HANDICAPPER CLOTHING AND SHOPPING PROBLEMS: SELECTION, RETAILER AWARENESS, AND STORE ACCESSIBILITY

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ABSTRACT

HANDICAPPER CLOTHING AND SHOPPING PROBLEMS:
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The objective of this study was to determine the nature and degree of handicapper clothing acquisition and shopping problems and to ascertain retailers' knowledge of those difficulties. Retailers and handicappers were queried and their responses were compared. Individual stores were also surveyed and rated for accessibility.

The responses of retailers were significantly different from those of handicappers. Store personnel thought that the clothing and accessibility problems were more severe than they actually are. The retailers were, therefore, unaware of the real difficulties that handicappers encounter.

Handicappers experienced numerous accessibility problems when shopping for apparel. Accessibility problems were evident in all of the stores surveyed, which included men's, women's, specialty, department, and discount stores. Parking facilities, pathways to stores, store furnishings, and customer conveniences were problematic. Most of the stores surveyed were fairly inaccessible to handicappers. Only eight of the 28 stores reflected efforts to increase accessibility. Store accessibility, rather than clothing use and acquisition, was determined to be the major problem facing handicappers.

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INTRODUCTION

There are more than 36 million handicappers in the United States (Bowe, 1978), over 260 thousand of whom live in Michigan (Bureau of Rehabilitation, 1978). Because of deinstitutionalization, barrier-free architecture, and increased access to education and transportation, handicappers have become active participants in all phases of community life.

With the handicapper's increased visibility and mobility, there is a need for clothing that will facilitate his/her lifestyle. Garments that allow greater independence, mobility, and safety, while enhancing the wearer's appearance, are necessary. However, handicappers often find it difficult to secure suitable garments and have numerous accessibility problems when shopping (Bruck, 1978; Ewald, 1975; Macarthy, 1973; Reich, 1979).

The purpose of this investigation is to analyze the clothing selection and store accessibility problems that handicappers encounter. This information will be used in the development of an extension-funded, community education program for handicappers and retailers. It is essential that both groups become aware of the problems involved if shopping facilities and clothing selection are to improve for handicappers.

Over the past twenty years, a body of research known as diffusion theory has emerged and has been applied to marketing (King, 1976).

It is possible to apply this theory in creating an awareness of handicapper clothing and shopping problems.

The four crucial elements in the analysis of the diffusion of innovations are 1) the innovation (an idea perceived as new by the individual), its communication from one individual to another, 3) within a social system 4) over time (King, 1976; Rogers, 1962; Rogers and Shoemaker, 1971). In the diffusion process, a new idea spreads from its source of invention or creation to its ultimate users or adopters.

The innovation-decision/adoption process, on a personal level, is the mental process through which an individual passes from first hearing about an innovation to its final acceptance or rejection. According to Rogers and Shoemaker (1971), the four stages of the innovation-decision process are knowledge, persuasion, decision, and confirmation.

In the knowledge function of this process, the individual is exposed to the innovation's existence and gains some understanding of how it functions. After being exposed, he evaluates the importance or relevance of the stimulus and becomes sensitive to it (Zaltman et al., 1972). The individual may have an interest in an innovation because an existing need is satisfied by it; or a need may develop or become apparent when he learns that the innovation exists. Retailers' knowledge and awareness of the handicapper's clothing and shopping problems and of his potential market value should be documented in order to begin the process and change the situation.

At the persuasion stage of the innovation-decision process, the individual becomes more psychologically involved with the innovation and actively seeks information about it. A favorable or unfavorable attitude is formed toward the innovation (Rogers and Shoemaker, 1971).

According to Spicer (1952), people resist proposed changes that they do not understand. This stage, therefore, is the crucial point at which knowledge should be provided, enabling the individual to judge the idea's utility in terms of his own situation. He also seeks reinforcement and assurance from peers. This study will provide the knowledge that retailers and handicappers need in order to determine the reasons behind clothing and accessibility problems.

Contribution to the stages of knowledge and persuasion should aid in the latter stages of the process. As the individual engages in activities which lead to a choice to either adopt or reject the innovation, the decision function of the innovation process begins. The innovation is usually tried on a probationary basis to determine its utility in the individual's situation. A small-scale trial is often part of the decision to adopt; it is also an important means of decreasing the perceived risk of the innovation for the adopter. Usually, innovations that can be divided for trial use are adopted more rapidly than those that must be adopted in total (Rogers and Shoemaker, 1971).

The innovation-decision process concludes with the confirmation function, in which the invididual seeks reinforcement for the innovation decision that he has made. However, he may reverse his previous decision if he is exposed to conflicting messages about the innovation (Rogers and Shoemaker, 1971). Zaltman also identifies the stage of resolution in which the individual resolves the inconsistencies between his attitude and the decision and, as a result, changes his profile.

This research will provide not only information about the clothing selection and store accessibility problems of handicappers; it is also

concerned with retailers's awareness or knowledge of these problems and their attitudes toward serving handicapper consumers. The problems of both groups can then be considered, and an educational program that will benefit everyone concerned can be developed. As a result, an innovation-decision process involving handicapper clothing and accessibility needs will be set in motion in the minds of handicappers and retailers.

Changes in the individual attitudes and/or awareness of handicappers and retailers will result in the diffusion of new ideas throughout their respective social systems. This will lead to increased interaction between both groups and to the trial and adoption of many modifications that will benefit handicapper shoppers and eventually increase retailers' profits.

Objectives of the Study

The overall goal of this research was to provide extension with the information to develop an educational program for handicappers and retailers. Toward this end, the objectives were 1) to determine retailers' awareness and knowledge of handicapper clothing and accessibility needs, and 2) to determine the nature and severity of the clothing acquisition and accessibility problems encountered by handicappers. Secondary objectives were to examine handicapper shopping practices and to determine the extent of retailers' preparation to serve and experience with handicapper consumers.

Limitations

In an effort to query people who have the most control over their own wardrobes, only adult handicappers, aged eighteen and over, were

sampled. People whose only handicapper characteristics were aural, visual, mental, emotional, or speech-related were not included in the population in order to concentrate primarily on other areas of the body.

Only handicappers served by agencies were sampled, as there was no other effective means of locating this population. Because the handicapper sample was located through key agencies, only agencies that could distinguish between handicapper and non-handicapper membership could be sampled.

Definition of Terms

Physical characteristic: Any physiologically or anatomically modifying condition that involves the following:

- basic, fundamental movements (resistance to movement, limited range of motion, etc.)
- single, small motor movements
- complex, small motor movements
- perceptual abilities (sensory loss, limited body awareness, etc.)
- body form divergence (kyphosis, lordosis, scoliosis)
- special conditions of movement (use of wheelchair, crutches, etc.)
- the use of other prosthetic or orthotic devices (Yep, 1976).

Handicapper: One who experiences any of the above physical characteristics (Gentile and Taylor, 1976).

Clothing retailer: Anyone who assists customers with purchases.

Store accessibility: The degree of ease with which a handicapper customer may approach, enter and utilize the services of establishment,

according to ANSI (American National Standards Institute) standards, state codes, and the personal experience of handicappers.

REVIEW OF LITERATURE

Introduction

Clothing is one of the most powerful forms of non-verbal communication. It reflects personality as well as body image, which encompasses self perception and personal aspirations. These factors affect the clothing that is selected and that becomes part of the body image (Newton, 1976). Because of their physical characteristics, handicappers have difficulty in obtaining clothing that accurately conveys their body images and enhances self-esteem. Attractive clothing aids in the development of a higher self concept by giving the handicapper confidence in his appearance (Ahrbeck and Friend, 1976).

Handicappers encounter several obstacles in obtaining appealing, functional apparel. Because their characteristics modify their physical abilities and bodily functions, clothing must be utilitarian and easy to manipulate, allowing optimal independence. The use of orthotic and prosthetic aids greatly influences garment style, construction, and fabric selection. Assistive devices place stress on clothing and modify the body's size, shape, and posture. An understanding of handicapper clothing concerns is necessary in determining the direction of efforts to improve selection.

Handicapper shopping habits and preferred methods of clothing acquisition may be affected by store accessibility and by the kind of service that they receive. In order to accurately survey and evaluate stores for shopping ease, it is necessary to understand the factors that influence

accessibility. Retailers' attitudes toward handicappers and knowledge of their needs should be considered as well.

Though there are few studies concerning the shopping practices of handicappers, much research has been done on the elderly. These studies have been included in the review of literature. During the aging process, individuals acquire numerous handicapper characteristics and begin to rely on assistive devices (Atchley, 1972; Hoffman, 1979; Tate and Glisson, 1961). For this reason, they encounter many of the same difficulties with clothing selection and store accessibility that handicappers experience.

Clothing Concerns

According to research, handicappers tend to experience considerable difficulty in obtaining attractive clothing that satisfies their physical needs. Limited large-scale movement, resistance to movement, and limited range of motion affect overall clothing style, the placement of openings, and fabric choice. The proper selection of fasteners is crucial to the dressing ease of people with modified small and complex motor movement (Hoffman, 1979).

When perceptual abilities are altered, safety becomes an important concern. Easily removed garments are essential for people with slower reaction time. Clothing that does not impede motion is also necessary. Those who experience sensory loss or limited body awareness require flame retardant fabrics, garments that provide warmth, and clothing that is not bulky (Yep, 1976).

Those whose strength and endurance are limited require lightweight clothing. Apparel should be styled for ease in dressing, being adaptable to different dressing procedures and having easily manipulated fasteners.

For incontinent persons, garments should provide protection, be easily removable, and be washable. Those who drool have similar needs (Yep, 1976).

The use of orthotic and prosthetic aids brings about numerous clothing problems. They effect changes in body shape, posture, and movement. As a result, garment fit and comfort are altered and clothing abrasion increases (Scott, 1959; Yep, 1976). Body form divergence, for which a brace or corset may be required, also modifies body shape, making clothing alterations necessary.

Appearance

The use of assistive devices causes body shape and posture to become altered, and clothing may appear ill-fitting. Wheelchair users experience difficulty because the seated figure is longer in back and shorter in front. As a result, folds of excess fabric form across the lap, and garments pull down in back. Clothing also rides up, due to the body's increased length in the seated position, and appears to be too short. Necklines may gap because of the body's forward posture (Bowar, 1978; Hoffman, 1979; Yep, 1976).

Crutch users encounter the opposite problem. As they walk, waistline seams ride up and separates gap and pull apart. Because the body is in a forward posture, there is usually insufficient back fullness, and garments tend to hike up (Rice, 1971).

When braces and artificial limbs were worn, the female subjects in Rice's study (1971) found that their garments became too snug and provided too little ease in the hip area. Snug clothing revealed the assistive devices worn underneath it as well as distorting the shape of the body. Orthopaedic footwear, which was necessary with braces and

artificial limbs, was considered unattractive and unsuitable with dressier garments. In Ewald's study (1975), the male subjects reported many of the same problems. People with spinal curvatures, who also wear braces, find that alterations are necessary for a satisfactory fit. Their clothing tends to wrinkle and does not camouflage variations in body shape (Newton, 1973).

Several mail order businesses sell clothing designed to meet the needs of handicappers. However, many people fail to use these clothing sources; garments often lack aesthetic appeal and have an institutional look. In some cases, costs are also prohibitively high. Alterations may still be needed for mail-ordered apparel as well (Ahrbeck and Friend, 1976).

Durability

Clothing durability is an important concern for many handicappers, especially those using orthoses and prostheses. Wear from these devices is the greatest problem. The men in Ewald's study (1975) reported that artificial limbs caused excessive abrasion and wear. They were also dissatisfied with the durability of garment construction. In Rice's study (1971), women with artificial limbs said that holes developed in the seats of their clothing. The joints of wooden limbs emitted rust and grease, making frequent laundering necessary. Their garments also stretched out of shape faster. Women who wore braces found that the metal joints caused small holes, snags, and pills to form in garments. Abrasion from the screws on braces caused hems to snag and rip out during walking (Rice, 1971). Scott (1959) found that handicapper homemakers who used crutches had strain and wear in the underarm, sleeve, and back bodice areas; this was caused by the tension placed on clothing when the

women stood or sat, and by the enlarged arm muscles that develop as the result of prolonged use of crutches.

In cases of limited bodily movement, the strain placed on garments during the processes of dressing and undressing causes them to wear out more rapidly. Frequent launderings due to incontinence and accidents with food also shorten the life of apparel (Newton, 1973). During daily activities, many handicappers, especially those who use mobility devices, must stretch when reaching for items; as a result, clothing rips out from the excessive strain placed on it (Hoffman, 1979).

Comfort

Clothing comfort depends on several factors. For people with limited strength and who move about with difficulty, heavy clothing can be an impediment (Hoffman, 1979). Fabrics should not be restrictive and inhibit comfortable movement (Macarthy, 1973). As well as the fabric, the clothing itself must allow freedom of movement; tight, binding garments affect circulation and cause discomfort (Newton, 1973). When there is decreased bodily movement and circulation, clothing should provide adequate warmth. However, bulk should be avoided because of the possible development of pressure sores (Kernaleguen, 1979; Macarthy, 1973).

Because of the greater effort that some handicappers exert when moving about, they perspire more freely. There is a need for fabrics that will absorb perspiration and allow it to evaporate. In addition, people who perspire heavily have expressed a preference for design features, such as kimono sleeves, that do not allow fabric to cling to moist skin (Macarthy, 1973; Scott, 1959).

Many handicappers and elderly people spend much of their time sitting, so their clothing must be comfortable in both sitting and in standing positions. Garments must be loose enough to avoid tightness and strain

in the abdominal and hip areas when the wearer is seated and so that skirts and pants do not ride up uncomfortably. High collars, which are binding around the necks of seated persons, should be avoided (Hoffman, 1979). For crutch users, clothing with extra ease for movement is more comfortable; underarm padding helps to alleviate pressure on the skin (Hoffman, 1979; Yep, 1974).

Dressing Ease

Dressing is often difficult for individuals with limited eye-hand coordination and balance, muscular weakness, contracture of joints, spastic muscles, and limited range of motion (Newton, 1976). Clothing with openings that are small or difficult to reach and that is made of inflexible fabrics makes dressing and undressing troublesome and time consuming. The presence of many or closely placed fasteners complicates the process (Bowar, 1977; Macarthy, 1973).

Appliances, such as braces, crutches, and wheelchairs, also cause problems in dressing. Tight clothing, with narrow sleeves, cuffs, or pant legs, is difficult to pull over braces and other devices. Knit fabrics catch and snag on orthoses and prostheses. Because they have limited balance, wheelchair and crutch users require garments with large or complete openings that allow them to dress in seated or lying positions. Conventional garments with small openings are especially inconvenient for them (Hoffman, 1979; Macarthy, 1973).

Fasteners

The manipulation of fasteners is one of the greatest difficulties that many handicappers face. Muscular weakness, limited small and complex motor movement and modified eye-hand coordination, are the main

factors that effect the ability to manipulate fasteners (Hoffman, 1979; Newton, 1973). Small buttons, snaps, hooks and eyes, and prong buckles are some of the most difficult fasteners to handle; they require a firm grasp, finger dexterity, and good eye-hand coordination. Zippers are often difficult to hold in position, and their tabs are difficult for some people to grasp (Bowar, 1978; Macarthy, 1973). The male subjects in Ewald's study (1975) were particularly dissatisfied with the fasteners usually found on menswear, which included small buttons and hooks.

The problems are magnified when fasteners are slippery or are sewn too close to the garment for easy manipulation. When possible, fasteners should be eliminated from clothing designed for handicappers with the above physical characteristics; the processes of dressing and undressing would be simplified (Bowar, 1978; Hoffman, 1979).

Mobility

Many physical characteristics and assistive devices alter the posture and movement of the body. As a result, clothing that will not restrict the body with modified mobility is necessary. Wheelchair users require extra garment ease in the sleeve, underarm, chest, and back areas; their clothing often tears under the strain of the vigorous activity needed to propel a wheelchair. Reaching for items from a wheelchair also places stress on clothing (Scott, 1959). While apparel with excessive fullness may get caught in the wheels, clothing that is too tight not only restricts movement but makes self transfers difficult (Macarthy, 1973).

When crutches are used, the body assumes a forward-leaning posture; this new position decreases the back fullness of garments and makes ambulation laborious. Crutch users also need additional clothing ease

under the arms and around the upper body. However, extremely full garments should be avoided; they can catch on crutches and footwear, causing falls (Hoffman, 1979; Rice, 1971). Both wheelchair and crutch users should avoid high necklines; they tend to roll up uncomfortably during bodily movement (Scott, 1959).

Because of their bulk, braces and artificial limbs often make garments too snug to allow free movement without placing strain on clothing (Hoffman, 1979). For individuals with limited strength, clothing should not be heavy or cumbersome, making it necessary to exert extra energy when moving about (Scott, 1959). For people who use their hands to aid in bodily movement, such as those who have wheelchairs, crutches, and walkers, suspension systems are especially important. Pockets, caddies, and other means of transporting items make mobility easier and safer (Scott, 1959).

Safety

Physical characteristics and assistive devices intensify the need for safe clothing among handicappers. Because falls are the second leading cause of deaths and injury in the United States, garment features that decrease the possibility of accidents are necessary, especially for people with limited mobility (Hoffman, 1979). Full garments may obstruct the individual's view of the ground and cause falls, particularly when crutches, walkers, canes, and other mobility aids are used. Dangling clothing sections, such as full sleeves, sashes, and tie belts, can catch on furniture or in assistive devices and cause falls; low pockets may get caught on door knobs or other projections and cause the wearer to be thrown down (Hoffman, 1979; Macarthy, 1973). People with limited balance

can trip because of slippery shoe soles and loosely fitting footwear (Macarthy, 1973).

Burns are also a major cause of injury and death (Hoffman, 1979). For people with limited body awareness and slower reaction time, loose, dangling garments are hazardous around sources of fire. The use of flame-retardant fabrics reduces the possibility of serious burns. Clothing that can be removed quickly is mandatory for those who move more slowly (Macarthy, 1973).

Clothing that places pressure on the body should be avoided, especially by individuals with sensory loss. Thick seams, protruding buttons, and bulky trims that are placed in pressure areas, such as under the seat or against the back, may cause the formation of pressure sores. Rough fabrics that can abrade the skin should not be worn by those with sensitive skin or limited body awareness. Clothing that binds the body does not allow normal circulation, and tight elastic around the limbs can cause swelling (Hoffman, 1979; Macarthy, 1973).

Clothing Acquisition

Numerous clothing problems are created because of the variety of physical characteristics and the use of assistive devices among handicappers. Since their needs are so diverse, the mass production of clothing to satisfy all of these requirements is not feasible (Hallenbeck, 1966; Newton, 1976). On a smaller scale, there are mail order businesses from which handicappers can obtain specialized clothing. However, few people take advantage of these sources; many of the garments lack aesthetic appeal, have an institutional look, and are prohibitively expensive (Ahrbeck and Friend, 1976).

