frequency, Percentage, and Mean of Ages*

	f(N= 33)		%	M
<b>Age</b>				16.3
	13	2	9%	
	14	5	22%	
	15	0	0%	
	16	3	13%	
	17	4	17%	
	18	9	39%	

Table 2  
*State of Residence Frequency and Percentages*

	f(N= 23)	%
State of Residence		
California	5	22%
Kansas	1	4.30%
Maine	1	4.30%
Minnesota	2	8.80%
North Dakota	1	4.30%
New Hampshire	1	4.30%
Oregon	4	17.40%
Pennsylvania	2	8.80%
Tennessee	3	13%
Washington	3	13%



**Figure 5. Geographic Distribution of Sample**



Table 3  
*Disability and Assistive Mobility Devices Frequencies*  


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f(N= 23)  


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<b>Disability</b>	
Limited Lower Body Use	13*
Limited Upper Body Use	9
Hand Dexterity Impairment	14
Incontinence	2
Other	10
<b>Assistive Mobility Device</b>	
Electric Wheelchair	6
Manual Wheelchair	4
Prosthesis	1
Leg Braces	6
Crutches	1
Walker	2
Other	3
Do not use	7

\*Total is greater than number of subjects due to multiple responses

Twenty-three participants described their disability types and the assistive mobility devices used (Table 3). Some of the teens reported a combination of different disabilities. For example, five teens indicated having limited lower body use, limited upper body use and hand dexterity impairment. Other disabilities were described by participants, including Down Syndrome, poor muscle tone, gross and fine motor delays. Of those teens who use assistive mobility devices, most use them five to seven days a week. This suggests that the assistive mobility device for these teens should be considered a part of their near environment and taken into consideration by designers.

## *Discussion and Summary of Research Questions*

### *Clothing Interest*

The teens completed a five point Likert scale (1= very dissatisfied, 5= very satisfied) for assessing clothing interest. The numerical values of responses were added to produce a score indicating the level of clothing interest. The subjects indicated a wide range of interest in clothing. The lowest possible score was 15 and the highest 75 using this method of analysis. Although the sample was small, teens indicated low, medium, and high levels of clothing interest. This sample ranged from 25 to 61 in their level of clothing interest.

Table 4

*Clothing Interest*

	f(N=31)
<b>Clothing Interest Score</b>	
25-35	4
36-45	16
46 +	11

### *Clothing Problems*

The teens were given a list of eight identified clothing problems from previous research and asked to identify their top three most challenging problems. Four issues were most frequently identified: clothing is difficult to put on and remove, improper fit, clothing needs alteration, and prices are too high (Table 5). Nine participants indicated improper fit as their most challenging problem and eight teens indicated their clothing was being difficult to put on and take off as their most challenging clothing problem.

Table 5  
*Frequency of Top Three Clothing Problems*

Problem Types	f(N=30)
Clothing is difficult to put on and remove	16*
Improper fit	15
Clothing needs alteration	14
Prices are too high	14
Design is not adaptable to disability	8
Durability and wearing quality is poor	7
Lack of fashion clothing suitable for disability	7
Suitable clothing is not available	6
Other	2

\*Total of first, second and third challenging problems

### *Clothing Satisfaction*

Respondents were asked to express their level of satisfaction with selection, style, fit, comfort, safety, ability to dress, and ability to undress. A five-point Likert Scale (1= very dissatisfied, 5= very satisfied) was used to assess the overall satisfaction with these components of clothing. Open-ended questions revealed a rich source of data which will also be presented in this chapter.

#### *coats*

The majority of participants (83%; n=23) said they wear coats (Table 6). Those who said they do not wear coats gave reasons related to fit, comfort, and mobility problems created by the garment. The fit of coats was unsatisfactory for 61% (n= 14) of the teens and 58% (n= 14) said coat fasteners are difficult to use. Numerous participants described the difficulty experienced with coat fasteners because of hand dexterity impairments. One teen described her difficulty with multiple fastener types, “Cannot zip or button due to limited movement in my right arm/hand.” The majority of participants were satisfied with coat safety (52% ; n=12) while 22% (n=5) indicated dissatisfaction with coat comfort.

Table 6  
*Frequencies and Percentages of Satisfaction with Coats*

	Dissatisfied		Neutral		Satisfied	
	f(N= 23)	%	f(N=23)	%	f(N=23)	%
	1+2		3		4+5	
<b>Clothing Attributes</b>						
Selection	8	35	3	13	12	52
Style	5	22	7	30	10	43
Fit	14	61	5	22	4	17
Comfort	5	22	9	39	9	39
Safety	3	13	8	35	12	52
Dress	10	43	2	9	11	48
Undress	9	39	2	9	12	52

*pants*

The majority (69% n=18) of the teens in this study were dissatisfied with the fit of pants (Table 7). Dissatisfaction with the fit of pants was also reported by 55% of participants in a study of problems in purchasing clothing experienced by South African women with disabilities (de Klerk & Ampousah, 2002). Over half (58%; n=15) of participants expressed dissatisfaction with the selection of pants available. There was an expressed desire for stylish pants with elastic waists and participants seemed discouraged by the lack of selection in pants with waistbands that do not require fasteners. Over half (62%; n=16) of the teens found fasteners on pants to be difficult to use. Gamwell and Joyce (1966) also found pants fasteners to be problematic in their study of clothing problems experienced by people with disabilities. One participant explained “I need elastic waists and there are no cute pants like that.” The majority of the teens were also dissatisfied with the donning (63%; n=17) and doffing (58% n=15) of pants which is consistent with the results of Shannon and Reich’s (1979) findings. One teen described the changes she must make to her pants in order to dress and undress on her own, “I have all [pants] altered. All buttons taken off and Velcro® put on instead.” This would seem to indicate that pants are

particularly difficult for teens with disabilities to change in and out independently. As teens become more independent their clothing needs to reflect their new found independence.

The inseam of pants was described as too long by 58% (n=15) for the teens. Some said they have their pants hemmed to solve this problem.

Table 7  
*Frequencies and Percentages of Satisfaction with Pants*

Clothing Attributes	Dissatisfied		Neutral		Satisfied	
	f	%	f	%	f	%
	1+2		3		4+5	
Selection	15	58%	1	4%	10	38%
Style	13	50%	2	8%	11	42%
Fit	18	69%	4	15%	4	15%
Comfort	8	30%	5	19%	14	52%
Safety	3	11%	10	38%	13	50%
Dress	17	63%	1	4%	9	33%
Undress	15	58%	2	8%	9	35%

### *skirts*

Only 56% of participants (n= 15) indicated they wear skirts (Table 8). Of those who stated they do not wear skirts choose not to because insecurities about their bodies, potential for people to see up the skirt, issues with fit and comfort. One teen indicated she just doesn't like to wear skirts. These reasons for not wearing skirts reflect problems with social and functional aspects of clothing that is important for designers to consider when they are developing apparel.

Of those participants who do wear skirts, there seemed to be satisfaction with skirt safety (64% n=9), comfort (64% n=9), and styles (53% n=8). Unlike pants, participants did not indicate dissatisfaction with the donning and doffing of skirts. This would seem to indicate that skirts are much easier for this group to don and doff on their own in comparison to pants. Fasteners were problematic on skirts which were described as difficult to use by 42% of participants (n=14).

More requests for elastic waistbands and elimination of fasteners occurred similar to the requests made for pants without fasteners. One teen described her dream skirt as having appropriate style and length with an elastic waist. Another described her dream skirt as a pull-on skirt with an elastic waist in a cute print. As discussed in the section discussing pants, desire for elastic waistbands may be related to the need for independence. This preference for elastic waistbands was also expressed by 76% of the participants in the de Klerk and Ampousah (2002) study.

Table 8.  
*Frequencies and Percentages of Satisfaction with Skirts*

	Dissatisfied		Neutral		Satisfied	
	f	%	f	%	f	%
	1+2		3		4+5	
<b>Clothing Attributes</b>						
Selection	5	38%	3	23%	5	38%
Style	3	20%	4	27%	8	53%
Fit	5	36%	2	14%	7	50%
Comfort	2	14%	3	21%	9	64%
Safety	0	0%	5	36%	9	64%
Dress	0	0%	4	33%	8	67%
Undress	0	0%	5	36%	9	64%

### *dresses*

Like skirts, a significant portion (52% n=13) of the teens reported they do not wear dresses. However of those who indicated they wear dresses, overall had higher levels of dissatisfaction with dresses than skirts. Selection and fit of dresses was deemed unsatisfactory by 69% (n=9) of the teens (Table 9). One of the teens described her challenges with fit related to dresses: “To get (the dress) big enough in the waist area had to get larger size with everything else too big and long.” Dresses were described as being too long by 55% (n= 6) and none of the participants indicated fasteners on dresses as easy to use. Preferred alternative fasteners and ideal

locations for fasteners were described by the teens. One participant describes the types of dresses she likes, “I really like ones that have a wrap around band that can be tied in the front or a zipper on the side as opposed to the back.” As seen with the other garment types, fasteners are a significant issue for the teens who took part in this study.