The modification of ready-made garments and commercial patterns may be the most feasible method for handicappers to use in obtaining satisfactory garments. Numerous books and pamphlets, some published by cooperative extension services and handicapper organizations, provide information on purchasing and modifying apparel to accommodate physical characteristics (Hotte, 1979; Yep, 1974). However, whether or not handicappers take advantage of this information is questionable. None of the subjects in Ewald's study (1975) were aware of or had used information sources concerning clothing modifications for handicappers. Though some of the respondents had difficulty with fasteners and were aware of pressure tape, none had used it. The majority of subjects wore ready-made garments as they were purchased; few made alterations that were related to their physical characteristics. Selective shopping was the chief method of obtaining suitable clothing.

Because handicappers have become more visible and mobile in recent years, there is a need for information about their current clothing needs. Their increased mobility may have effected changes in the availability and quality of apparel designed to satisfy their physical requirements. Style changes may have also influenced their use of clothing.

Sources of Clothing

The physical characteristics and clothing selection problems of handicapper and elderly shoppers are varied. However, there is little disagreement about preferred shopping facilities. In all of the studies reviewed, department stores were most preferred for clothing purchases (Dodge, 1962; Ewald, 1975; Rankin, 1966; Reich, 1979; Richards, 1971; Shipley, 1961; Sindelair, 1969; Varner, 1967; Walker, 1972). Reasons included the convenience of being able to make all purchases in one location

(Dodge, 1962; Rankin, 1966), the availability of a good selection, and force of habit (Varner, 1967).

Specialty shops, stores selling only clothing, ranked second in popularity in several studies (Rankin, 1966; Reich, 1979; Shipley, 1961; Walker, 1972). The higher income group in Shipley's study (1961) preferred specialty stores more than the lower income group. Some of the subjects in Varner's study (1967) did not prefer these shops because of inconvenience and lack of selection. Burnett (1964), Rankin (1966), Reich (1979), and Walker (1972) found that many handicapper and elderly shoppers frequent both department and specialty stores.

Discount and variety stores were seldom indicated as preferred shopping locations. The male subjects in Ewald's study (1975) were the only group to favor discount stores to some degree. In Varner's study (1967), older women avoided them because of inconvenience and poor selection. However, because discount stores have improved in selection and popular appeal recently, current studies could reveal a change in preference. Several discount chains are remodeling their stores to include smaller fixture, more easily read signage, wider aisles, better traffic patterns, and less congested checkout areas. These modifications reflect an effort to upgrade discount stores to resemble department stores rather than bargain basements ("Discounter Puts on New Face," 1978; "How Discounter Aims for Easily Shopped Stores," 1975).

Though thrift shops were not usually mentioned in studies, they were popular with some groups. Fifty-one percent of the handicappers in Reich's study (1979) sometimes shopped in these stores. In Ewald's study (1975), respondents listed second-hand stores as a third choice, after department and discount stores.

Mail order and phone shopping offer the most convenience to those with limited mobility, but they present numerous problems (Bruck, 1978; "Shopping by Mail Order," 1979). Consequently, most elderly shoppers were opposed to them. The main reasons for their discontent were the inability to see and to try on merchandise before it was purchased (Dodge, 1958; Varner, 1967). Many handicappers, though, considered mail and phone order businesses viable sources of clothing. Fifty-seven percent of the consumers in Reich's study (1979) sometimes ordered garments by mail, as did twenty-five percent of the subjects in Tharp's study (1956). Seventy-six percent of the disabled homemakers in Sindelair's study (1969) wanted garments especially designed for their physical characteristics that could be purchased either by mail order or from department stores. It is possible that because elderly consumers had been accustomed to shopping in stores in their youth, they found it difficult to accept the uncertainty of mail and phone ordering. Handicappers, who have always experienced accessibility problems when shopping in stores, may be more accustomed to this method of acquiring clothing.

Few respondents in any of the studies used dressmakers or tailors as major clothing sources. Home sewing was not an important means of clothing acquisition, either. Many subjects, however, did rely on alterationists and home sewing for garment modifications (Ewald, 1975). With style changes and rising clothing costs, there is a need for more current information about the handicapper's reliance on these sources of clothing and garment modification.

Few researchers have been concerned with the geographic location of stores. Problems with accessibility and transportation may be related to store area. Dodge (1958) found that elderly people preferred central,

downtown-type, shopping districts because of limited mobility and transportation. The older women in Burnett's study (1964) also preferred downtown areas to shopping centers. However, elderly, suburban women preferred malls to the downtown area because of the higher city crime rate (Richards, 1971). These women were not mobility limited, as most drove themselves to shopping malls.

Municipality size may also be related to selection, accessibility, and shopping ease. Almost one-third of the small-town handicappers in Tharp's study (1956) purchased clothing on out-of-town shopping trips. Because local stores had a poor selection, some elderly women travelled to suburban malls to shop for clothing (Richards, 1971). Though research has been conducted on elderly shoppers living in small towns and rural areas, similar studies have not been done with handicappers. More research is needed in order to determine the clothing acquisition problems of this group.

When purchasing clothing, many handicapper and elderly subjects preferred to shop alone. Those wanting or needing advice and assistance with purchases shopped with relatives or friends. Few respondents relied on salesclerks for opinions and assistance (Ewald, 1975; Richards, 1971). Advice was only sought from salespeople whom shoppers knew through long association (Richards, 1971).

Though much work has been done on the shopping habits of the elderly, there is limited information available on handicapper consumers. More research on store type, location, and related clothing selection, accessibility, and transportation problems would make it possible to determine how retailers can serve handicappers better.

Retail Management and Sales Personnel

In all of the studies cited above, handicapper and elderly shoppers seldom depended upon the sales staff for assistance with clothing purchases. More than a third of the handicappers in Reich's study (1979) had difficulty when shopping because of negative attitudes and poor service. Ewald (1975) also found that salespeople were "not willing to take the time to help."[1] Additionally, a small percentage of the elderly women in Richard's study (1971) felt that sales clerks practiced age discrimination. It could be inferred that lack of dependency upon the sales staff for assistance could be a reaction to the negative attitudes of retail personnel toward handicapper and elderly consumers.

However, the lack of adequate service may be more complicated than salespersons' unwillingness to assist handicappers. According to Albrecht (1976), lack of knowledge about handicappers may be the reason.

> Although the public has very positive attitudes towards the physically disabled, these able-bodied people have little concrete knowledge of the specific needs, realistic expectations, and capacities of the physically disabled. In this study (of the attitudes of helpers and non-helpers) attitudes were not good predictors of knowledge or behavior...Attitude change is not needed. Instead, the public needs to be specifically educated about physical disability, capability, and potential. They do not have the necessary information upon which to act.[2]

This conclusion is supported by Bruck (1978). In a nationwide survey of handicappers interested in consumer rights, all of the respondents wished that salespeople had a better understanding of their needs. However, actual studies with retailers are necessary to determine how

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[1]Caroline Marie Ewald, Clothing Needs of Men with a Physical Disability Wearing Braces or Artificial Limbs, Master's Thesis, University of Arizona, 1975, p. 33.

[2]Gary L. Albrecht, Reducing Public Barriers of the Severely Handicapped, Chicago: Northwestern University, 1976, p. 25.

much exposure they have had to handicappers and their knowledge of that group's shopping and purchasing problems.

Retail executives may also require additional information in order to provide handicappers with better service and an appropriate selection of merchandise. Shipley (1961) compared the responses of older women and clothing buyers. There was considerable divergency between what buyers assumed that elderly customers wanted and actual preferences. Eleven years later, Walker (1972) found the same lack of knowledge among buyers. They were equally unaware of older women's preferences in style, color, fabric, and garment type.

Buyers and other retail executives also seemed unconcerned about tapping the elderly market. Two-thirds of the executives in Shipley's (1961) study placed no emphasis on the elderly woman in advertisements; only one-fourth felt that some garments in fashion shows were suitable for older women.

Retailers' lack of knowledge and concern about the needs of the older consumer may be related to the assumption that the elderly have low potential market value. In Dodge's study (1958), retailers did not think that the elderly warranted special attention. They were considered a relatively low income group with little money available for clothing purchases.

Bruck (1976) queried New York City retailers to determine what services they provided for handicapper customers. They had a better opinion of their services and facilities than did the handicapper and elderly subjects in past studies. Most retailers said that their staffs were sensitized to the needs of handicappers during regular training sessions. All staff members were said to be willing to assist shoppers by reaching

and describing merchandise and would accommodate customers through any necessary means. Though a small number of stores assigned assistants to shop with handicappers, most retailers considered this unnecessary; the salespeople were "fully trained to assist at all times."[3]

Many stores also extended special privileges to handicappers with charge accounts. About half of the merchants allowed phone orders on merchandise that ordinarily could not be purchased by phone. Most would also hold sale merchandise for later purchase. Few stores, however, waived regular delivery fees.

When asked whether they would be willing to consult with a handicapper to help improve shopping conditions, few retailers responded affirmatively. One response was negative. Most stores gave no response at all.

Because the sample in Bruck's (1976) study was small and homogeneous, containing only department stores, generalizations from the results are limited. Input from a larger sample containing several store types would provide a broader overview of retailers' attitudes.

Several companies have implemented programs to aid handicapper consumers. Some chain stores and major shopping center developers have voluntarily developed internal guidelines for barrier-free construction. Older malls have increased accessibility by providing curbside handicapper parking, ramps, accessible entrances, and lower phones. Wheelchairs are also available upon request.

In an effort to communicate with customers with aural characteristics, one company has experimentally installed teletype ordering systems

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[3]Lilly Bruck, Consumer Rights for Disabled Citizens, New York: Department of Consumer Affairs, 1976, p. 54.

in some areas. Some malls provide sign language courses for which employees volunteer. Department stores have participated in radio interviews concerning consumer rights and products for handicappers (Rothman, 1979). However, according to current studies, these improvements are exceptional; there is still much to be done to improve conditions.

Recent publicity and legislation, increased accessibility, and greater visibility of handicappers increase the need for research on prevalent attitudes and problems. A simultaneous study of handicappers and retailers would clarify how conditions affecting both groups have changed.

Accessibility

Along with the social deterrants of attitude and understanding, architectural barriers present some of the most formidable obstacles that handicappers must overcome. Albrecht observed that "isolation produces a lack of public awareness of the problems of the disabled and lack of awareness translates into fewer architectural codes designed to produce barrier-free environments."[4]

Though architects consider the maximum physical conditions that a building must withstand, traditionally, they have not taken into account the maximum physical extremes of the people who will use the building (Leonard, 1978). As handicappers continue to make their needs known and legislation supports them, architects will find it necessary to consider human characteristics when designing buildings. Increased accessibility benefits all who use a facility, not only the handicapper (Bowe, 1978; Hollerith, 1978; Leonard, 1979).

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[4]Albrecht, p. 26.

One of the first attempts to aid builders in making facilities more accessible was made in 1961, when the American National Standards Association (now the American National Standards Institute) first published standards for accessibility. However, a 1967 study, conducted by the National Commission on Architectural Barriers, concluded that builders were not complying with the standards (Bowe, 1978).

The Architectural Barriers Act of 1968 (P.L. 90-480) made the ANSI standards legally enforceable for all federally financed, public buildings. The administrator of the General Service Administration was given the responsibility of promulgating the 1961 ANSI standards (Bowe, 1978). Other federal legislation, including the Federal Highway Act of 1973 (P.L. 93-87), enables handicappers with mobility characteristics greater access to pedestrian ways, further increasing accessibility.

State accessibility laws regulate the construction and modification of facilities financed with funds provided by the state or its political subdivisions (P.A. 177, 1975). New legislation also mandates that even privately owned and financed buildings built after July 1974, or for which remodeling costs succeed $10,000, also be made accessible (P.A. 190, 1974). In Michigan, several other laws regulating building accessibility, public way access, and parking facilities are in force (P.A. 1, 1966; P.A. 8, 1973; P.A. 19, 1977; P.A. 88, 1978; and P.A. 132, 1978). The Barrier Free Design Board of Michigan, created by Public Act 190 (1974), has the responsibility of enforcing most of these laws and initiating necessary modifications thereof. Problems with accessibility, though, still exist. Not only are federal and state regulations sometimes bypassed, buildings constructed before the legislation passed and not or only slightly modified since may still be inaccessible (Bowe, 1978).

In order to enhance handicapper mobility, agencies throughout the world now fund and publish accessibility guides to buildings in major metropolitan areas (Howell, 1977). The information provided follows the general format of state and federal laws--the availability of accessible parking facilities, entrances, elevators, restrooms, telephones, drinking fountains, etc. Data is available for a variety of buildings, including food and clothing stores, theaters, and public buildings.

Though traffic flow patterns, fittings, and furnishings greatly affect building accessibility, there is minimal legislation regulating these factors. Information concerning internal accessibility is, therefore, not available in the metropolitan accessibility guidebooks. Yet in retail establishments, the type of equipment used and the arrangement of furnishings can profoundly influence shopping ease.

Many factors are particularly important to store accessibility. Door type can be problematic. Revolving doors, often found in department stores, totally obstruct chair users and are difficult for those with prostheses, slower reaction time, and reduced stamina or agility. Adjacent hinged doors are usually locked or have no exterior opening devices. Hinged and automatic doors are easier for most people to use (Jones, 1978; Wachter, 1976).

If doors in series, which are frequently found in discount stores, are too close together, there is insufficient space for chair users and persons with seeing-eye dogs to pass through one door and to open the second safely. Pedestrians are sometimes hit by doors that swing unexpectedly into the circulation space (Goldenson, 1978; Jones, 1978).

Circulation through the stores is complicated by limited access to different levels. Steps are inaccessible to people in wheelchairs and

are troublesome to handicappers with other mobility characteristics. Improperly designed handrails can also complicate passage for crutch users, and for those with upper limb involvement, amputations, and difficulties with balance (Jones, 1978; Jones and Catlin, 1978). Escalators are accessible only to the able-bodied; they are impassible to chair users and people with other mobility aids; they are also difficult for the elderly and less agile. When properly designed, elevators provide handicappers with safe, reliable passage (Jones, 1978; Wachter, 1976).

Floor finishes affect the mobility of people with several handicapper characteristics. Ground surfaces should be slip-resistant, firm, stable, and without loose edges or irregular joints. For people with lower limb amputations, orthotics, and limited balance or coordination, minor level changes can upset balance and cause falls. Chair users may find it difficult or painful to wheel over uneven surfaces; spasticity may even result (Jones, 1978).

Though carpeting is often used in clothing stores, it causes numerous problems. Great effort is required for wheelchair users to propel themselves across carpeting, especially when it has underlayments or thick pile. Static electricity is also generated while moving across some carpeting. When a person with balance or agility characteristics, who barely lifts his feet while walking, touches a doorknob or other surface, the electric charge can be severe enough to cause him to fall (Jones, 1978).

Aisles should be wide enough to allow the safe passage of wheelchair and crutch users. Additional width is required at the ends of closed aisles, where chair users must make complete turns in order to exit (Jones, 1978).

For many handicappers, the location of merchandise is crucial to shopping ease and safety. Because they usually lack trunk balance, wheelchair users find reaching difficult. Attempting to remove merchandise from extremely high or low shelves and racks can cause unstable persons to fall. Seated persons also have difficulty seeing elevated items and observing sales transactions. Mirrors placed too high above the floor do not enable chair users to see themselves well enough to make purchasing decisions. Similar problems with reach and view are experienced by the small in stature (Jones, 1978; Jones and Catlin, 1978).

Few researchers have investigated the features that contribute to store accessibility. Reich (1979) queried handicappers and found that they encounter obstacles both outside and inside of clothing stores. Outdoor problems experienced by fifty-five percent or more of the respondents included inconvenient parking facilities, curbs, steps, and otherwise inaccessible entrances. Inside the stores, fifty-six percent or more of the respondents had difficulty with turnstiles, aisle spacing, traffic patterns through the store, merchandise location, and fitting room size. Difficulty in operating elevators was experienced by thirty-four percent of the respondents. Other problems included the unavailability of rest areas and inadequate restroom facilities.

Retailers, however, have a more optimistic view of their stores. Bruck (1976) obtained information from several department and chain stores in New York City. Executives at all of the companies surveyed said that their entrances, aisles, and elevators were accessible. In all but one store, retailers considered their fitting rooms large enough to accommodate a wheelchair. However, they felt that fewer than half of the stores had accessible restrooms. Problems with parking facilities were

also indicated for almost all of the businesses. Though the retailers undoubtedly replied in good faith, the accuracy of some of the data is questionable. No guidelines on proper measuring techniques were included with the mailed-out questionnaires. In some instances, actual figures for accessibility criteria were not given; retailers were simply asked whether a fitting room was "accessible" and whether certain furnishings were "within reach." Respondents, therefore, were allowed to be greatly subjective in their observations.

Because past research focuses on opinion rather than measurement, accurate information on interior store accessibility and actual shopping conditions is limited. If retailers believe their stores to be accessible, they will discount opposing claims by handicappers. In the absence of concrete information about the factors contributing to store accessibility, efforts to improve conditions within stores will be misdirected. An accessibility study of actual store and shopping conditions will identify the problems for which solutions must be found.

Summary

Handicappers encounter numerous obstacles in obtaining attractive, functional clothing. Their characteristics modify physical abilities, bodily functions, and appearance; the use of orthotic and prosthetic devices places new demands on clothing and architecture.

In order to enhance self-esteem, handicappers need attractive clothing that is functional and easy to manipulate, allowing them to be independent. Many handicappers, however, have difficulty with available apparel. Because physical characteristics and assistive devices modify body shape and posture, their clothing may be unattractive due to poor fit and the unavailability of stylish clothing designed to meet special

needs. The greater movement that handicappers may exert in completing everyday tasks and the use of assistive devices puts stress on garments, creating a need for increased durability. The frequent launderings necessary because of drooling, incontinence, and soil from assistive devices also decrease the life of apparel.

Clothing comfort is important to all handicapper groups. People with limited strength and endurance require lightweight clothing. Especially where there is limited body awareness, garments should be free of bulky trims and findings, provide adequate warmth, and allow normal circulation.

Dressing and undressing are complicated by the presence of assistive devices and by limited eye-hand coordination, endurance, balance, and range of motion. These processes are inhibited by garments with small, difficult to reach openings and that have awkward, closely-spaced fasteners.

The clothing available to handicappers may decrease freedom of movement. People with orthotic and prosthetic devices require extra garment ease in order to operate mobility devices and to move freely when body supports are worn. Ready-made garments have few action features and may restrict movement. Excessive fullness also impedes mobility.

The presence of some physical characteristics and the use of devices intensifies the need for clothing safety. Loose or dangling garment sections cause falls and are hazardous around sources of fire.

Because of the variety of handicapper clothing requirements, the mass production of specialized adaptive clothing is not considered feasible. Mail order businesses provide some specially designed clothing, but it tends to be expensive and unattractive. The alteration of ready-made garments and commercial patterns may be the most practical method by which handicappers may obtain suitable, specialized clothing.

According to past research, handicapper and elderly shoppers preferred department and specialty stores for clothing purchases. Their reasons included force of habit and the availability of a better selection. Few favored discount stores and mail order businesses. Garments were seldom obtained through dressmakers, tailors, or home sewing.

Mobility-limited shoppers preferred downtown-type shopping areas. However, suburban consumers thought that outlying malls were safer. Because of the poor selection in local stores, some handicapper and elderly shoppers living in small towns purchased clothing on out-of-town shopping trips.

Many elderly consumers preferred to shop alone. Those requiring assistance shopped with relatives or friends. Few handicappers or elderly people relied on salesclerks for advice or assistance.

The subjects in several studies were dissatisfied with the service that they received in stores. Salesclerks lacked either the knowledge or willingness to assist them. However, retailers may simply be unaware of the needs of handicappers and elderly consumers. Retailers could also be unconcerned about these shoppers because of the assumption that their potential market value is low. This attitude may be changing; many stores have begun to extend special privileges to handicapper customers and have begun to train salespeople to assist them more fully.

Recent legislation mandating the accessibility of parking facilities, public ways, and buildings has enhanced the mobility of handicappers. But because few standards apply to store interiors, handicappers still experience difficulty when shopping for clothing. Doors, circulation to different store levels, the arrangement and height of furnishings, fitting rooms, and customer conveniences are still problematic for people with some

physical characteristics and assistive devices. However, retailers may be unaware of the factors contributing to store accessibility; many feel that their stores are easily accessed by handicappers.

Determination of the Study

Though there have been numerous studies concerning the clothing problems of handicappers and elderly persons, many questions remain unanswered. Past researchers have concentrated on small, specialized groups of handicappers. Information concerning the clothing and shopping problems of handicappers with a variety of physical characteristics is necessary in order to determine the needs of the majority.

There are few studies that are recent enough to reflect current clothing requirements. It is necessary to determine what difficulties handicappers encounter today and how they resolve them. Style changes affect the utility of garments and may magnify or diminish problems with appearance, durability, comfort, dressing ease, mobility, and safety. The increased mobility and visibility of handicappers has created a need for clothing that accommodates an active, rather than sedentary, lifestyle. Handicappers' opinions on the appropriateness of clothing that is currently available should be researched before making suggestions that retailers modify their stock to satisfy customers with special needs.

Little research on store accessibility is available. The factors influencing store accessibility should be clarified before modifications can be suggested to retailers. It is also necessary to investigate current store accessibility in order to determine where problems lie and how they can be rectified. In addition, accessibility may affect handicapper shopping practices as well as retailers' exposure to handicappers and awareness of their clothing and shopping concerns.

If retailers are to consider selling merchandise that will satisfy special clothing requirements and to make their stores more accessible, they must be cognizant of the needs of handicapper shoppers. Limited information is available concerning retailers' awareness of handicappers needs. A study that simultaneously compares handicappers' and retailers' perceptions of clothing and accessibility problems would provide the information necessary to develop an educational program for both groups. The hypotheses were developed in an effort to satisfy the above concerns.

Statement of Hypotheses

1. Retailers will not be aware of the clothing needs of handicappers.

2. Retailers will not be aware of the accessibility needs identified by handicappers.

3. In stores identified as more accessible by the accessibility checklist:

   a. Retailers will be more aware of handicapper clothing needs.

   b. Retailers will be more aware of handicapper accessibility problems.

4. Handicappers will say that they experience difficulty in the use of available clothing most of the time.

5. Handicappers will say that they experience difficulty in obtaining suitable, fashionable clothing most of the time.

6. Handicappers who shop alone will frequent stores less often than those who shop with others, thus relying on other sources of clothing acquisition.

METHODOLOGY

Research Design

The purpose of this research was to determine the nature and degree of handicapper clothing acquisition and shopping problems. It was necessary to examine the responses of handicappers and retailers to questions concerning clothing design and store accessibility. Additionally, surveying stores for actual accessibility was imperative to understanding the conditions that confront handicappers as they shop.

In order to test the hypotheses, three instruments were developed: a questionnaire for handicappers, one for retailers, and a clothing store accessibility checklist. The handicapper and retailer questionnaires contained the same questions concerning accessibility and clothing problems; as a result, direct comparisons between the responses of both groups were possible. Analyses of variance were used to compare the responses of handicappers and retailers in order to test hypotheses one and two.

The retail clothing store accessibility checklist was used to rate individual stores; the results also provided an accessibility score for each store, allowing them to be classified as more or less accessible. In order to test hypothesis three, analyses of variance with planned contrast were used to compare the responses of retailers in the more and less accessible stores to items concerning clothing and store accessibility.

The mean responses of handicappers to the clothing concern areas--appearance, durability, comfort, dressing ease, fasteners, mobility, and

safety--were utilized in testing hypothesis four. In testing hypothesis five, the mean response of handicappers to the question concerning the ability to purchase suitable clothing was used. The chi square test was necessary to determine the validity of hypothesis six.

This chapter discusses the population and sample, the development of the instruments used in data collection, and the procedure used in collecting the data.

Establishing the Study

Preliminary to establishing the direction of this research, information was gathered from several sources. The review of literature provided the background for understanding handicapper clothing concerns and general accessibility requirements. However, in order to investigate the current situation, interviews with clothing and barrier-free design specialists and with handicappers were necessary. Personal observations were also instrumental in developing the study.

Information concerning contemporaneous handicapper clothing problems was gathered from design specialists at the Clothing for People with Special Needs Conference, sponsored by the University of Alabama (1979). Handicappers themselves, who were contacted through local handicapper agencies, shared information about their personal clothing needs, shopping problems, and encounters with salespeople.

Because existing accessibility standards have limited application to many of the features found in clothing stores, interviews with accessibility specialists were conducted. Eric Gentile, Deputy Director of Michigan State University's Office of Programs for Handicappers and a member of the Michigan Barrier-Free Design Board, provided information concerning the application of state and federal accessibility codes to

stores and the development of methods of evaluation. Ken Laux, Director of the Access Lansing project, and F. Duncan Case, Associate Professor of Housing and Interiors at Michigan State University, also provided input into the development of the Retail Clothing Store Accessibility Checklist.

The researcher visited several stores on foot and in a wheelchair in an effort to simulate the entire shopping process that handicappers experience. Her activities included attempting to try on and purchase clothing, with the purpose of observing staff attitudes and willingness to assist handicapper shoppers. Conversations with retailers on these and other occasions provided insight into staff awareness of handicapper clothing and accessibility problems.

Sampling Techniques

Handicappers

In order to concentrate on handicappers with physical characteristics that directly influenced clothing selection, people whose primary characteristics were aural, visual, mental, emotional, or speech-related were omitted from the sample. It was assumed that adults were more likely to have control over their own wardrobes than minors; therefore, subjects were required to be eighteen years of age or older.

The key informant approach was used to locate the sample (Yep and Riggs, 1978). Lansing area handicapper agencies, serving people with characteristics other than those listed above, were contacted and asked to participate in the study. Since there are no listings for handicappers other than agency mailing lists, this proved to be the easiest method of identifying a sample.

Preliminary contact was made with a central, handicapper organization. This agency provided a list of other organizations and their contact persons. The project was explained to the contact persons by phone. At that time, a commitment to participate in the study was sought. Ten agencies, serving handicappers with a variety of physical characteristics, agreed to take part (see Appendix C). But because of the confidentiality of their membership, only two agencies would release their mailing lists. The remaining organizations consented to address and send the questionnaires, which were delivered to the agencies ready for mailing, themselves. In most cases, though, the addressed envelopes were returned to the researcher and mailed through the university postal service.

Agency personnel were asked to make an alphabetical list of adult handicappers. Every other person on the list, which included both sexes, was to receive a questionnaire. People with characteristics not under consideration were omitted. For selecting respondents from agencies that had released their mailing lists, the same sampling technique was used. Instructions for selecting the subjects were given to the persons who would carry out the process during the preliminary phone conversation and again when the questionnaires were delivered. Because most agencies had only approximate membership figures, all received extra questionnaires. After following the sampling directions, several agents went through their lists again and sent the surplus questionnaires to people who had not been selected but whom they knew would be interested in the study. Persons from four of the ten agencies admitted to having done so. According to them, this was done in an earnest effort to increase the number of respondents.

There were no subsequent mailings of the handicapper questionnaire. Without having the mailing lists, it was impossible to know which subjects had not responded. It would have been an imposition to request that the agencies do a second mailing, because all of the organizations had small staffs.

Retailers

The sample of retailers contained only personnel from the stores selected for the accessibility study. Within the specified store area, the men's or women's clothing department, supervisors were asked to list the names of all employees who assisted customers with purchases. After the lists were alphabetized, the researcher randomly selected half of the employees. Two alternates were also randomly selected, in case some subjects did not complete the questionnaire. To aid in distribution, the names of the selected employees were written on the questionnaires.

The supervisor of one store refused to supply the names of staff members. Consequently, the researcher asked how many people were employed in that department and made a blank list with the required number of spaces, randomly selecting the numbers on the list. The supervisor then alphabetized the names and placed them on the pre-numbered list; questionnaires were distributed to the employees whose names appeared next to the selected numbers.

Stores

Stores in central city and outlying areas were sampled in an effort to determine whether location affected accessibility. Each of the two groups was to contain eighteen stores: two men's, two women's and two clothing specialty stores, six department stores, and six discount

stores. Differences in the accessibility of various types of stores could also be evaluated.

Stores serving Lansing, Michigan and cities in the surrounding tri-county area, composed of Ingham, Eaton, and Clinton counties, were sampled. Stores within a ten-mile radius of Lansing were included in the population for the central city sample. A list of the outlying cities was obtained from the Tri-County Regional Planning Commission, located in Lansing. Within each county, all cities were alphabetized and randomly selected until the required number of stores was acquired for the outlying area sample.

Though a listing of stores selling clothing was sought from several agencies, the commercial telephone directory proved to be the only reasonably complete source. Stores of each type were randomly selected from the appropriate section: under men's, women's, clothing, and department store listings. Because the Lansing area phone book did not contain a section for discount stores, store names were obtained from Phelon's Discount Stores Directory of Self-Service Department Stores (1977). The stores were then located in the white pages of the phone book, alphabetized, and randomly selected. When the list was completed, men's and women's clothing departments were alternately selected from clothing specialty, department, and discount stores.

Most stores listed in the Lansing telephone directory were within a ten-mile radius of the city. Those that were not were placed in the population of outlying area stores. All of the stores listed in phone books of the other cities selected for the sample were considered part of the outlying store population. Many telephone directories contained stores located outside of the tri-county area. However, regardless of

their location, these stores served the selected cities because of their proximity. Though the entire store sample contained more than one branch of some chain stores, individual stores were listed only once.

Most retailers were extremely cooperative. However, one international discount chain refused to participate in the study. As a result, there were only four discount centers included in the sample. These stores were all branches of the same chain.

Development of the Instruments

Handicapper Questionnaire

Information for the list of handicapper clothing problems was obtained through interviews and the review of literature. This list, containing 144 items, was sent to 24 people for validation. In order to get an accurate account of current clothing problems, the validators included handicapper clothing experts, occupational therapists, rehabilitation professionals, and handicappers employed by agencies serving handicappers. The input of individual handicappers was not sought at this time; a broad view of the clothing problems of many handicappers rather than the personal concerns of a few people was necessary. Respondents were divided into two groups, clothing specialists and professionals in other disciplines. The validators were asked to classify each item either as a valid clothing concern, not as a valid clothing concern, or as a clothing concern of which they were not aware (see Appendix A).

From the validated clothing concerns checklist, another list was compiled. It contained only the items that were selected either by 50 percent or more members of both groups or by at least 50 percent of one group, with some approval by the other group. The research staff then scaled down the remaining items to include clothing concerns encountered

only by handicappers. Some statements were also combined. Containing only 40 clothing problems, the final list was considered to be concise and of reasonable length.

The questions concerning accessibility, following the format of the Retail Clothing Store Accessibility Checklist, were designed to allow each area of the store to be considered separately. Parking facilities, the building approach and entrance, circulation through the store, clothing department furnishings, and fitting rooms all affect accessibility. Having separate responses for each item made it possible to determine which store areas needed modification. Both the lists of clothing concerns and accessibility problems were based on a five point Likert scale, ranging from "always a problem" to "never a problem." This system enabled means to be computed for all items.

Along with demographic data on sex, age, and education, handicappers were asked to respond to questions concerning the onset and nature of their physical characteristics and which prosthetic and orthotic devices they used. This information was useful in determining which characteristics and devices were responsible for various clothing and accessibility requirements. Respondents were not queried about their specific medical conditions, such as cerebral palsy or multiple sclerosis. The physical characteristics or effects of the condition, which are similar in many cases, are more important in determining which clothing and accessibility concerns the individual will experience (Hallenbeck, 1966; Hollerith, 1976; Yep, 1976). Questions concerning assistance with dressing and shopping, preferred stores and shopping locations, transportation, and geographic area provided insight into general handicapper shopping practices.

An explanation of the study and its purpose appeared on the front page of the questionnaire, which was arranged as an eight-page booklet. Because some of the agencies that assisted with the project had members who were non-handicappers or were not adults, an attempt was made to select out these people. Respondents were asked to indicate their handicapper and adult status in the first two questions. Those fulfilling neither criterion were instructed not to complete the questionnaire. In case there were questions, the researcher's telephone numbers were provided. Room for comments was available at the end of the booklet (see Appendix B).

Retailer Questionnaire

In order to make direct comparisons between the responses of handicappers and retailers, the retailer questionnaire contained the same questions about clothing and accessibility. Retailers were also asked about their experience in working with handicapper customers, whether they had received training in assisting handicappers, and whether they felt that such training was necessary. Questions concerning the existence of a sizable handicapper market and its potential value were included to aid in determining the receptiveness of retailers to the projected, community education program.

Because there are a variety of employees who assist customers, respondents were asked to indicate their positions, years of clothing retail experience, and whether they worked full or part time. All of these factors could influence experience with handicapper shoppers and awareness of their needs. Demographic data on age, sex, and education were also requested.

The retailer questionnaire had the same booklet format as that for handicappers. Instructions and phone numbers were similarly provided on the cover. Room for comments appeared on the back page of the booklet (see Appendix B).

Retail Clothing Store Accessibility Checklist

The review of literature resulting in the development of the accessibility checklist was extremely broad. It was necessary to consult consumer guides for handicappers (Bruck, 1976; Hale, 1979), metropolitan accessibility guidebooks (Howell, 1977), state and federal accessibility codes, human engineering guidelines (Van Cott and Kincade, 1972), and accessibility surveys developed by other agencies. Barrier-free design specialists were instrumental in relating information to shopping facilities and devising methods of evaluation. Visits to stores in a variety of surroundings were made to assure that as many shopping situations as possible were considered.

The accessibility checklist was divided into sections relating to the areas that a person enters during a shopping trip. Parking and public way access, the approach and entrance to the store or mall, movement through the store or mall, access to levels within the building, customer conveniences, and all features within the clothing department were evaluated separately. This was important in determining where accessibility problems lay.

In order to rate stores on accessibility, a point system was devised. Each question contained responses for the range of conditions that could be found in shopping facilities; items were arranged in ascending order, from the least to the most accessible. Points were assigned to each response, with the most accessible item receiving the highest number of

points. Some items, such as ramps and elevators, had qualifying conditions; their worth was determined not only by their presence but by all of the features contributing to their accessibility.

All store locations, such as auto strip developments, enclosed malls, and downtown-type shopping areas, were considered equally accessible; all were potentially worth the same number of points. However, all features relating to movement through the shopping area or facility had to be accessible in order for the store to obtain the highest rating. Every store received a score for each section of the questionnaire as well as a total accessibility rating. This system enabled stores to be classified as more and less accessible for purposes of analysis.

All questions on the accessibility checklist were written to allow quick responses. It was unnecessary to record any measurements; exact figures were not needed for the analysis. Store features either met certain criteria or they did not (see Appendix B).

Pretest

Handicappers

For the pretest, questionnaires were distributed to people attending the open house of a handicapper service agency and to those attending a meeting of a handicapper organization. Thirteen people, with numerous physical characteristics and assistive devices, returned the questionnaires. A variety of educational levels were also represented. Most respondents completed the questionnaires immediately. Discussion and comments were invited.

As a result of the pretest, the lists of physical characteristics and devices were enlarged to include items written in by respondents. Many subjects commented that some questions seemed similar or related;

for brevity, several questions were combined, reducing the length of the questionnaire. Much of the language was simplified, and technical terms were avoided. On the advice of handicappers with visual as well as physical characteristics, a decision to reduce the size of the print, and therefore, the size of the questionnaire, was reversed. For some people, reading smaller print would have been difficult or impossible.

Retailers

Five clothing store employees, working in several capacities, participated in the pretest. Because job level and responsibility would affect the respondent's viewpoint, a question concerning position was added to the questionnaire. Some of the retailers related their experiences with handicapper shoppers through oral and written comments. Since an awareness of handicapper clothing problems seemed to be enhanced through contact with that group, the final instrument contained a question about the physical characteristic of or the devices used by the handicappers assisted. Comments also revealed an awareness of accessibility problems. As a result, the retailer questionnaire contained the same accessibility questions that were asked of handicappers. Originally, store accessibility was given only brief consideration in this instrument.

Stores

Two of the stores not selected for the sample were used in the pretest. In an effort to test the checklist's utility for different store types and locations, a downtown department store and a women's store in an enclosed mall were surveyed. The pretest resulted in the reevaluation of some accessibility standards and the refinement of measuring techniques. Some important accessibility considerations that had

been overlooked were recognized during the preliminary surveys; these were added to the final checklist.

Procedure

Handicappers

The questionnaires were mailed in white, Michigan State University, business envelopes, along with consent forms and self-addressed, return postage envelopes. Recipients who were either non-handicappers or were under the age of eighteen were asked to return the booklet uncompleted. This step aided the staff in keeping track of all mailed-out questionnaires. In three cases, respondents called the researcher for assistance in completing the questionnaire. Two handicappers answered all items by phone; one responded during a nursing home visit. Subjects queried by phone returned their consent forms by mail.

Six hundred questionnaires were mailed over a one-month period. Sixty-nine of these were mailed by the researcher. The time span over which the mailing occurred reflects the different amounts of time that organizations needed to complete the task. Most of the questionnaires were returned within one month. Five others arrived after another month. The last questionnaire, which arrived three months later, was too late to be used in the study.