Table 9.  
*Frequencies and Percentages of Satisfaction with Dresses*

	Dissatisfied		Neutral		Satisfied	
	f	%	f	%	f	%
	1+2		3		4+5	
<b>Clothing Attributes</b>						
Selection	9	69%	1	8%	3	23%
Style	6	46%	2	15%	5	38%
Fit	9	69%	1	8%	3	23%
Comfort	6	46%	4	31%	3	23%
Safety	1	9%	6	55%	4	36%
Dress	5	38%	2	15%	6	46%
Undress	6	46%	2	15%	5	38%

### *shirts*

Shirt fit was found to be problematic for 61% (n=14) of the teens (Table 10). “If (shirts) fit in the waist/length, usually too loose in the shoulders.” described one participant. Since shirt waistlength was perceived as too short by 44% and too long by 35% of the participants it seems future research related to body positioning and the effects of clothing on the body should be pursued.

Table 10.  
*Frequencies and Percentages of Satisfaction with Shirts*

	Dissatisfied		Neutral		Satisfied	
	f	%	f	%	f	%
	1+2		3		4+5	
<b>Clothing Attributes</b>						
Selection	9	39%	2	9%	12	52%
Style	7	29%	4	17%	13	54%
Fit	14	61%	2	9%	7	30%
Comfort	4	17%	6	25%	14	58%
Safety	2	9%	10	45%	10	45%
Dress	6	27%	5	23%	11	50%
Undress	5	22%	5	22%	13	56%

Shirt fasteners were labeled as difficult to use by 46% of the participants and the same number said the fasteners were neutral to use. Therefore only 8% of teens found shirt fasteners easy to use. Gamwell and Joyce (1966) found the most frequent problem connected with shirts was the use of fasteners. A few teens stated they simply do not purchase shirts with fasteners because they are difficult to use. One teen said she just left shirts buttoned and slipped them over her head. Similar to coats, pants, skirts and dresses, teens are find fasteners on shirts difficult to use.

#### *Application of the FEA Model*

Answers to open-ended questions related to satisfaction with clothing were coded using the FEA Model (Lamb & Kallal, 1992) in order to establish central themes in the answers given by participants. The following discusses the application of the FEA Model for analysis and the central themes discovered through this method of analysis.

#### *Functional Considerations*

Responses to open ended questions were largely functional in nature. The functional concerns of the teens far outweighed expressive and aesthetic considerations. However, this may be related to the phrasing of the questions asked. As suggested by the Consumer Satisfaction



model (Swan & Combs, 1976) dissatisfaction with a product will have a higher percentage of issues with functional considerations than expressive consideration. Since most of the open-ended questions were requesting information about dissatisfaction with clothing it could be expected to have a higher percentage of responses related to functional considerations. Responses related to the functional considerations involved fit, comfort, donning and doffing, and safety.

### *fit*

For every garment type, problems with fit and a desire for improved fit were repeated themes in this study. In fact this issue was the most frequently reported in questions related to describing a garment purchased but not liked and what changes participants would choose to make about the garment they didn't like. Fit issue ranges from garments being too tight in the abdomen to sleeve length being too long. Four areas of comments were reflected related to functional fit: 1) Issues related to the body; 2) garment length and girth 3) relationship between body and the garment; 4) relationship between the body, assistive device and garment.

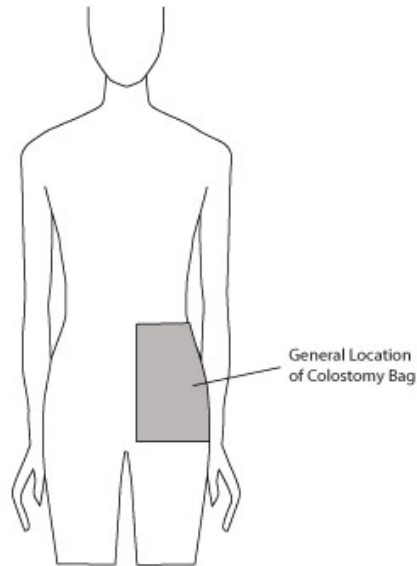
Some of the teens emphasize the role their body shape plays in fit problems. One participant said it was difficult for her to find clothing in a teen department that fit her curvy figure. When asked to describe a pair of pants she purchased and did not like she described the waist line as being too low and the hips too tight. These problems were not related to her disability, she describes the following, "The pants had appropriate leg length and width but were designed for teenagers with [underdeveloped] shapes, while I have, though petite, but female shapes."

Problems with the length and girth of all garment types was discussed by participants in the open-ended sections of the survey. One teen explained the modifications she has to make to

clothing to improve fit, “Always hem up all pants and any skirts due to shorter leg length with Down’s Syndrome.” Another teen described fit issues with specific types of pants, “Jeans seem to be fine, but any other type of pants- khakis as an example don’t ever seem to fit. Too skinny or tight.” Length and girth issues seemed to be prevalent in lower body garments. This dissatisfaction with the fit of clothing for the lower body noted by Labat and DeLong (1990).

Another described her abdomen as being bigger than most teens which results in waistbands being too tight she also described the strategic purchase of clothing styles such as shirts and dresses with an empire waist, that do fit her figure. Participants who had trouble with fit also described their own creative ways of improving their clothing to fit their bodies. A participant described how to improve the fit of shirts in the shoulder by adding small shoulder pads to take up space. Another teen who described herself as swayback also known as Lordosis said her skirts would not stay up in the front because of this physical characteristic. She proposed her personal solution for this fit issue, “If (skirts are) worn for special occasions, have to pin the front of the skirt to top.”

Challenges with fit also occurred because of the relationship between clothing and participants assistive device. Two participants who use colostomy bags which are located on the lower abdomen (Figure 6) experienced problems with clothes fitting over the colostomy bag and at the same time allowing room for the colostomy bag to expand throughout the day. The assistive device/garment relationship is explored in depth later in this chapter because of its frequent mention by participants.



**Figure 6. General Location of Colostomy Bag**

*comfort*

For the most part participants seemed to be somewhat satisfied with the comfort of their clothing. This is suggested because comfort is seldom mentioned in the written responses by the teens. Preference for one style over another related to comfort was discussed once by a participant, “I like bootcut jeans especially if they are stretchy because they are fashionable but are also more comfortable than skinny jeans or straight leg jeans.”

The second mention of comfort involved excess jacket fabric being bunched up behind the participants back while she uses her wheelchair. She also reported that the jacket could also pull on her shoulders while it was bunched up between her body and the chair.

*donning & doffing*

Like fit, donning and doffing was another area where participants experienced great dissatisfaction with their clothing. Frustration about not being able to dress or undress

independently was apparent in their comments. The teens reported they do not like asking for assistance with this task. When asked to describe a skirt you bought and didn't like one respondent stated, "One with too many buttons really frustrated to get on and off. If a piece of clothing is a hassle, I won't wear it." Also when asked to describe a dress you bought and didn't like another respondent stated, "I bought one with a zipper in the back and it drove me nuts that in order to wear it I had to have someone else zip it for me." This comment certainly illustrates the need for independence in donning and doffing clothing for this group.

Teens suggested garment changes involving the alteration of closures so the garments would be easier to don and doff independently. Although studies have shown that adjustments like replacing buttons with Velcro® can result in self stigmatization (Kaiser et al., 1985), these young women frequently expressed a need for such adjustments. They seemed to value independence more than potential stigma of having clothing that is altered discretely to be different than their peers. There was a clear desire for jeans with inclusive features that accommodate disability so long as the overall design remains trendy or stylish. One teen commented that, "[Waistband size is] Appropriate if elastic however; well fitting stylish jeans with an elastic waist are no-existent!" As discussed previously, elastic waistbands are easier to use and provide teens with a chance to be independent in dressing and undressing.

### *safety*

Most concerns expressed by the teens related to safety involved the interaction of their garments with assistive mobility devices. Garments getting caught in the wheels of wheelchairs and walkers was a concern reported by participants in the study. Long pants were also reported as a tripping hazard if they were not hemmed to up above the heel. Because tripping and falling can lead to embarrassment and physical injury for these young women, clothing that

potentially add to their safety risk is avoided although there is a desire to wear stylish clothing that can be considered hazardous. “I think one thing to consider for people who use walkers is that we would like to be able to wear dress pants/jeans and like the wide leg look but they can be easily tripped over if too long. I get mine hemmed just a bit at the bottom.” Stated one participant. Those who expressed safety concerns in this study, require the use of assistive mobility devices. This trend again introduces the assistive device-garment relationship to be discussed later in this chapter.

#### *closures/fasteners*

Consistent with all garment types was the problem of closures. Closure comments were functional in nature and a universal concern for these participants. These findings related to difficulty with closures are consistent with a study that looked at common clothing problems across different disability types (Reich & Shannon, 1980). Difficulty using buttons and zippers was mentioned repeatedly throughout the questionnaire. Location of closures was also addressed, back closures were not popular because they required assistance to open and close. Locating closure in a place that is easy to reach and replacing such closures with Velcro® or snaps was often requested as an alternative. Reducing the number of buttons was also considered an option to improve clothing, “I think it would be nice in dress wear if button down shirts didn’t have so many buttons for people who [can’t] use them. Although the style now is to wear them [not] buttoned all the way so this can be solved.”