Of the 169 questionnaires returned, only 133 were usable; this represents a 22 percent return rate. Thirty-three questionnaires were answered by people with characteristics not under consideration and were omitted. The remaining questionnaires were undeliverable and were returned by the post office.

Retailers

Questionnaires and consent forms were taken to the stores at the same time that the accessibility checklist was to be completed. The project was briefly explained to the staff person in charge, allowing him to ask questions and review the booklet. Though managers usually explained and distributed the questionnaires, the researcher was asked to do so on a few occasions. Subjects were asked to complete the booklets and have them ready when the researcher returned. The questionnaires were collected in three days to two weeks, depending on the retailer's schedule and the store's proximity to Lansing. Some respondents completed the booklets and returned them to the researcher on the same visit.

Of the approximately 134 questionnaires distributed, 124 were returned, representing a 92.5 percent return rate. Only four stores did not return the required number of questionnaires.

Stores

Stores were initially contacted by mail. The letter contained a brief description of the study, which was thoroughly explained during a follow-up phone call. At this time, an agreement to participate in the study was sought, and arrangements were made for a store visitation. In the interest of time, stores selected later in the study did not receive letters but were only contacted by phone (see Appendix A).

During the first visit to the store, the Retail Clothing Store Accessibility Checklist was explained and shown to the contact person. The explanation, however, did not include detailed information about accessibility requirements unless it was requested. This was an effort to avoid influencing those persons completing the retailer questionnaire.

Several simple measuring devices, which were approved by the barrier-free design specialists, were used in completing the survey. A folding, 72 inch yardstick was needed to measure doorways, aisles, racks, counter heights, etc. Its variable size made it versatile for measuring items of all sizes. In order to measure the pounds of pull needed to open doors, a pull gauge was utilized. It measured up to 12.5 pounds or six kilograms of pull, which was more than sufficient for this purpose. In some instances, the gauge's hook was too small to attach to the door handle. A nylon cord that had been tied into a circle was wrapped around the handle and then attached to the hook. The gradients of slopes and ramps were measured with a paper gauge to which a free-swinging pencil was attached. This instrument measured gradients of more than one unit in nine (e.g., a one-inch increase in height for every nine inches of length) to less than one unit in 15. The researcher took the necessary measurements and completed all surveys.

Twenty-eight of the original 36 stores contacted participated in the study. Because one retail chain refused to cooperate, the sample is short by eight discount stores; there were no other discount centers in the population to replace them. Though the original plan was to sample an equal number of men's and women's clothing retailers, changes in the projected sample size resulted in the surveying of 15 men's and 13 women's departments and/or stores.

The surveys were conducted over a two-month period because of weather conditions and the reluctance of stores to participate in the study during the Christmas holiday season. However, all stores were surveyed when they were in similar condition; they were either stocked with pre-holiday merchandise or post-holiday sale goods.

FINDINGS AND DISCUSSION

Handicappers

General Characteristics

The handicapper sample contained 132 subjects, 44.7 percent of whom were male and 49.2 percent of whom were female; 6.1 percent gave no response. Their ages ranged from 18-19 years to 75 years and over. However, most respondents were aged 25 to 54 years, with a modal age group of 35-44 years. Handicappers also had a variety of educational attainments, from less than eighth grade to advanced degrees. High school or equivalent was the modal educational level, representing 38.6 percent of the respondents. Other large groups had some college or business school, 22.7 percent, and had received four year college degrees, 17.4 percent. More than half of the subjects, 54.5 percent, lived in cities; 23.5 percent resided in small towns and 16.9 percent in rural areas.

Most handicapper characteristics, 62.9 percent, were acquired during adulthood; others, 21.2 percent, were present at birth, and 12.9 percent developed during childhood. All of the physical characteristics under consideration were represented in the sample. The largest numbers of respondents experienced limited balance, strength, large-scale motor movement, and resistance to movement. Only one with dwarfism responded. Almost every subject had more than one physical characteristic, some with as many as thirteen. In the "other" category, respondents listed difficulties with ambulation, taste, smell, speech, and reading ability. Among the medical conditions specified in open response were multiple

sclerosis, cerebral palsy, polio, stroke, and arthritis. Some subjects commented that they sustained several characteristics intermittently (see Table 1).

Numerous devices were used by the respondents. The majority of subjects, 57.6 percent, were wheelchair users. Canes, walkers, leg braces, and crutches were also utilized by many people. None of the subjects had an artificial, upper limb. Devices specified in open response included an artificial knee joint and a drop-foot brace (see Table 2). In most instances, more than one orthosis or prosthesis was used; some subjects utilized several devices, either concurrently or on different occasions, depending on their activities and condition (see Table 3). People with orthpaedic and mobility aids also experienced a variety of physical characteristics (see Table 4).

Most of the handicappers sampled, 60.6 percent, dressed independently. Only 17.4 percent of the respondents required an assistant, and 16.7 percent were completely dressed by another person. Almost half of the subjects, 49.2 percent, selected their own garments. Seventeen percent shopped with the help of a spouse, and 9.1 percent shopped with a relative. Among the 13 percent of handicappers whose clothing was selected by a spouse, 75 percent were men.

As in past research, department stores were most often selected by handicappers for clothing purchases. Specialty stores, including shops selling clothing for men, women, or both, were second in popularity. Discount stores were third in preference; this finding is contrary to earlier research, in which discount stores were seldom preferred. Six of the 10 people with motorized scooters favored these stores; among wheelchair users, discount centers were the second choice after department

Table 1. Distribution of Physical Characteristics by Sex (N=132)[a]

Physical Characteristic	Males	Females	Total
Resistance to Movement	26 (47.3%)	29 (52.7%)	55
Limited Large-Scale Movement	32 (44.4%)	40 (55.6%)	72
Limited Small Motor Movements	20 (44.5%)	24 (54.5%)	44
Limited Complex Motor Movements	32 (50.8%)	31 (49.2%)	63
Decreased Body Awareness	23 (39.0%)	36 (61.0%)	59
Limited Balance	38 (43.7%)	49 (56.3%)	87
Limited Strength/Endurance	33 (42.3%)	45 (57.7%)	78
Incontinence	19 (40.4%)	28 (59.6%)	47
Ostomy/Colostomy	9 (64.3%)	5 (25.7%)	14
Decreased Vision	16 (43.2%)	21 (56.8%)	37
Decreased Hearing	9 (56.3%)	7 (43.8%)	16
Dwarfism	1 (100.0%)		1
Paraplegia	13 (41.9%)	18 (58.1%)	31
Quadriplegia	9 (52.9%)	8 (47.1%)	17

Table 1 (cont'd.)

Physical Characteristic	Males	Females	Total
Hemiplegia	12 (57.1%)	9 (42.9%)	21
Modified Body Shape	4 (33.3%)	8 (66.6%)	12
Other	6 (40.0%)	9 (60.0%)	15
None	2 (40.0%)	3 (60.0%)	5

[a]Respondents reported more than one physical characteristic

Table 2. Distribution of Devices by Sex (N=132)[a]

Assistive Device	Males	Females	Total
Crutches	11 (61.1%)	7 (38.9%)	18
Walker	10 (38.5%)	16 (61.5%)	26
Cane	15 (39.5%)	23 (60.5%)	38
Wheelchair	33 (45.2%)	40 (54.8%)	73
Motorized Scooter	2 (22.2%)	7 (77.8%)	9
Leg Brace(s)	13 (61.9%)	8 (38.1%)	21
Arm Brace(s)	1 (33.3%)	2 (66.7%)	3
Body Brace	1 (50.0%)	1 (50.0%)	2
Back Brace/Corset	7 (63.6%)	4 (36.4%)	11
Wrist/Hand Splint	3 (60.0%)	2 (40.0%)	5
Artificial Lower Limb	1 (100.0%)	0	1
Other	5 (62.5%)	3 (37.5%)	8
None	9 (56.3%)	7 (43.8%)	16

[a]Respondents reported the use of more than one device

Table 3. Use of Multiple Devices (N=132)

Device	n[a]	Other Device	Artificial Lower Limb	Wrist/Hand Splint	Back Brace/ Corset	Body Brace	Arm Brace(s)	Leg Brace(s)	Motorized Scooter	Wheelchair	Cane	Walker
Crutches	18	3	1	0	5	1	0	11	1	13	1	4
Walker	26	1	1	0	0	0	0	3	4	23	8	
Cane	38	1	0	0	1	1	0	6	3	17		
Wheelchair	73	6	1	5	8	1	3	12	7			
Motorized Scooter	9	1	0	1	2	1	1	1				
Leg Brace(s)	21	2	0	0	5	0	0					
Arm Brace(s)	3	0	0	3	1	0						
Body Brace/Corset	2	1	0	0	2							
Back Brace	11	4	0	2								
Wrist/Hand Splint	5	0	0									
Artificial Lower Limb	1	0										
Other Device(s)	8											

[a]Total subjects using this device

Table 4. Physical Characteristics by Use of Devices (N=132)[a]

Physical Characteristic	n[b] Device[c]	Crutches	Walker	Cane	Wheelchair	Motorized Scooter	Leg Brace(s)	Arm Brace(s)	Body Brace	Back Brace/ Corset	Wrist/Hand Splint	Other Device
Resistance to Movement	55	7	15	24	40	4	10	1	2	5	3	4
Limited Large-Scale Movement	72	12	20	21	52	8	13	3	2	9	5	6
Limited Small Motor Movement	44	3	11	15	38	3	4	2	1	4	4	3
Limited Complex Motor Movement	63	7	16	19	43	5	10	1	1	5	3	5
Decreased Body Awareness	59	8	13	21	40	6	10	2	2	4	4	4
Limited Balance	87	11	24	32	52	7	13	2	1	6	4	5
Limited Strength/ Endurance	78	9	18	29	46	6	13	2	1	7	4	6
Incontinence	47	6	7	13	33	3	6	1	0	4	3	3
Ostomy/Colostomy	14	3	1	1	13	1	4	1	0	3	2	1
Decreased Vision	37	2	8	15	22	2	3	0	1	2	0	3
Paraplegia	31	6	4	8	25	3	6	1	2	3	2	1
Quadriplegia	17	0	2	4	17	1	1	2	1	4	4	1
Hemiplegia	21	1	4	14	12	1	6	0	1	1	0	0
Modified Body Shape	12	4	1	1	10	1	4	1	0	3	1	2
Other	15	4	5	5	8	3	4	0	1	2	0	3

[a]Subjects reported more than one physical characteristic and the use of more than one device

[b]Total subjects with this characteristic

[c]Subjects with artificial lower limbs are not included, as they reported no physical characteristics

stores. Few respondents shopped for clothing through mail order businesses. Only one subject, a wheelchair user, employed a dressmaker or tailor as a major clothing source (see Table 5).

Enclosed malls were the most preferred shopping location and were selected by 61.4 percent of the subjects. Auto strip developments were chosen by 15.2 percent of the respondents. Downtown-type shopping areas were third in popularity (see Table 6). Whether they lived in cities, small towns, or rural areas, most handicappers, 78 percent, shopped in urban stores (see Table 7).

Public transportation was not an important means of reaching shopping areas. On shopping trips, 49.2 percent of the handicappers were driven by a spouse, relative or friend. Another 31.1 percent drove themselves. Though 12 of the 18 people with crutches drove themselves to shopping centers, the majority of subjects who used other devices were driven by someone else. Three of the 10 respondents with motorized scooters and one fourth of the 76 wheelchair users also provided their own transportation. Only 5.3 percent of the total subjects used regular, public transportation, and 3 percent depended on public, demand-response vehicles.

Accessibility Concerns

The handicapper's limited mobility because of inadequate transportational facilities has been the subject of much concern (Bowe, 1978; Hale, 1979). In this study, however, transportation to and from stores was seldom a problem for most respondents. On a five point scale, with a rating of five representing difficulty all of the time, the group mean for transportation problems was 2.14. While 6.1 percent of the subjects experienced difficulty all of the time, 43.9 percent never did.

Table 5. Handicapper Clothing Sources (N=132)

Clothing Source	Frequency	Percentage
Clothing Specialty Stores	45	34.1
Men's	(17)	(12.9)
Women's	(15)	(11.4)
Men's and Women's	(13)	(9.8)
Department Store	47	35.6
Discount Store	21	15.9
From Fabric Store as Pattern and Fabric	4	3.0
Mail Order Catalogue	5	3.8
Custom Tailor/Dressmaker	1	.8
Other	2	1.5
No Response	7	5.3
Total	132	100.0

Table 6. Shopping Locations Preferred by Handicappers (N=132)

Shopping Location	Frequency	Percentage
Auto Strip Development	20	15.2
Concentrated Retail Area	11	8.3
Open Mall	5	3.8
Enclosed Mall	81	61.4
No Response	15	11.4
Total	132	100.0

Table 7. Shopping Areas Preferred by Handicappers (N=132)

Home Location	Shopping Area			
	City	Town	No Response	Total
City	67 (50.8%)	2 (1.5%)	3 (2.3%)	72 (54.5%)
Town	23 (17.4%)	8 (6.1%)	0	31 (23.5%)
Rural	13 (9.8%)	6 (4.5%)	2 (1.5%)	21 (15.9%)
No Response	0	0	8 (6.1%)	8 (6.1%)
Total	103 (78.0%)	16 (12.1%)	13 (9.8%)	132 (100.0%)

Transportation was most often a problem for respondents who used arm braces, body braces, wrist or hand splints, and artificial, lower limbs (see Table 8). Though some of these devices alone may not be sufficient to affect mobility, other aids used by these same people may have inhibited their use of transportation (see Tables 3 and 9).

Gaining access to stores was problematic for many handicappers. Lack of accessible parking facilities, entrances, pathways, and means of circulation to different store levels was either frequently or always a problem for 28 percent of the subjects and always difficult for 5.3 percent. Respondents with body braces reported that they always had trouble accessing stores. However, 18.2 percent of the sample seldom had accessibility problems, and an equal percentage of people never did. The group mean for access to stores was 2.76.

For the largest group of subjects, 31.1 percent, difficulty in shopping because of floor coverings, steps, and furniture arrangements was frequently a problem; for 9.1 percent, circulating through stores was always laborious. As a group, people with arm braces had the most difficulty. The majority of respondents who were seldom or never inconvenienced by store traffic patterns had either no physical characteristics or no mobility devices. The group mean for difficulty in moving through the store or clothing department was 3.08.

Shopping difficulty because of the inability to reach or see merchandise was experienced frequently by 20.5 percent of the respondents and always by 13.6 percent. Those having problems most often used motorized scooters, arm braces, body braces, and splints. People with almost all of the physical characteristics and with most of the devices listed encountered problems at least some of the time (see Table 10). Handicappers

Table 8. Handicapper Accessibility Concerns (N=132)

Accessibility Concern	n[a]	Mean[b]	St. Deviation	Mode
Transportation	118	2.14	1.34	1.00
Access to Store	116	2.76	1.22	3.00
Difficulty in Moving Through Store	119	3.08	1.22	4.00
Difficulty in Shopping	115	2.98	1.35	3.00 [c] 4.00
Fitting Room Accessibility	112	3.06	1.65	1.00
Inability to Try on Garments	119	2.92	1.55	1.00

[a]Total subjects answering this question

[b]Means were computed on a scale of 1.0=never a problem to 5.0= always a problem

[c]Bimodal distribution

Table 9. Devices by Accessibility Concerns (N=132)

Device	n[a]	Accessibility Concerns					
		Transportation	Access to Store	Difficulty in Moving Through Store	Shopping Difficulty	Fitting Room Accessibility	Inability to Try On Clothing
Crutches	18	1.83[b] 1.15[c]	3.06 1.06	3.39 1.04	2.89 1.13	3.12 1.73	3.00 1.28
Walker	26	2.64 1.55	3.28 1.21	3.42 1.21	3.35 1.26	3.56 1.29	3.23 1.45
Cane	38	2.17 1.40	2.85 1.28	3.11 1.30	2.67 1.41	2.81 1.66	2.66 1.53
Wheelchair	73	2.43 1.46	3.12 1.04	3.54 .95	3.48 1.32	3.82 1.34	3.54 1.40
Motorized Scooter	9	2.70 1.42	3.10 1.29	3.50 1.27	4.00 .67	4.40 .52	2.60 1.17
Leg Braces	21	1.70 1.22	3.20 1.20	3.24 1.14	2.65 1.31	3.16 1.71	2.57 1.29
Arm Braces	3	3.67 .58	3.00 0	4.00 0	4.33 .58	5.00 0	4.00 1.00
Body Brace	2	3.50 .71	5.00 0	3.50 .71	4.00 0	5.00 0	4.50 .71
Back Brace/Corset	11	2.55 1.37	3.55 .93	3.10 .70	3.27 1.19	4.45 1.04	3.64 1.21
Wrist/Hand Splint	5	3.60 .55	3.00 0	3.80 .45	4.40 .55	5.00 0	4.40 .89
Artificial Lower Limb	1	3.00 0	3.00 0	2.00 0	2.00 0	1.00 0	1.00 0
Other	8	1.90 1.29	2.90 1.20	2.90 .74	2.80 1.03	3.50 1.72	3.11 1.69
None	16	1.76 .90	1.71 1.05	1.94 1.09	2.12 1.22	1.65 1.22	1.76 .97

[a]Total subjects using this device

[b]Mean, computed on a scale of 1.0 = never a problem to 5.0 = always a problem

[c]Standard deviation

Table 10. Physical Characteristics by Accessibility Concerns (N=132)

Physical Characteristic	n[a]	Accessibility Concerns					
		Transportation	Access to Store	Difficulty in Moving Through Store	Shopping Difficulty	Fitting Room Accessibility	Inability to Try on Clothing
Resistance to Movement	55	2.28[b] 1.35[c]	3.06 1.16	3.32 1.17	3.34 1.39	3.23 1.59	3.15 1.51
Limited Large-Scale Movements	72	2.30 1.32	3.03 1.16	3.27 1.13	3.43 1.22	3.31 1.56	3.14 1.49
Limited Small Movements	44	2.63 1.34	2.88 1.10	3.43 1.02	3.51 1.21	3.30 1.54	3.40 1.53
Limited Complex Movements	63	2.27 1.31	2.67 1.20	3.16 1.17	3.20 1.26	3.20 1.54	3.07 1.55
Decreased Body Awareness	59	2.18 1.25	2.78 1.19	3.09 1.17	3.11 1.25	3.14 1.58	2.96 1.45
Limited Balance	87	2.21 1.31	2.79 1.19	3.08 1.21	3.05 1.34	3.00 1.59	2.83 1.51
Limited Strength/Endurance	78	2.22 1.34	2.93 1.21	3.16 1.19	3.11 1.34	3.06 1.64	2.99 1.54
Incontinence	47	2.00 1.27	3.00 1.18	3.36 1.16	3.14 1.37	3.05 1.66	3.22 1.52
Ostomy/Colostomy	14	1.50 1.00	2.92 .90	3.15 .80	3.42 1.00	4.00 1.08	3.93 1.07
Decrease in Vision	37	2.38 1.35	2.56 1.37	3.29 1.18	3.21 1.36	2.79 1.60	2.91 1.52
Decrease in Hearing	16	2.33 1.40	2.33 1.50	3.07 1.16	2.86 1.29	2.86 1.61	2.60 1.68
Dwarfism	1	1.00 0	1.00 0	3.00 0	1.00 0	1.00 0	5.00 0
Paraplegia	31	2.03 1.30	2.93 1.27	3.41 1.02	3.41 1.24	3.64 1.59	3.57 1.48
Quadriplegia	17	2.23 1.30	3.15 .99	3.43 .94	3.31 1.25	3.93 1.44	4.20 1.21
Hemiplegia	21	1.84 1.30	2.89 1.29	3.20 1.36	2.84 1.30	2.72 1.71	2.85 1.50
Modified Body Shape	12	2.33 1.41	3.56 .88	3.67 1.12	3.44 1.24	4.44 .88	3.30 1.57
Other	15	2.93 1.80	2.53 1.41	3.00 1.31	2.80 1.70	2.73 1.79	2.60 1.68
None	5	2.40 .89	2.80 1.30	2.40 1.14	2.60 1.14	2.20 1.79	2.00 1.41

[a]Total subjects with this characteristic

[b]Mean, computed on a scale of 1.0 = never a problem to 5.0 = always a problem

[c]Standard deviation

who seldom had trouble with the location of merchandise included hemiplegics and people with either no physical characteristics or characteristics other than those listed. Subjects who used crutches, canes, leg braces, artificial lower limbs, and who had either no devices or used aids other than those listed also reported infrequent problems. For shopping difficulty, the group mean was 2.98.