Although previous studies describe using alternative closures like Velcro® that increase functionality as potentially creating issues of stigma (Wingate et al., 1985-1986), this didn’t seem to be a concern for these teens. They seemed to value independence of dressing over the threat of stigma so long as the overall garment was considered stylish. Solutions to closure

problems were provided by participants like replacing buttons with snaps or making existing closure more usable. One teen shared her personal adaptation, “I’m one handed. It was difficult to do zippers at first but its adaptable example: add a string to the end as it is easier to pull.” Because concerns about closures were discussed so frequently, we can assume this is a major concern for teen girls with disabilities and may be an area of research to pursue. Needs are not being met and there is a call for improvements to be made.

### *Expressive Considerations*

When discussing coats and pants very few expressive concerns were described by the participants. Skirts, dresses and shirts solicited more expressive comments often related to concerns about modesty, conforming to female roles, and self-esteem. Due to the limited responses related to these expressive considerations of clothing described by participants, the following section is an overview of these responses.

Concerns about the modesty of clothing fall into the values sub-group of the Expressive considerations. A few of the participants described clothing available to teens as revealing too much or as being too tight for their preferences. Exposed cleavage and undergarments were issues described about shirts and dresses. One participant explained why she felt particularly susceptible to exposing her cleavage, “Because I am sitting in a wheel chair and people are standing above me, I have to be careful that the neckline isn’t too big to be revealing.” A problem specifically related to dresses and skirts was raised by one teen who said boys try to look up them. This was one of two reasons she listed for choosing not wear skirts or dresses. Those who expressed concerns about modesty used very strong language to describe their unwillingness to conform to revealing clothing trends. “Not all girls like to wear skin tight

shirts... I do not like spandex and that's what most of the teen girls wear." Explained one participant.

Gender roles were primarily described by participants, however mention of roles related to age and cultural sub-groups also came up. Some described wanting to dress like their peers or girls they saw in magazines. Wanting to fit female roles demonstrated by others is not surprising because conformity to peers has been described as an important part of the teen years (Horn,1981). Teens specifically picked out groups with which they do not want to be identified. When describing her dream pants, one of the teens wrote, "Elastic waist jeans with a good cut not old lady jeans." Another explained that she didn't like the waist of pants to be too big because they sag down and look like "a gangsta' guys".

Comments related to self-esteem were mostly related to body exposure. The desire not to expose the body generally was a result of attempted concealment of disability. Insecurity about revealing atrophied legs was the most frequently described source for embarrassment by the young women. Those embarrassed about their legs reported they did not wear skirts or dresses. It seems that avoidance of these garment types is the result of attempted concealment of this source of embarrassment. These findings are consistent with Kaiser et al. (1985) and de Klerk and Ampousah (2002) who found women who use wheelchairs preferred wearing pants to skirts or a dress in order to disguise a lack of thigh muscle tone.

### *Aesthetic Considerations*

Aesthetic considerations of clothing occurred more frequently when participants discussed their dream garments and when they were describing dresses and skirts which traditionally in the U.S. are seen as female garments. Like expressive considerations, responses related to aesthetic considerations were limited.

A wide range of art elements and design principles were desired by the teens in this study. Most of these preferences were addressed in the questions that asked participants to describe their dream garment. Graphics on T-shirts, beading and lace on dresses and cute textile prints were a few described aesthetic preferences. Based on the responses it is clear that these teens have very different ideas of what is aesthetically pleasing and they can be very specific as to what decorative elements they desire.

The body garment relationship was mentioned in all garment categories and in a variety of ways. On multiple occasions the body garment relationship was influenced by the assistive device garment relationship. One teen describes her experience, “Typically pants I find are low rise and too long. Difficult to find pants with a waistline appropriate for my colostomy bag. Also hard not to show my butt when sitting and my shirt rides up.” This experience illustrates how the body-garment relationship can be influenced by the assistive device-garment relationship. Creating illusion and altering the appearance of the body by using clothing was also addressed by the participants. Words like “slimming” and “masking” were used to describe such appearance altering desires. This desire to alter the body to meet social standards of idealized beauty also represents the need for these teens to fit in with the world that surrounds them.

Many of the participants wanted to have current styles of clothing and often had in mind a particular style they felt “worked” best for them. It was not clear however whether this idea of a garment “working” was a functional or aesthetic issue. Either way, this strong preference for specific styles was clearly based on personal experience and there was a strong level of satisfaction with such previous experience. One teen describes her preference for dresses, “I like flowy dresses with high waists, empire waist of flared from just under bust works best.”



There were also requests for stylish clothing with slight alterations to be more inclusive of disabilities. Stylish jeans with non-buttoning closures were in high demand. Inability to find such clothing was clearly expressed by the participants. One teen explained the difficulties of getting jeans to meet her needs, “Have not been able to find ANY pants in teen departments that have elastic waists therefore, we can’t buy them or have to have the [waist] completely remade—very expensive!” de Klerk and Ampousah (2002) described the lack of clothing for women with disabilities in retail stores and based on the responses in this study it appears the same is true for teen girls.

Buying current trends and having alterations made to meet functional needs was described repeatedly especially with pants. Most of these alterations were related to safety concerns like tripping or donning and doffing concerns.

#### *Assistive Device-Garment Relationship*

The relationship between assistive devices and clothing was described as problematic in a variety of ways. Two major themes with the assistive device-garment relationship were safety and concealment.

For assistive devices like wheel chairs, crutches and walkers that are an immediately visible part of appearance, the concern about safety was frequently addresses. Getting clothing caught under a crutch or wheel could result in injury to the body and embarrassment for a teen with a disability. When assistive devices were not as obvious or apart of external appearance there was a desire to select clothing that would conceal the device. Leg braces and colostomy bags can be covered by clothing, unlike a device like a wheelchair. When the device could be disguised, teens showed they would select styles of clothing that would allow concealment. The

desire to conceal these assistive devices can be considered an expressive and aesthetic consideration of the FEA Model.

Based on their response it seems teens understand which symbols of disability can be readily disguised and which symbols cannot. Assistive devices that are readily visible and cannot be camouflaged can be considered external assistive devices because they are a significant part of a teens external appearance. Assistive devices that can be concealed by clothing and go unnoticed can be referred to as internal assistive devices since they are kept internally going unexposed to others.

Because teens in this study expresses this desire to conceal these internal assistive devices it seems there is an attempt to normalize appearance as much as possible for expressive reasons. Acceptance of the visibility of external assistive devices is apparent based on the strictly function related concerns.

Based on these observations it can be concluded that the assistive device-garment relationship is not strictly functional, expressive or aesthetic. This relationship involves all three considerations of the model. The next section of this chapter will argue that the body-garment relationship is also a blend of these three considerations rather than being just an aesthetic consideration.

### *Body-Garment Relationship and The FEA Model*

The FEA Model defines the body-garment relationship as an aesthetic consideration of design. In this study however, comments by participants seemed to illustrate the body-garment relationship as a combination of the functional, expressive and aesthetic considerations. The body-garment relationship is more than just appearance of clothing on the body. The desire for a

shirt to be slimming can be an example of the body-garment relationship. Because of the way the garment looks on the body it makes the wearer appear slimmer. This may appear to be strictly an aesthetic consideration but one must ask, why does the wearer want to appear slimmer? Because the United States physical ideal is lean and slim, it can be thought that the teen is attempting to take on the idealized female role. In order to achieve the initial goal of having a slimmer appearance, the fit of a garment then plays a vital role in creating this visual illusion. This demonstrates the how the body-garment relationship involves more than aesthetics.

Another example of this blending of considerations is the described challenges one teen shared about her clothing, “Difficult to find clothing to fit my narrow upper body while trying to mask my lower pair shape and colostomy bag.” In this comment the issue of fit, body-garment relationship and assistive device-relationship are all addressed. She describes masking her body shape that doesn’t meet the cultural ideal. She is also trying to mask her colostomy bag which isn’t culturally ideal either. There is an expressive motivation behind her desired body-garment relationship. The way to create this relationship is through the fit of her clothing and the potential use of design elements like color and line. This demonstrated blending of all three considerations leads to a propose modification to the FEA model. It is proposed that the body-garment relationship involves all the functional, expressive and aesthetic considerations of the model rather than simply being an aesthetic consideration. The model would be re-designed to have an out ring that encompasses all the pieces of the model to demonstrate the fusion of all these pieces to create the body-garment relationship.

## CHAPTER FIVE

### Summary and Recommendations

The purpose of this study was to investigate the clothing needs of teen girls with disabilities. The objectives identified to better understand these clothing needs are as follows: 1) To assess the functional, expressive, and aesthetic clothing needs among teen girls with disabilities; 2) To assess the level of satisfaction with select garment types among teen girls with disabilities; and 3) To identify possible gaps in the functional, expressive and aesthetic clothing needs among teenage girls with disabilities.

The Functional, Expressive, and Aesthetic (FEA) Model (Lamb & Kallal, 1991) was adopted as the theoretical framework to develop a multiple choice and short answer survey regarding the clothing needs of teen girls with disabilities.

This chapter summarizes the findings from the survey based on the objectives of the study. The results as they relate to the research questions and suggestions for apparel manufacturers and future research are also included.

#### *Summary of the Study*

A needs assessment questionnaire was developed to analyze the clothing needs of teen girls with disabilities. A link to the online survey was sent by e-mail to 73 different individuals and organizations that serve people with disabilities in order to reach participants. A total of 33 teens, ages 13-18 from ten different states in the U.S. responded to the survey.

Because of the small sample size, quantitative responses were analyzed using descriptive statistics. The open-ended answers were coded using the FEA Model (Lamb & Kallal, 1991) as a method to identify reoccurring themes in functional, expressive, and aesthetic responses. The researcher and two colleagues coded individually the data and then met to discuss findings in order to ensure inter-rater reliability. This qualitative analysis allowed the researcher to acquire a greater depth of understanding about the levels of satisfaction the sample has experienced with their clothing.

### *Summary of Findings*

The participants of this study were found to generally have a combination of different disabilities and those who indicated use of assistive mobility devices had a tendency to use them five to seven days a week.

The teens showed a wide range of clothing interest ranging from low, medium to high. Four main clothing problems were identified by the sample which included: clothing is difficult to put on and remove, improper fit, clothing needs alteration, and prices are too high.

One theme that was common to all garment types was dissatisfaction with fit and fasteners. Participants were asked to indicate their levels of satisfaction with specific garment types. The fit of coats was unsatisfactory for 61% (n=14) of the teens and 58% (n= 14) stated coat fasteners are difficult to use. Not only were fit and fasteners a problem with pants, but selection of pants was deemed unsatisfactory by 58% (n=15) of the participants. Skirts were worn by just 56% (n=15) of those participants. Of those who wore skirts donning and doffing was not described as unsatisfactory. Dresses were worn by just over half (52%; n=13) of the teens. Sixty-nine percent of participants (n= 9) were dissatisfied with the selection and fit of dresses. Teens stated they

avoided wearing shirts with fasteners because they were described as difficult to use. Eight percent of the participants felt fasteners on shirts were easy to use (n=2).

The majority of responses to the open-ended questions were functional in nature. Two major issues identified were fit and clothing fasteners. A variety of fit problems for each garment type were described including the girth and length of garments. Fasteners were also problematic in every garment type. A number of requests were made for fastener alternatives that would eliminate the need for fine motor skill use. Elastic waistbands, snaps and Velcro® were identified as suitable alternatives to buttons and zippers. Related to fasteners, donning and doffing was another frequently described functional issue. The difficulty of dressing and undressing seems to be an important issue to teen girls. It is speculated that the ability to dress and undress without assistance is related to the independence teens desire.

Although the responses to open-ended questions were primarily functional there were some that fell into the expressive considerations of the FEA Model. Concerns about modesty were raised in regards to clothing found in teen departments. Clothing being too tight, too short, and too low cut were all reported by in this study. Some respondents touched on issues of self-esteem related to their clothing. Numerous respondents reported they did not wear skirts because they are ashamed of the appearance of their legs. The preference is to wear pants to mask this a physical characteristic that may deviate from the norm. While this had been confirmed in studies of women who use wheelchairs (de Klerk & Ampousah, 2002; Kaiser et al. 1985), it was unknown if teen girls made the same decision.

Aesthetic responses were also limited in number, however there were some responses that provide insight into the aesthetic preferences of these teens. Stylish jeans with alternative closures were desired by the teens and described as not available in teen retail stores. There was

a strong preference for specific clothing styles that teen had found to meet their needs in the past. These styles and aesthetic details varied among the participants demonstrating a wide range personal style. The teens also discussed their desire for clothing that would flatter the body, which describes the preferred body-garment relationship from an aesthetic standpoint. It was found that the assistive device- garment relationship could play an important role in the body-garment relationship. The assistive device-garment relationship revealed two types of assistive devices and the considerations associated with each. First, external assistive devices cannot be concealed, they are used outside of clothing and a visually present for others to see. Second, internal assistive devices are those that can be masked by clothing and kept internally to conceal from others. A modification of the FEA Model was also suggested after response to the survey illustrated that the body garment relationship involves not just the aesthetic considerations, but also the functional and expressive considerations.

#### *Implications for Apparel Manufacturers and Designers*

In order to appeal to teen girls with disabilities, alternative options to traditional fasteners like buttons or zippers should be considered. Difficulty using fasteners contributes to difficulty donning and doffing clothing and the teen girls in this study valued the independence of dressing themselves and expressed a dislike for asking for help.

Multiple requests were made for stylish jeans with elastic waistbands or Velcro fasteners. Creating waistband alternatives appealed to the participants in this study. One solution maybe knit waistbands which would allow for wearers to pull jeans on without having to the hassle of fasteners.

### *Recommendations for Future Research*

Based on the findings of this study, suggestions for future research may be to:

- 1) Explore the differences in the assistive device-garment relationship between assistive devices that are used externally and those that can be used internally
- 2) Development of fasteners that are inclusive of more abilities
- 3) Investigate the whether teens make independently dressing or avoidance of clothing that could carry stigma their top priority
- 4) Determine the most efficient way to reach teen samples for research purposes



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## APPENDIX A

### IRB Approval

MEMORANDUM

TO: Catherine Black, Bailey Stokes, CAROL SALUSSO and MARSHALL MITCHELL

FROM: Malathi Jandhyala (for) Dennis Garcia, M.D. and Matt Layton, M.D., Co- Chairs, WSU Institutional Review Board (3005)

DATE: 10/16/2009

SUBJECT: Approved Human Subjects New, IRB Number #11050-001

Your Human Subjects Review Summary Form and additional information provided for the proposal titled "Clothing Needs of Teen Girls With Disabilities", IRB File Number 11050-001 was reviewed for the protection of the subjects participating in the study. Based on the information received from you, the WSU-IRB approved your human subjects protocol on 10/16/2009. This protocol is given Expedited review category. In addition the IRB has approved your request for waiver of parental permission with an addition of a line on the recruitment flyer/e-mail message/face book message that kids below 18 need to talk to their parents prior to participating in the survey.

IRB approval indicates that the study protocol as presented in the Human Subjects Form by the investigator, is designed to adequately protect the subjects participating in the study. This approval does not relieve the investigator from the responsibility of providing continuing attention to ethical considerations involved in the utilization of human subjects participating in the study.

This approval expires on 10/15/2010. If any significant changes are made to the study protocol you must notify the IRB before implementation. Request for modification forms are available online at <http://www.irb.wsu.edu/forms.asp>.

In accordance with federal regulations, this approval letter and a copy of the approved protocol must be kept with any copies of signed consent forms by the principal investigator for THREE years after completion of the project.

Washington State University is covered under Human Subjects Assurance Number FWA00002946 which is on file with the Office for Human Research Protections.

If you have questions, please contact the Institutional Review Board at (509) 335-3668. Any revised materials can be mailed to the Office of Research Assurances (Campus Zip 3005), faxed to (509) 335-6410, or in some cases by electronic mail, to [irb@mail.wsu.edu](mailto:irb@mail.wsu.edu).

Review Type: New

Review Category: Expedited

Expedited Category: 45 CFR 46.110 (b)(7)

Date Received: 9/23/2009

OGRD No.: N/A

Agency: N/A

Thank You,

Malathi Jandhyala

Human Subjects Review Coordinator

Office of Research Assurances

Albrook 205

PO Box 643005, Pullman, WA 99164-3005

E-mail: [mjandhyala@wsu.edu](mailto:mjandhyala@wsu.edu)

Phone: 509-335-3668

Fax: 509-335-6410

On behalf of the Institutional Review Board

You have received this notification as you are referenced on a document within the MyResearch.wsu.edu system. You can change how you receive notifications by visiting <https://MyResearch.wsu.edu/MyPreferences.aspx>

Please Note: This notification will not show other recipients as their notification preferences require separate delivery.