For respondents with many orthotic and prosthetic devices, fitting rooms were inaccessible. Problems were always experienced by subjects with arm braces, body braces, and splints. Including these and other devices and characteristics, 24.2 percent of the sample had difficulty with fitting rooms all of the time. Another 17.4 percent had frequent problems; many of these people used motorized scooters and back braces. Subjects with all other mobility and orthopaedic aids found dressing areas inaccessible at least some of the time; people with canes and artificial lower limbs were the exceptions. Respondents with all physical characteristics, except decreased hearing or vision, dwarfism, hemiplegia, and other, unlisted characteristics encountered accessibility problems with fitting rooms sometimes or more frequently. Ostomates and subjects with modified body shapes had trouble most often. However, the remaining percentage of subjects, 27.3 percent, reported no problems with fitting rooms.

Though one fourth of the respondents never had difficulty in trying on garments in the store, 21.2 percent always had problems. Another 15.2 percent were frequently unable to try on garments. Subjects having the most trouble were people who experienced hemiplegia and dwarfism and those who used arm braces, body braces, and splints. Again, it should be noted that although some physical characteristics and devices seem unlikely to cause accessibility problems, other mobility devices, such as wheelchairs, used by the same subjects may have been the cause of difficulty.

Clothing Concerns

Contrary to past research, the handicappers in this study experienced little difficulty with clothing. Means for all clothing concerns were below 2.00, indicating that there were seldom problems with available garments (see Table 11). Respondents were satisfied with the appearance of their clothing, regardless of their physical characteristics or use of devices. However, the subjects with arm braces, body braces, and splints had difficulty with clothing attractiveness at least sometimes. Though clothing durability was frequently a problem for the two respondents with body braces, it was seldom a concern for the majority of handicappers. The only subjects for whom garment comfort was sometimes problematic were those who used arm or body braces (see Table 12).

Dressing was seldom difficult for subjects with all physical characteristics. However, the three subjects who used arm braces and the five with splints said that they had problems sometimes. Frequent difficulty was experienced by people who wore body braces. Though fasteners were seldom problematic for subjects with most physical characteristics, they were sometimes troublesome for the 44 respondents with limited, complex motor movement (see Table 13). Those who used motorized scooters, splints, and body braces also reported that they had difficulty with fasteners some of the time.

Clothing seldom inhibited the movement of respondents with all physical characteristics and almost all devices. Subjects using arm or body braces, and splints sometimes found clothing restrictive. Although garment safety was infrequently a concern for most, it was sometimes a problem for those with arm braces and frequently for the 11 subjects who wore back braces or corsets. The only clothing concern to be experienced

Table 11. Handicapper Clothing and Shopping Concerns (N=132)

Clothing Concern	n[a]	Mean[b]	St. Deviation	Mode
Appearance	132	1.67	1.36	1.00
Durability	132	1.82	1.40	1.00
Comfort	132	1.77	1.31	1.00
Dressing Ease	132	1.81	1.43	1.00
Fasteners	132	1.91	1.28	1.00
Movement	132	1.82	1.25	1.00
Safety	132	1.84	1.21	1.00[c] 2.00
Ability to Purchase Suitable Clothing	119	3.40	1.15	3.00
Need for Alterations	123	3.00	1.37	2.00
Helpfulness of Staff	114	2.99	1.54	1.00

[a]Total subjects answering this question

[b]Means were computed on a scale of 1.0=never a problem to 5.0= always a problem

[c]Bimodal Distribution

Table 12. Devices by Clothing Concerns (N=132)

Devices	n[a]	Clothing Concerns									
		Appearance	Durability	Comfort	Dressing	Fasteners	Movement	Safety	Ability to Purchase	Need for Alterations	Helpfulness of Staff
Crutches	18	2.70[b] .97[c]	2.97 1.40	2.44 1.18	2.62 1.24	2.25 1.23	2.26 .99	2.01 .82	3.28 1.18	3.33 1.37	3.22 1.52
Walker	26	1.90 1.13	1.60 1.07	1.77 1.23	2.10 .84	2.83 1.33	1.96 1.12	2.08 1.12	3.04 1.18	3.04 1.34	3.19 1.27
Cane	38	1.80 1.27	1.68 1.29	1.61 1.24	2.19 1.07	2.45 1.25	1.74 1.25	2.10 1.19	3.50 1.31	2.94 1.37	2.69 1.57
Wheelchair	73	2.08 1.20	2.07 1.25	2.16 1.16	2.50 1.08	2.49 1.38	2.12 1.14	2.09 1.22	3.19 1.07	3.12 1.32	2.47 1.42
Motorized Scooter	9	2.58 .93	2.43 1.12	2.83 1.01	2.90 .93	3.36 1.09	2.60 .94	2.62 .74	3.00 .47	3.60 1.58	3.50 1.65
Leg Braces	21	2.29 1.01	2.59 1.51	2.27 1.15	2.56 1.27	2.38 1.34	1.99 1.04	2.11 .91	3.24 1.09	3.19 1.33	2.80 1.64
Arm Braces		3.44 .35	3.00 .33	3.67 .33	3.72 .35	3.82 .59	3.42 .29	3.07 .42	3.33 .58	3.33 1.53	4.33 .58
Body Brace	2	3.50 .47	4.67 .47	3.67 .47	4.42 .59	3.92 1.31	3.75 .35	4.10 .42	2.00 0	4.50 .71	5.00 0
Back Brace/Corset	11	2.62 1.16	2.88 1.77	2.55 1.42	2.93 1.32	2.42 1.43	2.48 1.45	2.18 1.36	3.18 .98	3.18 1.17	4.45 .69
Wrist/Hand Splint	5	3.13 .68	2.73 .64	3.07 1.04	3.73 .58	3.77 .50	3.40 .49	2.68 .88	3.20 .45	3.20 1.10	4.60 .55
Artificial Lower Limb	1	1.67 0	1.33 0	2.00 0	2.00 0	1.15 0	2.00 0	1.80 0	2.00 0	2.00 0	2.00 0
Other	8	2.10 .84	2.13 1.50	2.17 1.20	2.50 1.46	2.32 1.27	2.05 1.31	1.80 1.21	3.30 1.16	3.50 1.27	3.78 1.48
None	16	1.03 .61	1.33 .98	1.09 .65	1.63 .74	2.20 1.18	1.29 .92	1.58 .78	3.47 1.37	2.61 1.38	2.06 1.26

[a] Total subjects using this device.

[b] Mean, computed on a scale of 1.0 = never a problem to 5.0 = always a problem.

[c] Standard deviation.

Table 13. Physical Characteristics by Clothing Concerns (N=132)

Physical Characteristic	n[a]	Clothing Concerns									
		Appearance	Durability	Comfort	Dressing	Fasteners	Movement	Safety	Ability to Purchase	Need for Alterations	Helpfulness of Staff
Resistance to Movement	55	1.88[b] 1.23[c]	1.98 1.36	1.97 1.25	2.43 1.16	2.72 1.27	2.17 1.30	2.15 1.17	3.02 1.29	3.20 1.38	3.15 1.50
Limited Large Scale Movements	72	2.09 1.25	2.21 1.37	2.14 1.27	2.61 1.13	2.71 1.26	2.35 1.19	2.20 1.13	3.13 1.16	3.27 1.34	3.24 1.45
Limited Small Movements	44	2.03 1.23	2.13 1.37	2.09 1.26	2.66 1.18	3.01 1.33	2.16 1.20	2.10 1.10	3.09 1.19	3.47 1.18	3.29 1.49
Limited Complex Small Movements	63	1.83 1.19	1.93 1.31	1.87 1.22	2.50 1.08	2.89 1.27	2.02 1.20	1.96 1.09	3.27 1.17	3.18 1.30	3.14 1.48
Decreased Body Awareness	59	1.96 1.18	2.03 1.33	1.99 1.16	2.45 1.16	2.63 1.23	2.11 1.21	2.08 1.08	3.18 1.09	3.05 1.34	3.11 1.50
Limited Balance	87	1.86 1.16	1.88 1.26	1.85 1.19	2.29 1.08	2.56 1.29	1.97 1.20	2.02 1.09	3.40 1.13	3.00 1.33	3.08 1.50
Limted Strength/ Endurance	78	1.96 1.19	2.00 1.39	1.98 1.25	2.46 1.09	2.61 1.29	2.09 1.25	2.10 1.14	3.29 1.16	3.13 1.39	3.20 1.58
Incontinence	47	1.70 1.13	1.73 1.25	1.82 1.17	2.37 1.11	2.37 1.35	1.86 1.30	1.88 1.23	3.53 1.16	2.84 1.33	3.24 1.56
Ostomy/Colostomy	14	2.08 1.21	1.79 1.11	2.14 1.18	2.57 .96	1.96 1.27	1.91 1.25	1.71 1.25	3.64 .74	3.00 .96	3.77 1.24
Decrease in Vision	37	1.57 1.24	1.62 1.44	1.68 1.32	2.26 1.13	2.51 1.26	1.83 1.37	1.88 1.33	3.12 1.34	3.11 1.28	2.88 1.47
Decrease in Hearing	16	1.48 1.25	1.50 1.34	1.40 1.07	2.06 1.07	2.52 1.40	1.48 1.26	2.03 1.26	3.29 1.27	2.93 1.33	2.58 1.50
Dwarfism	1	1.00 0	1.00 0	1.67 0	2.33 0	2.69 0	1.00 0	2.00 0	5.00 0	1.00 0	1.00 0

[a]Total subjects with this characteristic.

[b]Mean, computed on a scale of 1.0 = never a problem to 5.0 = always a problem.

[c]Standard deviation.

Table 13. Physical Characteristics by Clothing Concerns (N=132) Continued

Physical Characteristic	n[a]	Clothing Concerns									
		Appearance	Durability	Comfort	Dressing	Fasteners	Movement	Safety	Ability to Purchase	Need for Alterations	Helpfulness of Staff
Paraplegia	31	2.05[b] 1.38[c]	2.26 1.42	2.10 1.21	2.34 1.18	2.24 1.45	2.10 1.28	1.99 1.17	3.30 1.06	2.94 1.48	3.60 1.45
Quadriplegia	17	2.00 1.29	1.90 1.36	2.14 1.26	2.67 1.28	2.37 1.49	2.00 1.43	1.64 1.40	3.27 1.16	3.00 1.00	3.86 1.36
Hemiplegia	21	1.64 1.18	1.76 1.42	1.48 1.12	2.71 1.23	2.91 1.34	1.71 1.28	2.12 1.27	3.50 1.36	3.10 1.07	2.79 1.27
Modified Body Shape		1.68 1.48	1.86 1.70	1.97 1.64	2.25 1.07	1.97 1.33	1.71 1.31	1.77 1.27	3.00 1.33	3.73 1.27	3.70 1.34
Other	15	2.13 .99	2.29 1.52	1.67 .99	2.14 1.09	2.35 1.19	1.67 .78	2.20 .79	3.47 1.41	3.19 1.68	2.88 1.86
None	5	1.87 1.24	1.80 1.12	1.93 .98	1.67 .68	2.60 1.31	1.90 .89	2.12 .77	2.00 .71	3.20 1.64	2.00 1.00

[a]Total subjects with this characteristic.

[b]Mean, computed on a scale of 1.0 = never a problem to 5.0 = always a problem.

[c]Standard deviation.

at least sometimes by the entire sample was the slipperiness of shoe soles; the mean for this item was 3.13, the highest for any clothing problem.

The ability to purchase suitable, functional garments was sometimes problematic for almost all subjects. People who experienced no physical characteristics and who used body braces and artificial, lower limbs said that they were seldom able to do so. Alterations were sometimes necessary for the majority of respondents. They were seldom needed by paraplegics, ostomates, people with decreased hearing ability, and those who used wheelchairs, artificial lower limbs, and no devices, However, the two subjects wearing body braces found frequent alterations necessary.

When shopping for clothing, unknowledgeable or unhelpful staffs were sometimes encountered by handicappers with most physical characteristics and devices. Among respondents with decreased hearing and vision, hemiplegia, and either unlisted or no physical characteristics and devices, there were few problems in obtaining assistance with clothing purchases; subjects using leg braces, artificial lower limbs, and no devices also had little difficulty. However, frequent problems were experienced by people with arm braces, splints, and back braces. When buying clothing respondents who wore body braces said that they never received adequate service.

Retailers

General Characteristics

Of the 124 retail store employees sampled, 76.6 percent were female and 22.6 percent were male. One respondent did not answer this question. Their ages ranged from 18 to 19 years to 65 to 74 years of age, with most

between the ages of 20 and 34. All of the respondents had at least a high school education, 25.8 percent had completed some college or business school, 15.3 percent were college graduates, and 11.3 percent held associate's degrees.

The largest percentage group of subjects, 40.3 percent, had one to five years of clothing retail experience. Twenty-one percent had ten or more years of experience, while an equal number had spent less than one year in clothing stores. The remaining 16.1 percent had spent five to ten years in apparel sales. The majority of subjects, 57.3 percent, were full-time employees. Virtually all positions were represented in the sample. Four percent of the respondents were store owners, 15.3 percent store managers and an equal percentage were department managers; 62.9 percent were salespeople. Only one buyer participated in the study.

The largest number of subjects, 54 percent, worked in department stores. Equal percentages of respondents, 12.1 percent, were employed in women's specialty and discount stores; 10.5 percent were men's store employees, and 11.3 percent worked in clothing specialty stores. The majority of retailers, 81.5 percent, were employed in urban stores and 18.5 percent in small-town businesses.

The subjects had considerable experience in serving handicapper shoppers. More than 60 percent had assisted customers with wheelchairs, crutches, and canes. People with walkers, motorized scooters, and artificial limbs had also been aided by many respondents (see Table 14). In open response, store personnel indicated that they had assisted shoppers who had visual characteristics, arthritis, amputations, and who used braces and arm slings; some customers had undergone strokes and mastectomies. Several respondents had served numerous patrons who used orthotic

Table 14. Retailers' Assistance of Handicappers Using Devices (N=124)

Mobility Device	Frequency	Percentage[a]
Crutches	86	69.4
Wheelchair	84	67.7
Motorized Scooter	29	23.4
Walker	51	41.1
Cane	78	62.9
Artificial Limb	29	23.4
Other or No Device	11	8.9
Never Assisted a Handicapper	13	10.5

[a]Some respondents selected more than one category

and prosthetic devices; some had experience in working with as many as six different devices and with various physical characteristics. Only 10.5 percent of the employees had never assisted a handicapper. However, contact with these shoppers was not dependent on sales experience. Nine of the 13 respondents who had never served handicappers had worked in clothing sales for one to five years; one had five to ten years of retail experience.

Most retailers, 58.1 percent, did not think that a sizable, handicapper market existed. Only one of the five store owners and six of the 13 store managers thought that there was such a market. However, 52.4 percent of the respondents thought that it would be cost effective to serve handicappers. The majority of employees in almost all positions thought that tapping the handicapper market would be profitable; only one store owner concurred. Percentages of department managers and salespeople who felt that there was a large, profitable, handicapper market were greater than for other positions (see Table 15).

Almost two-thirds of the respondents, including three store owners, did not think that retailers were aware of handicapper clothing needs. Only 11.3 percent of the subjects had ever received training in or information about assisting handicapper shoppers; this included three of the 16 store managers and nine of the 78 salespeople. Even though retailers thought that they lacked awareness of and training in meeting handicapper needs, 52.1 percent did not consider training necessary. Four store owners and 10 of the 19 store managers saw no need to provide employees with instruction on aiding handicapper shoppers. However, more than half of the salespeople, 51.9 percent, did think that training would be helpful; eight of the 19 department managers, 42.1 percent, agreed.

Table 15. Retailer Responses Concerning Handicapper Market and Services (N=124)

Position	n[a]	Market Existence		Market Profitability		Perceived Clothing Needs		Training in Assisting Handicappers		Need for Training	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Owner/Partner	5	1 20.0%	4 80.0%	1 20.0%	4 80.0%	2 40.0%	3 60.0%	0	5 100.0%	1 20.0%	4 80.0%
Manager/Asst. Manager	9	6 31.6%	13 68.4%	10 52.6%	9 47.4%	5 26.3%	14 73.7%	3 15.8%	16 84.2%	9 48.4%	10 52.6%
Buyer/Asst. Buyer	1	0	1 100.0%	1 100.0%	0	0	1 100.0%	0	1 100.0%	0	1 100.0%
Deptartment Manager/ Supervisor, Asst. Manager/Supervisor	19	9 47.4%	10 52.6%	10 55.6%	8 44.4%	6 31.6%	13 68.4%	2 10.5%	17 89.5%	8 42.1%	11 57.9%
Salesperson	78	31 41.9%	43 58.1%	43 55.8%	34 44.2%	27 36.5%	47 63.5%	9 11.5%	69 88.5%	40 51.9%	37 48.1%
No Response	2	----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Total	124	47[b] 39.8%	71 60.2%	65 54.2%	55 45.8%	40 33.9%	78 66.1%	14 11.5%	108 88.5%	58 47.9%	63 52.1%

[a]Total Subjects answering this question

[b]Adjusted totals and percentages, including only subjects who responded to these questions

Accessibility Concerns

For all handicapper accessibility concerns, retailers' means were higher than those of handicappers. All means were above 3.00, indicating that respondents thought that store accessibility was sometimes to always a problem (see Table 16). The mode for almost every item was 4.00. Standard deviations for each concern were smaller for retailers than for handicappers; this signifies that retailers' responses were less diverse than those of handicappers. Thus, retailers thought that handicappers experienced greater difficulty with store accessibility than they actually did.