APPENDIX B  
SURVEY

# Clothing Needs of Teen Girls with Disabilities

## 1. Assent to Participate

WASHINGTON STATE UNIVERSITY  
Apparel, Merchandising, Design, and Textiles

Study Title: Clothing Needs of Teen Girls with Disabilities

### Researchers:

Name:	Position:	Department:
Dr. Catherine Black	Associate Professor	Apparel, Merchandising, Design, and Textiles
Phone number:	E-mail:	
509-432-6126	<a href="mailto:cmblack@wsu.edu">cmblack@wsu.edu</a>	
Name:	Position:	Department:
Dr. Carol Salusso	Associate Professor	Apparel, Merchandising, Design, and Textiles
Phone number:	E-mail:	
509-263-9113	<a href="mailto:salusso@wsu.edu">salusso@wsu.edu</a>	
Name:	Position:	Department:
Mr. Marshall Mitchell	Instructor	Disability Studies
Phone number:	E-mail:	
512-699-4039	<a href="mailto:mitchem@wsu.edu">mitchem@wsu.edu</a>	
Name:	Position:	Department:
Bailey Stokes	Graduate Student	Apparel, Merchandising, Design, and Textiles
Phone number:	E-mail:	
509-335-1233	<a href="mailto:stokesba@wsu.edu">stokesba@wsu.edu</a>	

## Clothing Needs of Teen Girls with Disabilities

My name is Bailey Stokes. I am from Washington State University. I and the other people listed at the top of this form are inviting you to take part in a research study that will be used to support a thesis. This form will tell you about the study to help you decide whether or not you want to take part in it.

What is this study about?

In this study, we want to learn about the clothing needs of teen girls with physical disabilities.

What am I being asked to do?

If you decide to be in the study, we will ask you to answer multiple choice and short answer questions about your clothing experience, disability and assistive mobility devices. It should take around 20 minutes to complete.

What are the benefits to me for taking part in the study?

Taking part in this research study gives you a chance to voice your opinion. Your opinions may help to improve clothing design of what is available in stores. If we can find out what the biggest clothing problems are we can share it with other designers so they can make clothing that better meets your needs and interests. The research will be used to support a thesis and will be published for others to read.

Can anything bad happen if I am in this study?

This study is very low risk since you are only answering questions about clothing.

Who will know that I am in the study?

We won't tell anybody that you are in this study and everything you tell us will be private and confidential. When we tell other people or write articles about what we learned in the study, we won't include your name or that of anyone else who took part in the study.

Some of the questions could make you feel uncomfortable, but no one will be able to identify you by your answers.

Do I have to be in the study?

No, you don't. The choice is up to you. No one will get angry or upset if you don't want to do this. And you can change your mind anytime if you decide you don't want to be in the study anymore.

What if I have questions?

If you have questions at any time, you can ask us and you can talk to your parent about the study. If you want to ask us questions about the study, call or email

Bailey Stokes 509-335-1233 stokesba@wsu.edu

The Washington State University Institutional Review Board has reviewed this study to make sure that the rights and safety of people who take part in the study are protected. If you have questions about your rights in the study, or you are unhappy about something that happens to you in the study, you can contact them at (509) 335-3668 or irb@wsu.edu.

**1. IF YOU WANT TO BE IN THE STUDY, PLEASE CHECK THE BOX THAT SAYS "I ACCEPT". IF YOU DO NOT WANT TO BE IN THE STUDY PLEASE EXIT SURVEY.**

I ACCEPT

## 2. Participants under 18 years of Age

## Clothing Needs of Teen Girls with Disabilities

**1. If you are under 18 years of age and you want to take part in this survey, please inform a parent or legal guardian of your participation and check the box below.**

- I am a parent sharing my personal experience with my teen's clothing
- I have informed a parent or legal guardian of my participation in this survey.
- I am 18 years of age and do not require parental consent to participate

### 3. Clothing Interest

**1. There are several factors that everyone looks at when buying clothing. Please circle the number indicating your response.**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am able to find clothing in my size	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to find quality clothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I dress similar to my friends and classmates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to find clothing with well known labels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wear clothing that enhances my physical appearance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I carefully match my clothing and accessories	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is more important that my clothing is fashionable than comfortable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't care how my clothing looks as long as I am comfortable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy wearing unique clothing even though I may attract attention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to have the newest styles of clothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to find clothing in fabrics I prefer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to find clothing that keeps my body temperature comfortable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have difficulty selecting new clothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I look at fashion magazines to find out	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Clothing Needs of Teen Girls with Disabilities

about new style trends

### 4. Clothing Problems

**1. Please mark and rank the TOP THREE problems you experience with clothing, Using 1 to mean the biggest problem, 2 to mean the next biggest problem and 3 to be the last biggest problem.**

	1	2	3
Suitable clothing is not available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prices are too high	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improper fit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design is not adaptable to disability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Durability and wearing quality is poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of fashion clothing suitable for disability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clothing is difficult to put on and remove	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clothing needs alterations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you selected Other, please explain

### 5. Satisfaction with Clothing Types

Listed below are specific clothing types and factors that may be assessed. Please think about the clothing you own and circle the indicating your response and include any additional comments you would like to share.

**1. Do you wear coats?**

- Yes  
 No

**2. If you do not wear coats, please explain why.**



## Clothing Needs of Teen Girls with Disabilities

### 3. Satisfaction with Coats

If you do not wear coats skip questions 3-14.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Style	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comfort	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to dress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to undress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 4. What coat length do you prefer?

- Waist length
- Hip length
- Knee length
- Shin length
- Ankle length

### 5. Coats

Is the neckline:

- Too small
- Appropriate
- Too large

Comments

## Clothing Needs of Teen Girls with Disabilities

### 6. Coats

**Is the waist length:**

- Too short  
 Appropriate  
 Too long

Other (please specify)

### 7. Coats

**Is the sleeve length:**

- Too short  
 Appropriate  
 Too long

Comments

### 8. Coats

**Is the arm hole:**

- Too loose  
 Appropriate  
 Too tight

Comments

## Clothing Needs of Teen Girls with Disabilities

### 9. Coats

Is fit through the shoulder:

- Too loose  
 Appropriate  
 Too tight

Comments

### 10. Coats

Are the fasteners:

- easy to use  
 neutral  
 hard to use

Comments

11. Describe a coat you bought and didn't like

12. What would you change about this coat?

13. Are the changes you suggested related to your disability?

14. Describe your dream coat

## 6. Satisfaction with Clothing Types

## Clothing Needs of Teen Girls with Disabilities

### 1. Do you wear pants?

- Yes  
 No

### 2. If you do not wear pants, please explain why.

### 3. Satisfaction with Pants

If you do not wear pants, skip questions 3-11.

	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied
Selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Style	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comfort	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to dress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to undress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 4. Pants

#### Is the waist

- Too small  
 Appropriate  
 Too large

Comments

### 5. Pants

#### Is the inseam

- Too short  
 Appropriate  
 Too long

Comments

## Clothing Needs of Teen Girls with Disabilities

### 6. Pants

#### Is the leg width

- Too narrow  
 Appropriate  
 Too wide

Comments

### 7. Pants

#### Are the fasteners

- Easy to use  
 Neutral  
 Hard to use

Comments

### 8. Describe pants you bought and didn't like

### 9. What would you change about these pants?

### 10. Are the changes you suggested related to your disability?

### 11. Describe your dream pants

## 7. Satisfaction with Clothing Types Continued

## Clothing Needs of Teen Girls with Disabilities

### 1. Do you wear skirts?

- Yes  
 No

### 2. If you do not wear skirts, please explain why.

### 3. Satisfaction with Skirts

If you do not wear skirts, skip questions 3-11.

	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
Selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Style	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comfort	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to dress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to undress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 4. Skirts

#### Is the waist

- Too small  
 Appropriate  
 Too large

Comments

### 5. Skirts

#### Is the length

- Too short  
 Appropriate  
 Too long

Comments

## Clothing Needs of Teen Girls with Disabilities

### 6. Skirts

#### Is the width

- Too narrow  
 Appropriate  
 Too wide

Comments

### 7. Skirts

#### Are the fasteners

- easy to use  
 neutral  
 hard to use

Comments

### 8. Describe a skirt you bought and didn't like

### 9. What would you change about this skirt?

### 10. Are the changes you suggested related to your disability?

### 11. Describe your dream skirt

## 8. Satisfaction with Clothing Types

## Clothing Needs of Teen Girls with Disabilities

### 1. Do you wear dresses?

- Yes  
 No

### 2. If you do not wear dresses, please explain why.

### 3. Satisfaction with Dresses

If you do not wear dresses, skip questions 3-16.

	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied
Selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Style	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comfort	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to dress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to undress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 4. Dresses

#### Is the waist

- Too small  
 Appropriate  
 Too large

Comments

### 5. Dresses

#### Is the length

- Too short  
 Appropriate  
 Too long

Comments



## Clothing Needs of Teen Girls with Disabilities

### 6. Dresses

#### Is the width

- Too narrow  
 Appropriate  
 Too wide

Comments

### 7. Dresses

#### Is the neckline

- Too small  
 Appropriate  
 Too large

Comments

### 8. Dresses

#### Is the waist length

- Too short  
 Appropriate  
 Too long

Comments

## Clothing Needs of Teen Girls with Disabilities

### 9. Dresses

#### Is the sleeve length

- Too short
- Appropriate
- Too long

Comments

### 10. Dresses

#### Is the arm hole

- Too loose
- Appropriate
- Too tight

Comments

### 11. Dresses

#### Is fit through the shoulder

- Too loose
- Appropriate
- Too tight

Comments

## Clothing Needs of Teen Girls with Disabilities

### 12. Dresses

#### Are the fasteners

- easy to use
- neutral
- hard to use

Comments

#### 13. Describe a dress you bought and didn't like

#### 14. What would you change about this dress?

#### 15. Are the changes you suggested related to your disability?

#### 16. Describe your dream dress

## 9. Satisfaction with Clothing

### 1. Do you wear shirts?

- Yes
- No

### 2. If you do not wear shirts, please explain why.

## Clothing Needs of Teen Girls with Disabilities

### 3. Satisfaction with Shirts

If you do not wear shirts skip questions 3-13.