Clothing Concerns

Retailers' means for clothing concerns were above 3.00 in all but one category (see Table 17). These were higher than the handicapper means, all of which were below 2.00. These findings indicate that handicappers experienced fewer clothing problems than retailers thought existed. As with the accessibility concerns, the standard deviations for retailers' responses were smaller than those of handicappers.

Handicappers and retailers agreed on the availability of adequate, functional clothing; both group means were above 3.00. An analysis of variance indicated that there was no significant difference at the .05 level between the means of handicappers and retailers on the question concerning the handicapper's ability to purchase suitable garments (see Appendix D, Table D8). In open response, several subjects said that apparel was available to satisfy every need and that it was always possible to find appropriate clothing. They also felt that handicapper shoppers knew their needs well enough to make the correct purchases. One respondent thought that stores should stock clothing designed for handicappers;

Table 16. Handicapper Accessibility Concerns as Seen by Retailers (N=124)

Accessibility Concern	n[a]	Mean[b]	St. Deviation	Mode
Transportation	121	3.55	.70	4.00
Access to Store	119	3.04	.97	4.00
Difficulty in Moving Through Store	123	3.17	.97	3.00
Difficulty in Shopping	123	3.41	.89	4.00
Fitting Room Accessibility	123	3.41	1.01	4.00
Inability to Try on Garments	118	3.29	.94	4.00

[a]Total subjects answering this question

[b]Means were computed on a scale of 1.0=never a problem to 5.0= always a problem

Table 17. Handicapper Clothing and Shopping Concerns as Seen by Retailers (N=124)

Clothing Concern	n[a]	Mean[b]	St. Deviation	Mode
Appearance	124	3.09	.79	3.00
Durability	124	3.16	.81	3.00
Comfort	124	3.02	.77	3.00
Dressing Ease	124	3.33	.89	3.00
Fasteners	124	2.62	.63	3.00
Movement	124	3.05	.73	3.00
Safety	124	3.03	.68	3.00
Ability to Purchase Suitable Clothing	121	3.27	.87	3.00
Helpfulness of Staff	123	3.20	1.09	4.00

[a]Total subjects answering this question

[b]Means were computed on a scale of 1.0=never a problem to 5.0= always a problem

other subjects considered it unreasonable to expect stores to cater to these and other special needs.

Retailers thought that handicappers encountered unknowledgeable, unhelpful store personnel at least some of the time; the mean for this item was 3.20. Though the mean for handicappers was lower, an analysis of variance showed no significant difference at the .05 level between the two groups (see Appendix D, Table D15). According to open responses, many retailers felt incognizant of handicapper clothing needs. One respondent said that it was difficult to evaluate the suitability of clothing unless handicapper customers returned to report on garment performance. Another subject stated that handicappers seemed to know their own clothing requirements and did not seek assistance from the staff. One respondent thought that handicappers, as well as other shoppers, would receive more personalized service if stores were adequately staffed.

Stores

General Characteristics

Of the 28 stores participating in the survey, there were four stores each in the categories of men's, women's, clothing specialty, and discount stores. Twelve department stores comprised the remainder of the sample, which contained 15 men's and 13 women's clothing departments and stores.

Most stores were located in auto strip developments and downtown-type, retail areas; few were situated in malls (see Table 18). Though half of the retailers sampled served small towns, 19 of the stores were located in metropolitan areas. The remaining businesses were situated in small towns.

Accessibility problems were evident in all store areas surveyed (see Table 19). The mean score for parking and public way access in all

Table 18. Location of Stores Surveyed (N=28)

Location	Frequency	Percentage
Auto Strip Development	14	50.0
Concentrated Retail Area	10	35.7
Open Mall	1	3.6
Enclosed Mall	3	10.7
Total	28	100.0

Table 19. Mean Ratings for Accessibility Concerns (N=28)

Accessibility Concern	Mean Rating	Optimal Rating[a]	Percentage
Parking and Public Way Access	8.9	19	46.8
Approach to Building	6.6	10	66.0
Entrance to Store	16.8	25	67.2
Store Accessibility	36.5	71	51.4
Clothing Sales Area Accessibility	35.6	71	50.1
Customer Services	5.4	11	49.1
Total Store Accessibility	140.8	280	50.1

[a]The point system appears in Appendix B

stores was less than half of the optimal rating. Though 71.4 percent of the stores had handicapper designated parking, only 21.4 percent of the parking spaces were the width stipulated in the state accessibility code. The required number of handicapper slots, which is dependent on lot size, was available in 14.3 percent of the stores. Handicapper parking was located 99 feet or closer to the accessible entrance in only 39.3 percent of the businesses. Though most parking was provided in lots, it was separated from the store by a line of motorized travel in 64.3 percent of the cases. In half of the stores surveyed, the path from the lot to the store was obstructed by steps, curbs, or other obstacles. Even when the accessible entrance was located some distance from the handicapper parking facilities, there were no signs designating the barrier-free route or entryway. The one open mall included in the sample had a fairly direct, accessible path to the store being surveyed.

Approaches to buildings were more accessible than parking areas, with a mean score of 66 percent of the maximum rating. Though most stores had loading zones for cars, few had provisions for public transit, expecially in small towns. Pathways to stores were grade level in 67.9 percent of the cases. However, some entrances could only be approached via steps with inadequate handrails.

Store entrances were generally accessible; the mean score for all stores was 67.2 percent of the highest rating. Though 89.3 percent of the stores had doors, more than 60 percent had openings wide enough to admit wheelchairs. The remaining 14.3 percent of the stores, which were located in an enclosed mall, had completely open fronts. At 89.3 percent of the entryways, there were beveled thresholds. Most doors also had hardware that would be easily operable by handicappers. Features inhibiting

accessibility included the presence of doors in series in 42.9 percent of the stores and the need for excessive pressure to open an equal percentage of doors.

In most instances, store interiors were easily accessed. All merchandise was located on one level in 67.9 percent of the stores; in 82.1 percent of the businesses, all facilities were located on the accessible entrance level. Because they had more than one level, four of the stores, 14.3 percent of the sample, had elevators. Though all of the elevators were large enough to admit wheelchairs and other mobility devices, they contained few of the features contributing to maximal accessibility. In one store, the only elevator available was used for freight. One store, representing 3.6 percent of the sample, had stairs as the only means of circulation.

Clothing sales areas were only moderately accessible; the mean score for all stores included only 49.4 percent of the total points possible. Furnishing were the greatest obstacles to shopping ease for handicappers. In only 10 stores, 35.7 percent of the sample, all counters were low enough to accommodate wheelchair users. Seventy-five to 100 percent of the counters were above the accessible height in 46.3 percent of the stores. Clothing racks were out of the reach of seated shoppers in 92.9 percent, all but two, of the businesses. All shelves were low enough to facilitate shopping from a wheelchair or scooter in only four stores, 14.3 percent of the sample. However, 67.8 percent of the stores had fewer than half of their shelves above the accessible height. Open stock displays, merchandise stored and exhibited on walls, racks, etc., were above the desirable height in 19, or 67.9 percent, of the stores.

The traffic route through clothing departments was fairly barrier-free. In 64.3 percent of the stores, all major aisles were of adequate width; conversely, in 18 stores, an equal number of cases, minor aisles were too narrow to allow the safe passage of people with mobility devices. Though there was adequate turning space at the ends of many closed aisles, most open aisles did not have sufficient clearance. Sixteen stores, 57.1 percent of the sample, had carpeted clothing areas; equal numbers of stores had thick/padded and low pile/unpadded carpeting. Only three stores had wood or cement flooring. Another 10.7 percent of the stores had split-level clothing departments; in each case, steps were the only means of ascent.

Though only the most barrier free fitting rooms were surveyed in each store, facilities for handicappers were still mediocre. Dressing rooms met only 51.9 percent of the accessibility standards set forth in the survey. Four stores had fitting rooms that employees considered accessible to people with mobility devices and to which these shoppers would be directed. In 57.2 percent of the sample, including 15 stores, dressing rooms were located along a corridor. Though most hallways had entrances wide enough to admit a wheelchair, 66.6 percent did not have adequate width to allow its safe movement.

In 71.4 percent of the clothing departments, representing 20 stores, fitting room entrances were inaccessible to wheelchairs. Fifteen dressing rooms had doors, and the remaining 42.8 percent closed with curtains. Although most doors that opened toward the exterior of the fitting room had sufficient clearance for the circumvention of wheelchairs, doors opening toward the room's interior did not; because these doors would have to remain open, some other means of shielding customers from passersby

was necessary. Fitting rooms had too little floor area to be properly used by people in wheelchairs in all but two stores.

Though clothing hooks were above the accessible height in all stores, 82.1 percent of the fitting rooms had shelves, benches, chairs, or other surfaces on which to rest garments and parcels. In 46.4 percent of the stores, mirrors did not extend close enough to the floor to allow a clear view by customers who were seated or small in stature. Dressing room floors were carpeted in 23 stores, 82.1 percent of the sample. Alternative, try-on areas, for people to whom fitting rooms were inaccessible, were available in 16 stores. These were usually stockrooms, offices, or a combination of the two. Most alternate rooms had adequate floor space for the easy movement of mobility devices, partitions to shield the customer from other shoppers, and a surface for sitting or resting parcels. All had sufficient lighting and clean floors with easily traversed surfaces of wood, cement, or tile. In five stores, in which no alternative fitting areas were available, arrangements were made to allow regular customers to take garments home on approval without purchasing them. Three stores would not allow this because of the possibility of theft.

Checkout and customer service areas met only 49.1 percent of the survey's accessibility standards. In three-fourths of the stores, counters at checkout or purchasing centers were too high. Though eight stores utilized lanes, all but one had an alternate lane wide enough to accommodate a wheelchair. Every customer service department, handling layaways, credit, etc., was either located on the accessible entrance level or was approachable to handicappers by some means. Business windows were too high in 67.9 percent of the stores; however, low writing surfaces were provided by 60.7 percent of the retailers. Wheelchairs were available to

customers in 10 stores; discount stores also offered motorized scooters. Accessible restrooms, four of which were unisex, were available in nine stores, 32.2 percent of the sample.

The mean, total store accessibility score for all stores was 50.1 percent. This supports the findings from the handicapper and retailer samples. Though retailers acknowledged frequent accessibility problems in all areas, handicappers said that they experienced difficulty in moving through stores and with fitting rooms sometimes to frequently. Mean store scores of 51.4 and 51.9 percent for these two areas, respectively, indicated that problems do exist. Handicappers sustained inconvenience because of other accessibility concerns as well, but to a lesser degree.

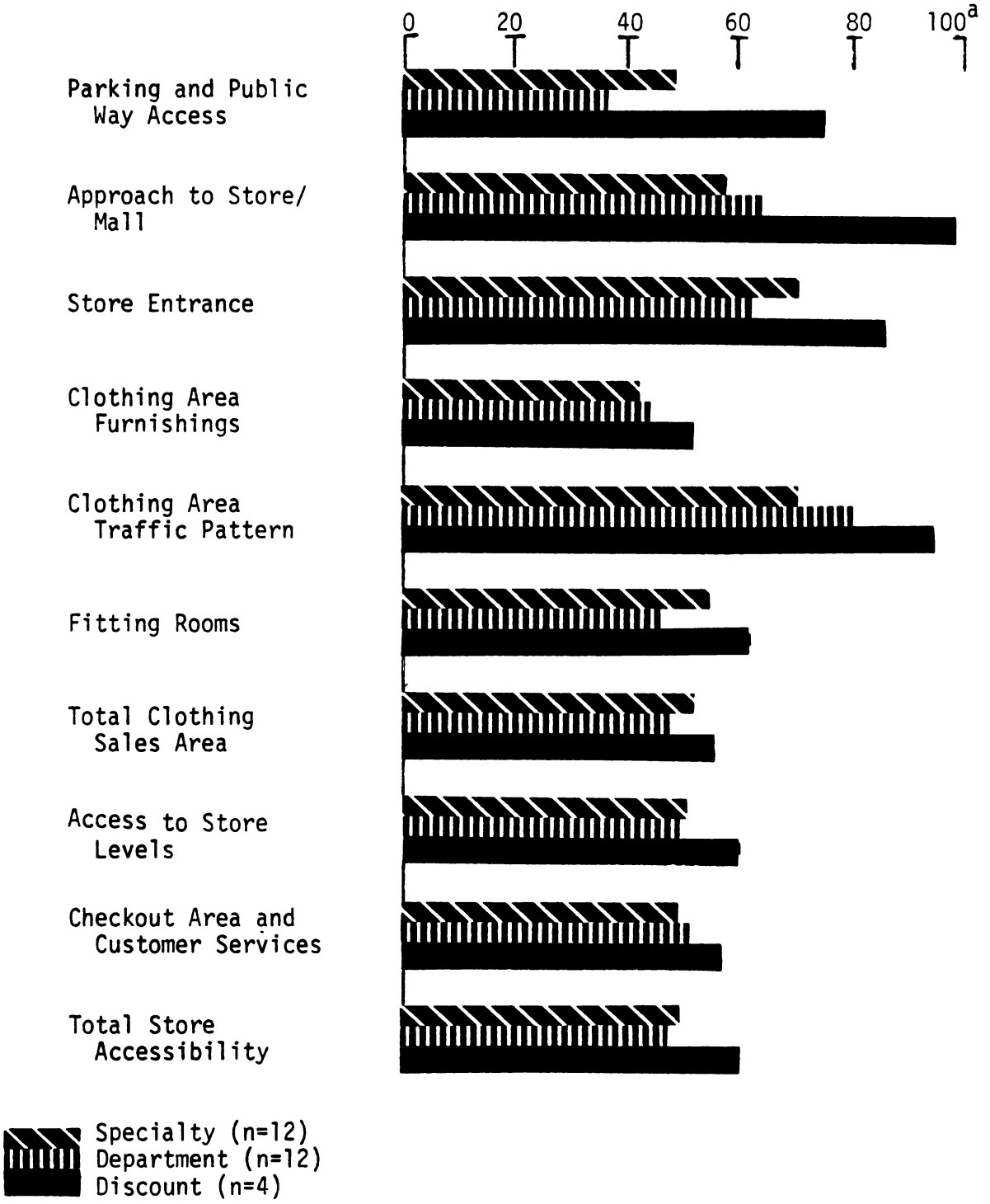
Comparison of Store Types

For all accessibility considerations, discount stores had the highest ratings when compared to specialty and department stores. Department stores had the lowest ratings in all but three areas. On total store accessibility, discount stores received 56.9 percent of the possible points, while department stores had only 48.1 percent of the total score. Specialty stores were somewhat more accessible, with 49.9 percent of the optimal, barrier-free rating (see Figure 1).

Discount store parking facilities were superior to those of other stores. In all cases, handicapper parking slots were signed, of adequate width, and located as close as possible to entrances. Pathways to entrances were always grade level. All entryways had automatic doors wide enough to admit mobility devices. However, doors on specialty and department stores were often too narrow and sometimes required excessive pressure to open. Because all merchandise was usually located on one level, discount and specialty stores received higher ratings on measures

Figure 1

Accessibility Ratings of Specialty, Department, and Discount Stores (N=28)



[a]Optimal accessibility rating. See Appendix B for point system.

of the accessibility of levels within the building. Elevators with minimal, accessible features were the usual means of circulation within department stores.

Though 75 to 100 percent of the clothing racks in discount stores exceeded the accessible height, the overall rating of discount centers for clothing department furnishings was still the highest, at 51.9 percent. All shelves and open stock displays were at or below the required height; according to discount store management, lower counters and displays allowed maximal visibility throughout the store. Specialty stores had the lowest rating on furnishings. Although they contained many clothing racks of accessible height, numerous display shelves and racks extended beyond the reach of even standing customers. This method of storing merchandise, on shelves and racks that reached almost to the ceiling, allowed most of the stock to be placed on the sales floor, according to specialty store employees.

Both major and minor aisles in discount centers exceeded accessible widths. Though this feature was necessary to allow customers with shopping carts to pass each other, it also enhanced accessibility. Aisles in specialty stores were the narrowest, with many minor aisles not meeting accessibility requirements; lower ratings were also necessitated by displays that obstructed pathways. Department store aisles were similarly narrow. Because their clothing department floors were not carpeted, discount stores also received high ratings on mobility within this area. However, the easily traversed, tile floors found in the discount stores surveyed are no longer standard for all such stores; in an effort to upgrade their image, some discounters have begun to install carpeting in their clothing departments ("How Discounter Aims for Easily Shopped

Stores," 1975). In specialty and department stores, all floors were carpeted, some having deep pile or thick underlayments. Some of the department stores had split-level, clothing departments, with steps as the only means of circulation.

Fitting rooms in all of the discount stores surveyed were accessible, having been designed to meet the needs of handicappers. Three specialty stores, belonging to the same company as the discount stores, had similar fitting rooms. Built-in benches were provided in each cubicle, and curtains allowed for privacy. Most department and specialty store dressing rooms had narrow entrances and were too small to accommodate wheelchairs or other mobility devices. Some of these also lacked surfaces for parcels.

Though the discount stores utilized checkout lanes, alternate routes were always available. Wheelchairs and motorized scooters were also provided for customers at these stores. Each of the discount and four of the specialty stores had accessible restrooms. Most specialty stores, however, had no restrooms for customers, contributing to their lower rating on the accessibility of the checkout area and customer services.

In support of the high accessibility rating for discount centers, 15.9 percent of the handicapper respondents elected to shop in these stores. Shoppers also expressed a greater preference for specialty stores than in previous studies (Reich, 1979; Shipley, 1961). Department stores, however, were still the most preferred, but not by as large a percentage as in earlier research (Reich, 1979; Richards, 1971; Walker, 1972). These results could reflect the increased accessibility of discount and specialty stores, as determined by this study.

Comparison of Men's and Women's Clothing Sales Areas

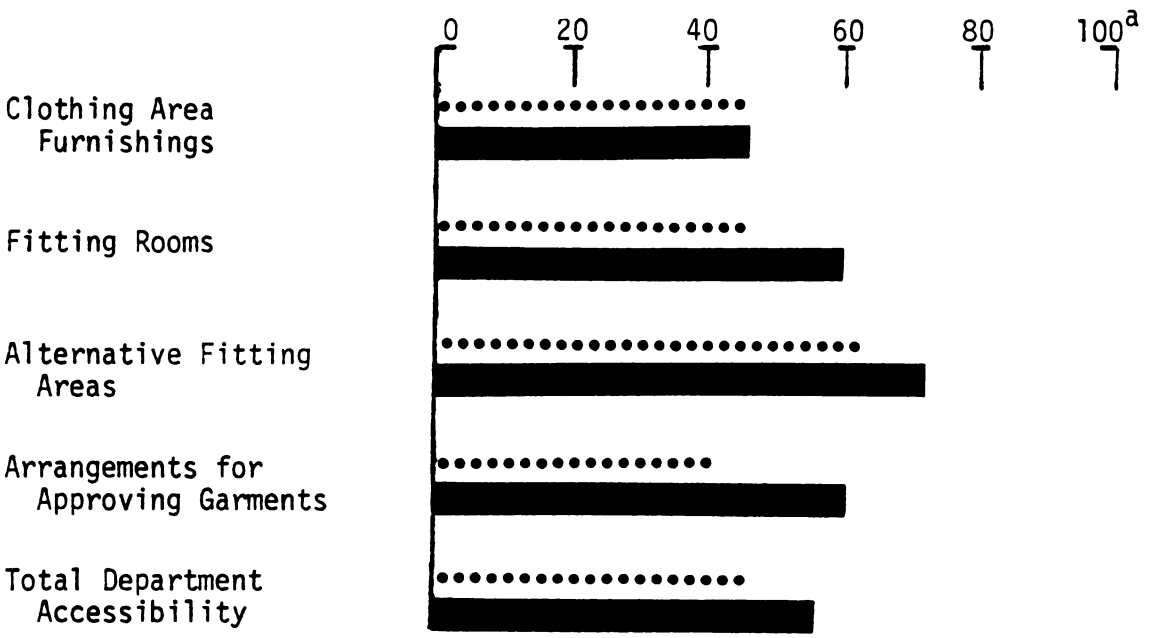
In comparison, women's clothing departments were more accessible than men's. Although clothing area furnishings rated exactly the same, fitting rooms in women's departments and stores were far more barrier-free; their fitting area accessibility score was 60.1 percent, as compared to 46.7 percent for men's changing areas. Alternative fitting areas in stores and departments serving females were also better equipped. When it was necessary to make other arrangements for trying on and approving garments, retailers were more accommodating in the women's clothing stores and departments surveyed (see Figure 2). Shopping difficulty could explain why 22.8 percent of the male, handicapper respondents wore clothing selected by a spouse or relative, as compared to 12.7 percent of the females.

Comparison of Store Locations

When rated by handicappers and by the accessibility checklist, shopping locations appeared in the same order; 1) enclosed malls, 2) auto strip developments, 3) downtown-type, retail areas, and 4) open malls (see Table 20). Both enclosed malls and auto strip developments had better parking facilities and public way access than the other shopping locations. Enclosed malls, in which three stores were located, presented few additional accessibility problems. All public entrances were barrier-free, with easily opened doors that were wide enough to admit wheelchairs. Door hardware, which was probably selected for its accessibility, was design-balanced. Entryway thresholds were beveled, allowing the safe movement of wheelchair and crutch users. Mall pathways were surfaced with cement or tile, and were of more than adequate width for all mobility devices.

Figure 2

Accessibility Ratings of Men's and Women's Clothing Sales Areas



•••••• Men's departments/stores (n=15)
▬▬▬ Women's departments/stores (n=13)

[a]Optimal accessibility rating. See Appendix B for point system.

Table 20. Mean Accessibility Ratings of Store Locations and Frequency of Use by Handicappers

Store Location	Percentage of Optimal Rating[a]	Use by Handicappers
Auto Strip Development	51.8	15.2
Concentrated Retail Area	48.6	8.3
Open Mall	45.0	3.8
Enclosed Mall	52.1	61.4

[a]Optimal Rating=280 points. See Appendix B for point system

In all cases, stores were located on the accessible entrance level. However, because the three enclosed mall stores surveyed were situated in the same, newly rennovated shopping center, generalizations to older malls may be limited.

Comparison of Store Area

Stores in metropolitan areas had higher accessibility ratings than those in small towns. Parking facilities, pathways to stores, building approaches, store entrances, and aisles were more accessible in urban stores. Though fitting rooms in city businesses had only slightly higher ratings than those in towns, alternative fitting areas in towns were far better equipped. Clothing department furnishings in small town stores were much less accessible; the older counters and fixtures were either too high or awkwardly arranged for many handicappers to reach (see Table 21). Greater shopping ease could explain why 78 percent of the handicapper respondents preferred to shop for clothing in urban stores (see Table 7).

Hypotheses

Clothing Concerns

It was hypothesized that retailers would not be aware of the clothing needs of handicappers. In an item by group analysis of the seven clothing problem areas, all analyses of variance showed a significant difference at the .05 level between the responses of the two groups. Though it was assumed that retailers would say that handicappers experienced fewer clothing problems, retailers' means for all items were higher than those of handicappers. This indicates that retailers felt that greater needs existed than did handicappers. On this basis, the hypothesis was accepted (see Appendix D, Tables D1 to D7).

Table 21. Mean Accessibility Ratings of Stores by Area (N=28)

Accessibility Concern	Store Area[a]		Optimal Rating[b]
	City	Town	
Parking and Public Way Access	10.26[c] (54.0%)[d]	6.00 (31.6%)	19
Entrance to Store	17.26 (69.1%)	15.89 (63.6%)	25
Clothing Area Furnishings	8.00 (50.8%)	5.67 (35.4%)	16
Fitting Room Accessibility	14.11 (52.2%)	13.78 (51.0%)	27
Alternative Fitting Area	3.26 (29.7%)	6.89 (62.7%)	11
Clothing Sales Area Accessibility	9.32 (71.7%)	8.44 (65.0%)	13
Total Store Accessibility	143.11 (50.9%)	136.56 (48.6%)	280

[a]City stores: n=19. Town stores: n=9.

[b]See Appendix B for rating system

[c]Mean rating

[d]Percentage of optimal rating

Another hypothesis stated that handicappers would experience difficulty in the use of available clothing most of the time. Therefore, means for all clothing problem areas would be above 3.00. However, all of the means were below 2.00, signifying that handicappers seldom encountered problems. Modes of 1.00 for all problem areas indicate that most subjects never had difficulty with their garments (see Table 11). Hence, this hypothesis was rejected.

It was also hypothesized that handicappers would experience difficulty in obtaining suitable clothing most of the time. This hypothesis was accepted. The mean was 3.40 for the item concerning the ability of handicappers to purchase suitable clothing; the mode was 3.00, denoting that most subjects were unable to find adequate clothing at least some of the time (see Table 11). Handicappers and retailers concurred on apparel availability; an analysis of variance showed no significant difference between the responses of the two groups (see Appendix D, Table D8).

Accessibility Concerns

It was hypothesized that retailers would not be aware of the accessibility needs identified by handicappers. This hypothesis was accepted. For all items, retailers' means were higher than those of handicappers, indicating that retailers considered all accessibility concerns more severe than did handicappers (see Appendix D, Tables D9 to D14). For all but two of the six items, analyses of variance for accessibility concerns showed a significant difference at the .05 level between the responses of handicappers and retailers. There was no significant difference between responses concerning difficulty in moving through the store and fitting room accessibility.

Clothing Acquisition

Because it was assumed that handicappers would shop in less accessible stores infrequently, it was hypothesized that retailers would be more aware of handicapper clothing needs and accessibility problems in stores identified as more accessible by the accessibility checklist. This hypothesis was rejected. For all but one item, planned comparisons of more and less accessible stores showed no significant difference at the .05 level between responses concerning clothing and accessibility problem areas. On the item concerning shopping difficulty due to the inability to reach and see merchandise, the responses of retailers in less accessible stores were not significantly different from those of handicappers (see Appendix D, Tables D16 to D28).

The means for accessibility concerns of retailers in more accessible stores were closer to handicapper means for only half of the items--difficulty in moving through the store, fitting room accessibility, and the inability to try on garments. On clothing items, more accessible stores had closer means on five of the seven items--appearance, durability, dressing ease, fasteners, and safety. These results indicate that retailers in more accessible stores were not more aware of handicapper clothing and accessibility needs.

Handicappers did not frequently encounter unknowledgeable or unhelpful employees; the mean for this item was 2.99. Though an analysis of variance showed no significant difference between their responses, retailers thought that handicappers received poor service more often than they actually did. The mean of retailers in more accessible stores was closer to that of handicappers (see Appendix D, Table D29).

Because of the difficulties that they were said to experience with transportation, accessibility, and receiving assistance (Bruck, 1978; Ewald, 1975; Reich, 1979), it was hypothesized that handicappers who shopped alone would frequent stores less often than those who shopped with others; they would rely on other clothing sources. This hypothesis was rejected. Both people shopping alone and with others shopped in stores more often than they used other sources, which included dressmakers, tailors, mail order businesses and fabric stores.

Discussion

This study revealed many unexpected results, some that were contrary to previous research. Though all of the earlier studies involving the clothing concerns of handicappers indicated that there were numerous problems, the present study did not. Handicapper subjects appeared to have less difficulty in obtaining attractive, functional apparel than was expected. There are several possible reasons for these findings.

Though building accessibility, transportation, education, and other handicapper concerns have been accorded much publicity, clothing has received little public notice. Handicappers may not really be aware of the existence of adaptive clothing or of the availability of booklets concerning garment modifications. None of the subjects in Ewald's study (1975) were aware or had used information about purchase and adaptation of clothing to accommodate the needs of handicappers.

Handicappers may also be so accustomed to struggling with garments that they accept clothing difficulties without much concern. According to Newton (1976), there is a tendency to ignore problems for which there seem to be no solution. In future studies, handicapper awareness of adaptive clothing should be examined.

In addition, some handicappers may have the tendency to see physical characteristics and devices as the causes of problems, rather than to consider the environment as the source of difficulty. This attitude would be consistent with traditional views of handicappers, that they possess disabilities and handicaps that incapacitate them in negotiating the environment (Gentile and Taylor, 1976). Thus, clothing may not be considered to be the cause of difficulty. One of Ewald's subjects (1975) adjusted his artificial limb to fit his clothing, rather than altering the garment to accommodate his prosthesis.

The clothing styles that are popular at any given time may be more or less suitable to handicapper needs. The clothing available during the present study may have been more convenient for handicappers than the apparel that was in use during the previous studies. Current fashions include flexible, pull-on clothing, wrap garments, and apparel with extra fullness. The use of denims, natural fibers and synthetic/natural fiber blends, knitted fabrics, and elastic closures allow garments to be more durable, comfortable, flexible, and easily removable. The handicapper subjects in the present study may have actually experienced little difficulty in obtaining attractive, functional clothing. Though the clothing itself did not seem to be the cause of many problems, the mean for the ability to purchase suitable clothing was high, indicating that problems exist somewhere. This mean could reflect difficulties with store accessibility or with the kind of assistance that handicapper shoppers receive.

Retailers were expected to be unaware of handicapper clothing and accessibility problems. However, rather than considering their difficulties to be non-existent, retailer respondents thought that handicappers encountered many more problems than they actually experience. However,

retailers' responses do not necessarily reflect a keen awareness of the needs of handicappers. In open response, several respondents said that they felt unqualified to answer questions about handicapper problems; they considered themselves unknowledgeable about clothing and accessibility requirements. One subject stated that, for this reason, she "sat on the fence a lot" in her responses. An examination of the questionnaires on which these and similar comments appeared revealed that the answers to all items ranged from "sometimes a problem" to "always a problem." Negative categories were avoided.

Retailers could have been educated by the questionnaire itself. They may have assumed that all of the items listed on the instrument were problems for some people. Respondents also had the opportunity to talk to the researcher as she undertook the accessibility survey. Many employees observed this process and asked whether their stores met accessibility requirements. In most cases, when the researcher arrived, personnel said that their stores were accessible. However, when they asked about the evaluation of particular areas, some retailers were told that their stores were not accessible. Although the researcher attempted to circumvent conversation, some discussion was unavoidable. In replications of this study, it is suggested that the accessibility checklist be completed after retailers have returned their questionnaires.

Feelings of social responsibility toward handicappers could have prompted retailers to respond as they did. Employees possibly felt that they should be aware of the problems that confront handicappers and, therefore, magnified their significance.

The media have created considerable awareness of handicapper needs, emphasizing the difficulties that handicappers encounter. This awareness

is necessary to gain acceptance of legislation supporting handicappers, but it deemphasizes the capabilities of this group. As a result, retailers may have focused on the negative aspects of the lives of handicappers and overlooked their abilities (Albrecht, 1976).

Retailers in the more accessible stores were expected to have a greater awareness of the needs of handicappers than those in less accessible stores. The findings did not support this conclusion. Because even the most accessible stores had fairly low point values on the accessibility checklist, handicappers may not have frequented the more accessible stores much more often than the less accessible ones. In addition, the four stores with the highest ratings were discount stores in which employees seldom assist customers with purchases; these subjects may have had little awareness of handicappers' needs because of their limited personal contact with shoppers. The responses of the large number of people sampled in discount stores would certainly affect the results of the study.

As expected, most stores were fairly inaccessible to handicappers. Only eight stores, seven of which were part of the same chain, reflected efforts to increase accessibility. One store had been remodeled as part of the rennovation of the mall in which it was located. Because of the high cost involved in remodeling the store, the needs of handicappers were considered in designing the fitting rooms and spacing the aisles.

In the stores belonging to the chain, accessibility requirements had been carefully considered because of the owner's personal commitment to handicappers. No attempts to increase accessibility were apparent in the other stores. Even minor modifications involving no cost, such as the lowering of shelves and clothing racks, had not been made. During the survey, one store was undergoing the installation of thickly padded

carpeting. The manager of the department under observation was aware of the difficulty that wheelchair-users experience when maneuvering on carpeting.

These observations lead to the conclusion that retailers are either basically unaware of the needs of handicappers or are not willing to modify their stores unless they are mandated to do so by law. It is possible that the executives who control store policy are unaware that their stores are inaccessible. Perhaps efforts to improve shopping conditions for handicappers should be directed toward them.

Retailers appear to have some awareness of handicapper clothing and accessibility requirements. However, they are neither cognizant of the size of the handicapper market nor of its potential, especially at the upper management level. For this reason, an innovation-decision/adoption process involving modifications for handicapper shoppers may not have developed beyond the knowledge function in many clothing stores. Store executives could have decided that there was little profit in catering to the needs of handicappers. The educational program to be developed as a result of this research should provide information about the true potential of the handicapper market; it should also promote a realistic understanding of handicappers and their needs, emphasizing their abilities as well as their problems. Because handicappers reported few difficulties with clothing, little effort should be expended on the promotion of adaptive clothing sales. Store accessibility deserves more consideration. Store modifications, many of which are inexpensive or without cost, should be emphasized.

When retailers realize that the handicapper market does have potential and that many of the innovations that will improve shopping conditions for many handicappers need not be costly, they may be willing to

implement some small-scale modifications. The multi-faceted nature of handicapper shopping problems makes it possible to implement numerous transformations without prohibitive cost. The trial and adoption of many small-scale innovations will improve shopping conditions for handicappers and eventually increase retailers' profits.

SUMMARY AND RECOMMENDATIONS

Summary

There are more than 36 million handicappers in the United States, over 260 thousand of whom are Michigan residents. They are becoming more active participants in all phases of community life because of the increased accessibility of architecture and transportation and greater access to education. As a result of their increased visibility and mobility, handicappers require clothing that will facilitate their new lifestyle, allowing them to be attractive, independent, and mobile. However, many handicappers find it difficult to secure suitable garments and have numerous accessibility problems when shopping.

The purpose of this research was to analyze the clothing selection and store accessibility problems that handicappers encounter. This information will be used in the development of an extension-funded, community education program for handicappers and retailers. It is essential that both groups become aware of the problems involved and cooperate in their efforts to improve shopping conditions for handicappers. Retailers will enjoy an eventual increase in profits.

Preliminary to establishing the course of the research, information was gathered from several sources. The review of literature provided the basis for understanding handicapper clothing concerns and general accessibility requirements. According to past research, handicappers experience numerous difficulties in obtaining attractive, functional clothing. Their characteristics modify physical abilities, bodily functions,

and appearance; the use of orthotic and prosthetic devices places greater demands on clothing and architecture. Clothing that is durable, comfortable, easily donned and removed, and that does not inhibit mobility and safety is often unavailable to handicappers.

Because of the variety of physical characteristics among handicappers, the mass production of adaptive clothing is not feasible. Mail order businesses supply some specially designed apparel; however, these garments tend to be unattractive and overpriced.

In previous studies, handicappers and elderly shoppers preferred department stores for clothing purchases. Mobility-limited consumers favored downtown-type shopping areas. Because of the better selection, small town residents purchased clothing during city shopping trips.

The subjects in several studies were dissatisfied with the service that they received in stores; sales clerks lacked either the knowledge or willingness to assist them. There is evidence, however, that the attitudes of retailers may be changing. Many stores offer special privileges to handicapper customers and are training their staffs to be more helpful.

Recent legislation mandating the accessibility of parking facilities and buildings has enhanced the mobility of handicappers. Few standards apply to store interiors; therefore, many handicappers still experience difficulty in shopping for clothing. The majority of retailers may be unaware of the factors contributing to accessibility, believing that their stores are easily accessed by handicappers.

As well as the review of literature, interviews with clothing and barrier-free design specialists and with handicappers were conducted in an effort to gain a fuller understanding of the current clothing and

shopping problems of handicappers. It was determined that information was needed from three sources--from handicappers, retailers, and stores. Three instruments were developed.

The handicapper questionnaire requested information concerning the nature and onset of the physical characteristics, shopping habits, and the prevalence of several clothing and accessibility problems. These questionnaires were mailed to subjects, along with return postage envelopes.

In order to make direct comparisons between the responses of handicappers and retailers, the retailer questionnaire contained the same questions about clothing accessibility. Retailers were also asked to supply information about their positions, experience in sales, and their contact with handicapper customers and their training to assist those shoppers. They were also asked about their impression of the importance and existence of a handicapper clothing market. These questionnaires were delivered to the stores and distributed at the same time that the accessibility checklist for stores was to be completed; they were collected on a subsequent visit.

The Retail Clothing Store Accessibility Checklist was developed for the purpose of evaluating the accessibility of individual stores. It was divided into sections relating to the areas that a person enters during a shopping trip. Parking and public way access, the approach and entrance to the store or mall, movement through the store or mall, access to levels within the building, customer conveniences, and all features within the clothing sales area were evaluated separately, making it possible to determine where accessibility problems lay. A point system was devised that provided each store with an accessibility rating for all sections

and for the total store. This enabled stores to be classified as more or less accessible for purposes of analysis. All surveys were completed by the researcher during store visitations.