	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied
Selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Style	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comfort	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to dress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to undress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 4. Shirts

Is the neckline

- Too small
- Appropriate
- Too large

Comments

### 5. Shirts

Is the waist length

- Too short
- Appropriate
- Too long

Comments

## Clothing Needs of Teen Girls with Disabilities

### 6. Shirts

#### Is the sleeve length

- Too short  
 Appropriate  
 Too long

Comments

### 7. Shirts

#### Is the arm hole

- Too loose  
 Appropriate  
 Too tight

Comments

### 8. Shirts

#### Is fit through the shoulder

- Too loose  
 Appropriate  
 Too tight

Comments

## Clothing Needs of Teen Girls with Disabilities

### 9. Shirts

#### Are the fasteners

easy to use

neutral

hard to use

Comments

#### 10. Describe a shirt you bought and didn't like

#### 11. What would you change about this shirt?

#### 12. Are the changes you suggested related to your disability?

#### 13. Describe your dream shirt

## 10. Demographics

### 1. Please mark your age

13 years old

14 years old

15 years old

16 years old

17 years old

18 years old

### 2. Where do you live?

City/Town:

State:

## Clothing Needs of Teen Girls with Disabilities

### 3. Please check all types of disabilities that apply

- Limited Upper Body Use
- Limited Lower Body Use
- Hand Dexterity Impairment
- Incontinence
- Other (please specify)

### 4. please indicate which of the following mobility device you use during the week and how often you use them.

	one day a week	two days a week	three days a week	four days a week	five days a week	six days a week	seven days a week	I do not use this assistive mobility device
Electric Wheelchair	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Manual Wheelchair	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Crutches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Walker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leg Braces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Back Brace	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prosthetic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you selected Other, please specify

APPENDIX C  
OPEN ENDED RESPONSES



Subject number	Question	Response
0150	Clothing Problems	Difficult to find clothing to fit my narrow upper body while trying to mask my lower pear shape and colostomy bag.
4907		Most clothes fit fine. My disability does not interfere.
0643		It is hard to find specific teen styles in the store due to the mental disability.
2045		Stylish clothes are very difficult for me to find because of my size and my disability. Only being able to use one hand.
6949	If you do not wear coats please explain why	too hard to put on
4907		I wear jackets
3458		too bulky, aand rm mobility needed
1853		It is hard to have the fabric pulling on your back or just having all that fabric bunched behind your back.
8900		they do not fit well in a wheelchair
2212	Coats- waist length, comments	difficult to sit down with a long coat
6158		not enough gerth
9357	Coats- sleeve length, comments	for one of my hands its slids off. I should have them tailored but as of now do not
9185		sometimes too tight
6158	Coats- armhole, comments	too loose once you get the waist to fit
9357	Coats- fasteners, comments	I'm one handed. It was difficult to do zippers at first but its adaptable example: add a string to the end as to be easier to pull
0150		Cannot zip or button due to limited movement in my right arm/hand.
8187		due to my hand movements, I ask for help
2045		I have to have snaps because of my parlays.
9357	Describe a coat you bought and didn't like	One that was a little above the wait. It's a bmber jacket I don't like the way it fits but it looks kool.

4177		Coats with difficult buttons
2212		i wouldn't have bought it if i didn't like it
5043		I make sure I like them before I buy them.
4560		Warm winter weight, zipper, hood
4842		I have Down Syndrome so the arms are always too long
1882		I have had problems in the past with coats that have small buttons.
1688		All but one
3044		Puffy with hood and zipper
0643		Too hard to zip
8187		I live in a cold climate and it was hard to get on so I had to ask for help and it had really crinkly material when it was cold...the noise was terrible
2337		My mom found a purple coat with big buttons that fit, but I had the worst time buttoning it up and getting it off.
8260		Winter rain coat, kept me dry and warm but difficult to put on and take off by myself.
2045		Long and had buttons
7434		I bought a coat to wear over sweaters/sweatshirts and was frustrated that when trying to put my arms in, they got stuck and once on, it wasn't comfortable.
5524		It was ugly and I didn't pick it out. It was tight in the shoulders.
9357	What would you change about this coat?	I would make it a bit longer a little below the waist
4177		no buttons, change to zipper
4560		shorten sleeves, adjust shoulders, trim should be machine washable & dryable
4842		shorter arms
1882		I would make the buttons larger, and the button holes, because it is hard for me to button and unbutton them.
1688		Need Velcro fasteners and shorter sleeves. The one we liked allowed for sleeves to be rolled or adjusted.
3044		zipper that is easier for me to grasp
0643		Better construction

8187		the material and needed some velcro instead of the zipper/buttons
2337		The way the buttons fit into the holes
8260		the shoulder and sleeve to be bigger around
2045		Put snaps and make it shorter.
7434		Make the arm opening a bit bigger.
5524		I wouldn't have chose it.
9357	Are the changes you suggested related to your disability?	No just my personal preferance
4560		sleeves & shoulders yes
4842		Yes
1882		Yes. I have only four fingers on one hand and my thumb does not work properly.
1688		Yes, Down syndrome with fine motor difficulties
0643		Yes
8187		yes, due to my finger dexterity
2337		Yes, I have a hard time with fine motor skills
8260		Yes
2045		Yes!
7434		No.
5524		Have a coat that is slit down the back and easier to put on when in a wheelchair.
9357	Describe your dream coat	Black possibly leather to the knee and very sliming in design
212		very long sleeves, waist length, double button rows, soft lining, fitted waist, low neckline but able to be buttoned close to the neck
5043		Heavy, rain proof, and it a hood. 3/4 length sleeves amd multipl3e pockets for keeping my school supplies in an acessible place. Not too long in the waist because it gets into the wheels of my wheelchair when I'm running around with it but not wearing it. A zipper.
4560		sleeves, neck opening/shoulders, length fit properly, sparkly, "furry", pastel colors, velcro closures front/wrist & garment stands up to machine wash/dry
4842		A fashionable coat with shorter arms

1882		I like coats that have zippers because they stay closed but are typically not too hard to fasten and unfasten.
1688		Velcro closures and shorter or adjustable sleeves.
3044		one that looks like the girls in magazines wear but actually fits me and easy to get on and off
0150		Something that I can fasten using one arm/hand
0643		Empire waist, easy to button, fashionable, colorful
8187		Made of wool/polyester, so the wind could not get in, soft material, velcro closer, and less than \$100. My friend has a coat like this from Eddie Bauer and it was close to \$300. I can't afford that.
9185		large buttons I can do by myself
2337		A purple coat with a zipper that had a hood with squeeze buttons to close.
8260		A coat with a hood that didn't fall off. Rains a lot where I live and I get wet without a hood on my head. Some kind of elbow pads that were made with a rip-stop material that didn't stain from my wheelchair wheels.
2045		Pink with snaps and to the waist
7434		A brown pea coat with two buttons on the left side and the openings on the right. I have a black one exactly like this and love it! I now want brown!
5524		Soft suede or leather, black and fashionable, fits well, easy to put on and take off, not too puffy.
9357	Pants- waist, comments	It's not perfectly fitten when I loose weight of course but I just use a belt.
5043		My waist is bigger than my legs are long.
1688		Appropriate if elastic, however; well fitting, stylish jeans with an elastic waist are non-existent!
8187		But they are elastic and it is not trendy. I can't find cute pants because I have a colostomy bag.
8260		Have to buy pants with adjustable elastic waistband inside.
2045		I can only wear stretch pants and most stores have the prices too expensive.
5524		Too small and too low in the rise.
9357	Pants- inseam, comments	If they are long it covers my brace but I can trip

2721		Always have to hem up at least a few if not several inches. With the flared leg or "bell-bottom" style, this doesn't work. Have to buy pant in women's petite
6158		you are missing the point with al of these questions!!! None of this is pertinent to teens and dressing.
8187		Sometimes they are short.
9357	Pants- leg width, comment	I don't like skinny pants or jeans
2212		skinny-leg pants difficult to take on and off
1882		I have a prosthetic leg so I can't bend my ankle which makes it very hard to put on and take off tight pants.
7434		I think one thing to consider for people who use walkers is that we would like to be able to wear dress pants/jeans and like the wide leg look but they can be easily tripped over if too long. I get mine hemed just a bit on the bottom.
9357	Pants- fastener, comments	zippers are easy
2212		buttons and zippers difficult
1688		Have not been able to find ANY pants in teen departments that have elastic waists, therefore, we can't buy them or have to have the wait completely remade -- very expensive!
0150		again due to the limited arm/hand movement
9185		I need elastic waist and there are no cute pants like that
8260		I have all my parents altered. All buttons taken off and velcro put on instead.
2045		I don't use any fasteners.
9357	Describe pants you bought and didn't like	n/a I try everything on first
2212		way too wide at the waist; they sag like gangsta guys'
5043		Jeans with buttons and no elastic waist.
4560		typical denim
4842		All jeans are too long and the buttons are hard to

		do.
1882		Skinny jeans are hard for me because they are hard to put on and take off.
6949		jeans
1688		Jeans with regular waistband.
3044		jeans with low riding waist, snap that would not stay closed and zipper that was difficult to use
0150		Typically pants I find are lower rise and too long. Difficult to find pants with a waist line appropriate for my colostomy bag. Also hard to not show my butt when sitting and my shirt rides up.
0643		Jeans seem to be fine, but any other type of pants - khaki's as an example, don't ever seem to fit. Too skinny or tight.
8187		A pair of jeans that did not work with my colostomy bag.
9185		pull on elastic that don't come up to tummy, they slide down and show my tummy and underwear
3288		everything is too long
3458		waist is tight, hips and legs too wide, legs too long, but the color was great so i bought them
1853		There are pants that are big in the wrong places, and they are just hard to get up with the small inseam, even though one is always sitting.
8900		1) the waist line was too low, leaving the lower back open; 2) zipper was too short making it hard to put on; 3) the width across hips was too small
7434		A pair of dress jeans that were wide leg and too long, going underneath the heel area without shoes on. I tripped on them and the hems got ruined from being drug on the ground.
5524		The rise was too low.
2212	What would you change about these pants?	make them fit better!
5043		Get rid of the buttons and add the elastic. Made of some really durable cloth or fabric.
4560		velcro closures, pull on
4842		shorter legs and simpler buttons
1882		I would make the leg width wider.

6949		flexibility
1688		need either complete elastic waistband for pull-on ability or partial elastic wait with velcro fastener for easier on and off
3044		raise the waist line, easier fastener, and wider legs
0150		Finding a good waist size and something that covers me well. I don't always notice when I need to pull up my pants and they ride down when I sit in a chair.
0643		Make them fit better. Don't use a Twiggy approach for sizing.
8187		??
9185		make a taller waist
3458		make them fit better
1853		I would just make the inseam longer.
8900		elivate waist line; put a longer zipper; loosen hip line
7434		Make wide leg styles a bit shorter.
5524		More stretchy around the waist, but still looking like jeans.
2212	Are the changes you made related to your disability?	sort of
5043		Yep.
4560		yes
4842		yes
1882		Yes. I have a prosthetic leg.
6949		yES
1688		Yes
3044		somewhat
0150		A style that keeps in mind my colostomy bag
0643		Yes and no. My daughter is overweight which is contributed to her low physical functioning ability.
8187		Yes,
1853		Yes, having to sit all day.
8900		no, just to my size: the pants had appropriate leg length and width but were designed for teenagers with inderdeveloped shapes, while I have, though petite, but female shapes
7434		Yes.

5524		Yes.
2721	Describe your dream pants	stretchy material that doesn't require fastening at the waist, long legs, slight flare at the base, tightly fitted around the thighs
5043		Elastic waist, not buttons or zippers. Waist size adjustable somehow and be made of some jean like fabric.
4560		soft, wrinkle free, colors, pull on (that stay up) waist/hip/length fit, machine wash/dry
4842		fashionable jeans with shorter legs and easy to do buttons
1882		I like bootcut jeans, especially if they are stretchy because they are fashionable but are also more comfortable than skinny jeans or straight leg jeans.
6949		comfy
1688		Cool, stylish jeans that can be pulled on (never tuck shirts in) See 9
3044		jeans with wider waist, higher waist, shorter inseam, with some stretch to allow for movement and easier fastener
0150		Something that is high waisted enough that would go over my colostomy bag but yet would not constrict the expansion of the bag
0643		Stylish, fit, color choices
8187		cute like the other girls wear with a little more room around the waist. When I buy bigger waist pants then the legs are huge and it looks goofy
9185		elastice waist jeans with a good cut, not old lady jeans
1853		Small waist, longer inseam, and smaller leg width.
8900		fabric: soft jean (regular jeans are too difficult to wear) fasteners: no buttons or zippers, substitute with velcro and maybe a hook waist line: high enough to cover kidneys
7434		Jeans or dress pants with easy buttons, long enough to cover the ankle area but not too long.
5524		See above.
5043	If you do not wear	I sit in a wheelchair and A) it gets caught in my



	skirts, please explain	wheels and B) guys can see up.
1688		Because of fit issues. Have "swayed back" and skirts won't stay up in front. If worn for special occasions, have to pin the front of skirt to top.
8187		just don't like them
3458		too much chance of embarrassment if i fall
1853		Insecurity problems with my skinny legs.
8900		don't want to reveal my legs because of my disability
2337		My legs get too cold.
2045		Because they are not comfortable
1688	Skirts- in the waist, comments	If no elastic
9185		I have a bigger tummy than most teen agers
1688	Skirts- length, comments	Always hem up all pants and any skirts due to shorter leg length with Down syndrome
8260		I have to buy a smaller size to fit my waist and then the skirt ends up being too short.
2212	Skirts- fasteners, comments	skirts without fasteners are better
6949		use elastic
1688		unless elastic or pull on
9185		I only wear elastic waist
8260		Need to have them altered if they come with buttons.
7434		It depends on the brand but some skirt closures are easy to use while some stick or are impossible to close.
9357	Describe a skirt you bought and didn't like	n/a
2212		too short
4560		fasteners too hard, too narrow, too long
1882		I don't like jean mini skirts that are tight.
6949		belted
1688		Denim skirt with traditional button front
3044		one with side zipper. had to get larger size to fit which made it too long and then could not work the

		zipper
0643		none
7434		One with too many buttons, really frustrating to get on and off. If a piece of clothing is a hassle, I won't wear it.
2212	What would you change about this skirt?	make it longer
4560		velcro or pull on (that would stay up) shorten wider in tummy
1882		I would make it a little longer and looser.
6949		bigger waist
1688		change to full or partial elastic or adjustable waist
3044		shorter, move zipper to back or front or put elastic in waist
7434		I know buttons are a design but limit the number at the waist or figure out a different way to close it.
2212	Are the changes you suggested related to your disability?	no
4560		yes
1882		No.
6949		yes
1668		Yes
3044		somewhat
7434		Yes.
9357	Describe your dream skirt	don't know
2212		just covering the knees when sitting down, elastic material, nice design, "skorts" so that there are shorts underneath
4560		pull on, soft fabric, colors, length/waist/width fit, machine wash/dry
1882		I like skirts that are loose and made out of flowy fabrics.
1688		Elastic waist, a bit longer in the back or a creative way to keep it from falling down in the front due to sway back

3044		appropriate style, length, with elastic waist
9185		pull on skirt with elastic waist in cute prints
8260		It would come as a skirt or with built in leggings
7434		One with a zipper and toggle closure system, where the end goes into the slot. They are easy to use and stay in place.
5043	If you do not wear dresses, please explain why.	Same as skirts.
6949		bathroom issues
1688		Will buy one on occasion but they seldom fit
0150		don't want to
8187		My mom says I'm not lady like enough to wear them. Plus it is too hard to do my colostomy bag cares with a dress unless I take it all the way off.
3288		interfeers with feeding tube
3458		same reason as skirts - embarrassing if i fall
1853		It is just too hard with skinny shoulders.
8900		same as for skirts: don't want to reveal my legs because of my disability
2337		My legs get too cold.
2045		They are not comfortable either
9357	Dresses- waist, comments	It's hard when you have curves
9357	Dresses- length, comments	I can trip
7434		It depends on the dress style but ones that are too long make a hazard for walker wheels.
1688	Dresses- width. comments	typically too narrow in the waist
9357	Dresses- neckline, comments	love deep neck lines
4560		sometimes too large also
9185		too low
2212	Dresses sleeve length, comments	can't even find a nice sleeved dress--all the nice ones are strapless
9357	Dresses fasteners, comments	I get help with the backings of my dress

3044		could be but not always
9185		hook and eyes are hard to fasten
8260		Easy if it comes with a zipper, hard if it has buttons.
7434		Again, it depends on the dress but I really like ones that have a wrap around band that can be tied in the front or a zipper on the side as opposed to in the back.
9357	Describe a dress you bought and didn't like	One that was too long and no neck line
2212		waistline way too high--i dislike empire waistlines too much fabric, dragged when i sat in my wheelchair
4560		too tight waist/width/shoulder, sleeves/length too long
4842		Almost all dresses that have sleeves, have sleeves that are too long
1882		I do not like tight dresses or dresses that are tight around my hips.
1688		Too narrow in the waist and ill-fitting due to sway back
3044		party dress to get it big enough in waist area had to get larger size with everything else too big and long
7434		I bought one with a zipper in the back and it drove me nuts that in order to wear it I had to have someone else zip it for me.
9357	What would you change about this dress?	a deeper neckline and to the knee
2212		make the waistline much lower, shorten the fabric
4560		waist/width/shoulder fit, shorten length & sleeves
1882		I would make the dress looser, especially around the hips.
1688		wider waist that allows for alterations if necessary
3044		larger waist area for shorter girls
7434		Put the zipper on the side.
9357	Are the changes you suggested	Yes the length

	related to your disability?	
2212		yes
4560		yes
1882		No.
1668		yes
3044		somewhat
7434		Yes.
9357	Describe your dream dress	To the knee,black,deep neckline and fitted shoulders to my body type
2212		very tightly fitted, with some flare at the skirt, low but not too low neckline, low waistline, wide straps or sleeves, lace and bead decorations
4560		sparkly, "fuzzy", color, shoulder/neck/sleeve/length fit, machine wash/dry
1882		I like flowy dresses with high waists.
1688		empire waist or flared from just under the bust works best
3044		stylish but right length and fit in bust, waist, arms and easy to get on and off
9185		empire waist dresses look good on my, they don't hug my tummy
7434		Medium length, zipper on the side with arm holes that are appropriate, not too tight or loose.
3044	If you do not wear shirts, please explain why.	the button front type do not fit right
6158		necks are to ocut out ...missing the mark on all of these questions
9357	Shirts- neckline, comments	tshirts to small low cut shirts great
2212		difficult to fit over head
5043		It's too low for my comfort these days.
8187		Once I find a shirt that fits long enough over my colostomy bag then it does not fit in the shoulders. It falls off my shoulders and shows my bra strap. Yuck

9185		sometimes too low
3458		so mostly i weat v necks
8260		Because I am sitting in a wheelchair and people are standing above me, I have to be careful that the neckline isn't too big to be revealing. Even cami tops can drop too low!
2045		My shirts always fal to one side or the other. Because of my shoulders being two different sizes.
9357	Shirts- waistlength, comments	I like the lengeth longer
6949		sitting in wheelchair
8187		The styles now are very short and trendy
9357	Shirts- sleeve length, comments	If a long sleeve generally to long if a short sleeve its fine
2212		if it's a t-shirt, it's not too short, but long-sleeved shirts are almost always too short
1688		Can never buy sleeves with cuffs as they are more difficult and expensive to alter. Only buy easily hemmed sleeves which can often rule out those with pretty finishes (ruffles, embelishments)
3458		the sleeves need to be longer bc of the crutches
3458	Shirts- armhole, comments	for easy mobility and fabric that can hold up
1688	Shirts- shoulder, comments	If they fit in waist/length, usually too loose in shoulders. Sometimes add small shoulder pads to take up space.
8187		Falls off of my shoulders
2212	Shirts- fasteners, comments	there are none on mine
6949		no buttons
1688		Have difficulty with all buttons and hard to connect snaps though snaps are easier to pull apart for undressing
0150		I don't really have shirts that have fasteners because they are difficult for me to use
2045		I leave the button wholes buttoned and I just slip it on.

7434		I think it would be nice in dress wear if button down shirts didn't have so many buttons for people who can use them. Although, the style now is to wear them nuot buttoned all the way so this can be solved.
9357	Describe a shirt you bought and didn't like	n/a
2212		none
5043		Anything from the girl and young women section as tthey show way too much.
4560		neck/shoulder/sleeve/length not fit, fasteners
4842		I have a babydoll type shirts, which are good because they fit my tummy. However, they usually have low necklines and I can't cover my cleavage.
1882		I don't like very dressy shirts that have uniquely designed necklines or sleeves.
6949		button down
1688		buttons, sleeves with cuffs too short, waist too slim
0150		They are typically too short and too tight around my waist, yet do not fit well around my top (shoulders)
8197		a cute trendy t-shirt that was marked large but when I tried it on it was really tight and it showed my bag.
1853		Too big neckline.
8900		had too many buttons; constrains movements: raise your arm and it pulls all your shirt up
2045		Aplain one.
7434		Full length dress shirt that had short sleeves and several buttons fell off.
2212	What would you change about this shirt?	n/a
5043		A higher neckline.
4560		add snaps, shorten sleeves, wider waist/shoulder/neck
4842		higher neckline
1882		I would make it a v-neck or scoop-neck t-shirt with classic sleeves.

6949		make pull over
1688		all of the above in 10
0150		Something with an empire waist would work better. Tighter on the top half and more flowing around my waist area. It would have to be a longer shirt so that my colostomy bag does not show.
1853		Give the neck a collar.
8900		make something so it's easier to button the very top button; or instead of regular buttons put snap buttons
2045		put some color in it.
7434		Either make it a 3/4 sleeve or make it long enough to come down to the wrist. If shirts are too long they can interfere with holding on to walker handles or weels of a wheelchair.
2212	Are the changes you suggested related to your disability?	n/a
5043		No. Modesty issues.
4560		yes
4842		yes
1882		No.
6949		yes
1688		yes
0150		Again, more flowing in the waist area--no fasteners due to my limited movement on my right side
8187		yes, and no. Not all girls like to wear skin tight shirts...I do not like spandex and that's what most of the teen girls wear
1853		Yes, a very skinny neck.
8900		yes, I have poor mobility in my fingers
2045		No!
7434		Yes.
9357	Describe your dream shirt	dunno
2212		very tightly fitted, long so that it covers the upper part of the pants, v-neck, short sleeves, nice graphic
5043		See 11



4560		snaps/velcro/pull on, colors, neck/shoulder/sleeve waist fit, wrinkle free, machine wash/dry
4842		a shirt that flares well over the tummy and has a higher neckline to cover cleavage.
1882		I like simple graphic tees that have a higher neckline and are fitted.
6949		comfy
1688		Easy snaps or velcro fasteners, latest styles, shorter sleeves, roomier waist though taylored so looks nice.
0150		Tighter on the top, longer (past my butt) and flowing on the bottom and no fasteners
0643		Nice cut to be slimming, easy to button or snap, nice fabric and color choices
8187		Fits nice in the shoulder area and is cute that is actually long enough to cover my bag.
9185		empire wasit shirt, pull over that isn't too low on the bust
1853		Pretty and fitted just right.
8900		no buttons long sleeved soft fabric
8260		A shirt with a built in cami underneath that is NOT a scoop neck but a straight line across so as to not be revealing
2045		Rainbow colors everywhere.
7434		One that fits correctly without a zillion buttons.

APPENDIX D  
LIST OF CONTACTS

## ORGANIZATION

- 1 Camp Christian Berets
- 2 Camp Paivika
- 3 Camp Ronald McDonald at Eagle lake
- 4 Challenge Aspen
- 5 Colorado Lions Camp
- 6 Camp Harkness
- 7 Camp Hemlocks
- 8 Camp Fairlee Manor
- 9 Camp Lenape
- 10 Camp Challenge
- 11 Camp Callahan
- 12 CP Ranch
- 13 Camp KYSOC
- 14 Camp Friendship
- 15 Camp CaPella
- 16 Camp No Limits
- 17 Handi Kids
- 18 Camp Fishtales
- 19 The Fowler Center
- 20 Camp Friendship
- 21 Courage Camps
- 22 Wonderland Camp
- 23 Charles Campbell Childrens Camp
- 24 Camp Allen
- 25 Camp Oakhurst
- 26 Achievement Centers for Children
- 27 Echoing Hills Village (Ohio)
- 28 Recreation Unlimited
- 29 Rotary Camp for Children with Special Needs
- 30 Camp Victory
- 31 Camp Burnt Gin
- 32 Camp Optimism
- 33 Ron Storing
- 34 Rob Hoffman
- 35 The Friendship Center
- 36 Adolescent Health Transition Project
- 37 Center of Human Development and Disability
- 38 Craig Hospital
- 39 Do it
- 40 Amputee Coalition of America

41	Anne Carlson Center
42	Camp Dream Street
43	Nevada Pep
44	Resources for Children with Special Needs
45	Shepherd Center
46	Henry Viscardi School
47	Disability Advocates of Kent County
48	Oak Hill School
49	Rock Terrace School
50	Teens Taking Flight
51	Tacoma Parent Training Center
52	The Arc of Tennessee
53	Center for Independent Living
54	Alpha One Powering Independent Living
55	Metropolitan Center for Independent Living
56	Topeka Independent Living Resource Center Inc.
57	Independent Living Center TALENTS program
58	Lakeshore Disability Network
59	Ocean State Center for Independent Living
60	Independent Living Center of the Hudson Valley
61	Central Iowa Center for Independent Living
62	Endeppence Center Inc.
63	Ask Resource
64	Pacer Center
65	Youth Empowerment Academy
66	Y.O. Disabled and Proud
67	The Empowered FeFes
68	Central Florida Parent Center
69	About Special Kids
70	Oregon Association of Centers for Independent Living
71	Partners for Youth with Disabilities
72	Bridges4kids.org
73	Jack Stokes