The key informant approach was used to locate the handicapper sample. Ten Lansing area handicapper agencies were contacted through a central organization and asked to participate in the study. Because of the confidentiality of their membership, personnel in eight agencies randomly selected the respondents and addressed the envelopes themselves. In order to concentrate on handicappers with physical characteristics that directly influenced clothing selection, agency employees were asked to omit people whose primary characteristics were aural, visual, mental, emotional, or speech-related. The researcher utilized the same technique in selecting respondents from the two agencies which released their membership lists.

Stores located in the Lansing metropolitan area and in randomly selected outlying cities were included in the sample. Each of these two groups was supposed to contain 18 stores--men's, women's, specialty, department, and discount stores. Stores were randomly selected from the phone directories serving the chosen cities. Clothing departments serving men and women were alternately selected from the completed list of specialty, department, and discount stores. Retailers were randomly selected from the stores in which accessibility surveys were done.

One hundred and thirty-two handicappers participated in the study. All physical characteristics under consideration were represented in the sample. The largest number of respondents experienced resistance to movement and limited balance, strength, and large-scale motor movement. Some subjects sustained as many as 13 characteristics simultaneously. Of the numerous devices used by respondents, wheelchairs were the most common. People with assistive devices also had a variety of physical characteristics.

Most handicappers dressed independently and almost half of the respondents selected their own garments. Though department stores were most preferred for clothing purchases, specialty stores were second in popularity. Discount stores were third in preference. Only one subject employed a dressmaker or tailor as a major clothing provider. Enclosed malls and auto strip developments were considered the most convenient shopping locations. Whether they lived in cities, small towns, or rural areas, most handicappers shopped in urban stores.

Transportation to and from stores was seldom a problem for most respondents. However, other accessibility concerns were problematic for many handicappers. Difficulty was encountered in gaining access to stores, moving through stores, reaching and seeing merchandise, and with fitting rooms. Respondents having the most difficulty included those with arm braces, body braces, and wrist or hand splints. Contrary to past research, clothing use was seldom a problem for most respondents. However, the majority still had difficulty in purchasing suitable clothing at least some of the time. As expected, handicappers sometimes encountered unknowledgeable, unhelpful staffs.

The retailer sample, containing 124 employees, included subjects with a variety of positions and experiential levels. Most had assisted handicapper shoppers, some having worked with as many as six different devices and with several physical characteristics. Most retailers did not think that the handicapper market was sizable; however, the majority of employees thought that it would be profitable to tap the market. Almost one third of the subjects thought that retailers were unaware of handicapper clothing needs, but more than half felt that training to assist handicappers was unnecessary. Few subjects had ever received such training.

For all clothing and accessibility concerns, retailers' mean ratings were higher than those of handicappers, indicating that they considered those problems more severe than did handicappers. Retailers also felt that handicappers encountered unhelpful store personnel at least some of the time.

Accessibility problems were evident in all of the stores surveyed. The parking facilities and paths to stores, store furnishings, fitting rooms, and customer conveniences in most stores would be problematic for many customers. Similar difficulties with accessibility were reported by handicappers and retailers.

For all accessibility considerations, discount stores had the highest ratings when compared to department and specialty stores. Women's clothing departments and stores were more barrier-free than men's stores; in stores with inaccessible fitting rooms, where it was necessary to make arrangements for trying on and approving garments at home, retailers were more accommodating in women's departments and stores.

Stores located in enclosed malls and auto strip developments were more accessible than those in other locations, and city stores had higher accessibility ratings than those in small towns. In their responses, handicappers expressed a preference for the same shopping locations and areas.

It was hypothesized that retailers would not be aware of the clothing needs of handicappers. This hypothesis was accepted, because retailers thought that handicappers experienced more problems than they actually did.

Another hypothesis stated that handicappers would experience difficulty in the use of available clothing most of the time. However,

handicappers said that they seldom experienced problems with their clothing. Hence, the hypothesis was rejected.

It was also hypothesized that handicappers would experience difficulty in obtaining suitable clothing most of the time. This hypothesis was accepted. Most subjects were unable to find adequate clothing at least some of the time.

Retailers would not be aware of the accessibility needs identified by handicappers, according to one hypothesis. This hypothesis was accepted. In most cases, retailers actually considered accessibility problems more severe than they were and, therefore, were not aware of the true needs of handicappers. There was no significant difference between the responses of handicappers and retailers to questions concerning difficulty in moving through the store and fitting room accessibility.

Because it was assumed that handicappers would shop in less accessible stores infrequently, it was hypothesized that retailers would be more aware of handicapper clothing needs and accessibility problems in stores identified as more accessible by the accessibility checklist. This hypothesis was rejected. For all but one item, planned comparisons of more and less accessible stores showed no significant difference at the .05 level between responses concerning clothing and accessibility problems.

It was hypothesized that handicappers who shopped alone would frequent stores less often than those who shopped with others, relying on other means of clothing acquisition. This hypothesis was rejected. Both groups, those who shopped alone and those who shopped with other people, shopped in stores much more often than they utilized other clothing sources.

Most of the results of this study were contrary to previous research. Though all of the earlier studies concerning handicapper clothing problems

indicated that there were numerous difficulties, the present study did not. Possible reasons for the difference include handicappers' possible lack of awareness of adaptive clothing or their acceptance of clothing problems as immutable consequences of their physical characteristics. In keeping with the traditional view of handicappers, the physical characteristic, rather than the clothing, may be considered problematic. Another explanation is that the clothing styles available at the time that the present research was conducted were more convenient for handicappers than the apparel which was fashionable during previous research.

Retailers were expected to be unaware of the clothing and accessibility problems of handicappers. Contrarily, rather than underplaying their significance, retailers magnified those difficulties. Their responses, however, do not necessarily reflect an awareness of handicapper needs. Several respondents stated that they felt unqualified to answer questions about handicapper problems; as a result, they avoided negative responses to questions regarding clothing and accessibility. Retailers, assuming that all of the items listed must have been problems for someone, may have been educated by the questionnaire. In addition, feelings of social responsibility toward handicappers could have prompted retailers to respond as they did; the subjects felt that they should be aware of handicapper problems and overemphasized their importance. Among people who lack accurate information about the real needs of handicappers, there is also the tendency to concentrate on deficits and overlook capabilities.

As expected, most stores were fairly inaccessible to handicappers. Only eight of the 28 stores reflected efforts to increase accessibility. No attempts to enhance accessibility were apparent in the other stores.

Even minor modifications involving no cost had not been made. Retailers were either unaware of accessibility requirements or did not care to meet them.

The educational program to be developed as a result of this research should promote a realistic understanding of handicappers' needs. Store accessibility, rather than clothing use and acquisition, should be emphasized in the program.

Recommendations

Because the present study yielded several unexpected results, additional information is necessary to clarify and explain some of the findings. The following suggestions should be incorporated into future studies:

1. Determine handicappers' actual knowledge of specialized clothing and sources of information about garment adaptation.
2. Determine why handicappers prefer certain shopping locations and areas.
3. Examine the accessibility of stores actually preferred by handicappers.
4. Examine the budgets of handicappers and determine how much money is actually available and/or used for clothing purchases.
5. Determine what clothing problems are encountered by people who dress and care for handicappers.
6. Determine retailers' attitudes toward handicappers.
7. Determine whether and in what manner retailers' experience in working with handicappers affects the delivery of services.
8. Examine the accessibility of discount stores belonging to several companies.

APPENDICES

APPENDIX A. CORRESPONDENCE

Letter to Validators of Clothing Concerns List

Cooperative Extension Service
Michigan State University and U.S. Department of Agriculture Cooperating, East Lansing, Michigan 48824

Family Living Education

April 13, 1979

The Cooperative Extension Service and the Department of Human Environment and Design are currently involved in a program concerning the clothing acquisition of handicappers in Michigan. The aid of both handicappers and clothing retailers will enable Extension personnel to identify the community and individual needs of handicappers and to develop programs to help meet these needs. A slide presentation and fashion show will provide the basis of information to both groups on how the community can best meet handicapper needs.

As a first step in this project, we have reviewed the literiture concerning adaptive clothing (including theses, books, Extension materials, and articles) and have developed a list of handicapper clothing problems. We would like you, as someone who is knowledgeable about the clothing concerns of handicappers, to review and update the list. For each problem statement, please indicate by checking the appropriate column whether you have observed it or are aware of it as a clothing concern; whether you do not, in your experience, consider it a valid clothing concern; or whether you are unaware of it as a clothing concern. Space is provided following each category for comments and for additional clothing concerns of which you are aware.

Once this list is validated, it will be used to compare handicappers' and retailers' perceptions of clothing concerns. We will be happy to share the completed instrument and the results with you.

Please return the questionnaire in the enclosed, stamped, self-addressed envelope by Monday, April 30, 1979. Your cooperation in this project is greatly appreciated.

Yours truly,

Phyllis Bell Miller
Graduate Assistant
Human Environment and Design

Jacquelyn Yep Orlando
Associate Professor
Human Environment and Design

Follow-up Letter to Validators

Cooperative Extension Service
Michigan State University and U.S. Department of Agriculture Cooperating, East Lansing, Michigan 48824

Family Living Education

May 9, 1979

You recently received a list of handicapper clothing concerns that you were asked to validate. Although we have had an excellent response, we would still appreciate the benefit of your knowledge and input. If you haven't already done so, please return the list at your earliest convenience. Thank you.

Yours truly,

Jacquelyn Yep Orlando
Associate Professor
Human Environment and Design

Phyllis Bell Miller
Graduate Assistant
Human Environment and Design

JYO/cm

Letter to Retailers

MICHIGAN STATE UNIVERSITY

COLLEGE OF HUMAN ECOLOGY
DEPARTMENT OF HUMAN ENVIRONMENT AND DESIGN

EAST LANSING • MICHIGAN • 48824

Dear Retailer:

The Cooperative Extension Service is currently investigating the clothing concerns and shopping problems of handicappers, persons with physical characteristics/disabilities. The study will result in a community, educational program for retailers and handicappers.

Your store is among those randomly selected to participate in this study from all clothing retailers in the tri-county area. The research will not interfere in any way with your business or with the routine of your staff.

You will receive a phone call that will provide you with further information. Your cooperation will be greatly appreciated.

Sincerely,

Phyllis Bell Miller
Graduate Assistant
Human Environment and Design

Dr. Jacquelyn Orlando
Associate Professor
Human Environment and Design

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APPENDIX B. INSTRUMENTS

Handicapper Questionnaire

MICHIGAN STATE UNIVERSITY

COLLEGE OF HUMAN ECOLOGY EAST LANSING, MICHIGAN 48824
DEPARTMENT OF HUMAN ENVIRONMENT AND DESIGN

The Cooperative Extension Service is looking into the clothing and shopping problems of handicappers, persons with physical characteristics generally thought to be handicaps or disabilities. The study will result in a community educational program for handicappers and retailers.

This questionnaire will help us to develop a program that could make shopping easier for you. Please answer all of the questions and return it in the enclosed envelope.

If you have any questions or need help with the questionnaire, call Phyllis Miller at 485-8884 or 353-3877. Your cooperation is greatly appreciated.

Sincerely,

Phyllis Bell Miller
Graduate Assistant
Human Environment and Design

Jacquelyn Orlando
Associate Professor
Human Environment and Design

Directions: Please indicate your response by checking the appropriate box.

Are you a handicapper?
1 ( ) yes 2 ( ) no

Are you 18 years of age or older?
1 ( ) yes 2 ( ) no

If you answered "yes" to both questions, please complete this questionnaire. If not, please return the questionnaire so that we may keep a record of the number of respondents.

1. Sex:
1 ( ) male 2 ( ) female

2. Age group:
1 ( ) 18-19 years
2 ( ) 20-24 years
3 ( ) 25-34 years
4 ( ) 35-44 years
5 ( ) 45-54 years
6 ( ) 55-59 years
7 ( ) 60-64 years
8 ( ) 65-74 years
9 ( ) 75 years and older

3. Check the highest level of completed education:

1 ( ) less than eighth grade
2 ( ) eighth grade
3 ( ) high school or equivalent
4 ( ) some college or business school
5 ( ) Associate or 2-year degree
6 ( ) 4-year college degree
7 ( ) advanced degree

4. Was (were) your main handicapper characteristic(s): (check only one)

1 ( ) present from birth
2 ( ) acquired during childhood
3 ( ) acquired during adulthood (after age 18)

5. What are the effects of your characteristic(s)? (check all that apply)

1 ( ) resistance to movement/body stiffness
2 ( ) limited large-scale movements (of arms or legs)
3 ( ) limited small movements (of hands)
4 ( ) limited complex small movements (or difficulty in gripping small items with fingers)
5 ( ) decreased body awareness (loss of feel in some sections of the body)
6 ( ) limited sense of balance
7 ( ) limited strength/endurance or general weakness
8 ( ) incontinence (lack of bowel and/or bladder control)
9 ( ) use of ostomy or colostomy bags (feces or urine collection bags)
10 ( ) decrease in vision (nearsightedness, narrower visual field, blindness, change in color vision, etc.)
11 ( ) decrease in hearing
12 ( ) dwarfism
13 ( ) paraplegia (loss of use or sensation in lower part of body)
14 ( ) quadriplegia (loss of use of sensation in both arms and legs)
15 ( ) hemiplegia (loss of use or sensation in right or left side of body)
16 ( ) modified body shape (forms of scoliosis, lordosis, kyphosis, etc.)
( ) other (please indicate) _____
( ) none

6. Which device(s) do you use? (check all that apply)
   1 ( ) crutches
   2 ( ) walker
   3 ( ) cane
   4 ( ) wheelchair
   5 ( ) motorized scooter (Amigo®, etc.)
   6 ( ) leg braces
   7 ( ) arm braces
   8 ( ) body brace (Milwaukee, etc.)
   9 ( ) back brace or corset
  10 ( ) wrist and hand splint
  11 ( ) artificial upper limb
  12 ( ) artificial lower limb
  13 ( ) other (please indicate) _____
  14 ( ) none

7. How do you usually get dressed? (check only one)
   1 ( ) self-help only
   2 ( ) self-help with another person assisting
   3 ( ) completely dressed by another or others

8. Where do you buy <u>most</u> of your clothing? (check only one)
   1 ( ) men's clothing store (sells men's clothing items only)
   2 ( ) women's clothing store (sells women's clothing items only)
   3 ( ) clothing store (sells clothing items for men/women/children only)
   4 ( ) department store (sells clothing and many other items)
   5 ( ) discount store (sells a variety of goods and is known for low prices)
   6 ( ) from fabric store as pattern and fabric
   7 ( ) mail-order catalogue
   8 ( ) custom tailor/dressmaker
   9 ( ) other (please indicate) _____

9. Who selects <u>most</u> of your clothing? (check only one)
   1 ( ) self
   2 ( ) spouse
   3 ( ) relative
   4 ( ) friend
   5 ( ) self and spouse
   6 ( ) self and relative
   7 ( ) self and friend
   8 ( ) other (please indicate) _____

10. What transportation do you usually use when you shop for clothing in stores? (check only one)
    1 ( ) drive self
    2 ( ) driven by spouse/relative/friend
    3 ( ) special phone-response transportation service
    4 ( ) public/city transportation (bus or cab)
    5 ( ) on foot, by wheelchair, etc.

11. When you shop for clothing in stores, which type of shopping area is easiest for you to use? (check only one)
    1 ( ) enclosed mall
    2 ( ) open mall
    3 ( ) concentrated retail area with pedestrian way (downtown-type shopping area)
    4 ( ) auto strip development (suburban-type shopping plaza with a few stores and a parking area)

12. Where do you live?
    1 ( ) central city and its suburbs (metropolitan area of 50,000 or more)
    2 ( ) small town (population of 100 or more)
    3 ( ) open country/rural (non-suburban)

13. Where are the clothing stores in which you shop most often? (check only one)
    1 ( ) central city and its suburbs (metropolitan area of 50,000 or more)
    2 ( ) small town (population of 100 or more)
    3 ( ) open country/rural (non-suburban)

Directions: Please place a check in the column which best answers the following questions.

	Never 1	Seldom 2	Sometimes 3	Frequently 4	Always 5
14. How often do you encounter the problems below when shopping for clothing?					
a. lack of transportation					
b. limited access to store (lack of accessible parking, entrances, or elevators; no path ramps in sidewalks, etc.)					
c. difficulty in moving through store/clothing department (because of floor covering, steps, arrangement of racks and counters, etc.)					
d. difficulty in reaching and/or seeing items (racks, counters, or displays too high, clothing items awkward to reach alone, etc.)					
e. lack of accessible fitting rooms (large enough to be entered and used by wheelchair users)					
f. inability to try on clothes at all					
g. sales staff not trained to help with handicapper clothing problems					
15. How often are you able to purchase (from any source) attractive clothing that suits your needs?					
16. How often does clothing that you buy or patterns need alterations or changes to make them right for you?					

Directions: Below is a list of clothing problems and concerns that handicappers may have. Please place a check in the column that best describes your experience.

	Never a Problem 1	Seldom a Problem 2	Sometimes a Problem 3	Frequently a Problem 4	Always a Problem 5
Appearance					
1. Clothing especially designed for handicappers is not similar to those worn by others in social and/or occupational groups.					
2. Clothing especially designed for handicappers is not attractively styled.					
3. Clothing does not minimize or hide physical differences or assistive devices (braces, artificial limbs, etc.) worn underneath them.					
4. Clothing rides up and is too short when wheelchair or assistive devices (braces, artificial limbs, etc.) are used.					
5. Orthopedic or other necessary footwear is not attractive and/or not suitable with dressier clothing.					
6. Clothing's fit is unattractive because it is too snug or tight in areas where assistive devices (braces, artificial limbs, etc.) are worn.					
Durability					
7. Clothing does not last long enough because of the way it is made.					
8. Clothing develops holes and snags or wears out easily in areas that rub against assistive devices (crutches, braces, artificial limbs, wheelchairs, etc.).					
9. Hems snag on assistive devices (crutches, braces, artificial limbs, etc.) and pull out during walking.					
Comfort					
10. Clothing is not comfortable because of fit, style, fabric type, or the way it is made.					
11. Clothing is too snug or tight in areas where assistive devices (braces, artificial limbs, etc.) are worn.					

	Never a Problem	Seldom a Problem	Sometimes a Problem	Frequently a Problem	Always a Problem
	1	2	3	4	5
12. Outerwear (coats, jackets, ponchos, etc.) is too long and is too bulky under the seat of wheelchair users.					
Dressing and Undressing					
13. Dressing and undressing is difficult.					
14. Clothing openings are difficult to reach.					
15. Sleeve or cuff openings are difficult to reach or to open and close.					
16. Clothing is difficult to pull over calipers, artificial limbs, appliances, etc.					
17. Pant cuff styles are too narrow for easy dressing and undressing, especially when appliances or assistive devices (braces, artificial limbs, etc.) are worn.					
18. Fabrics catch on assistive devices (braces, artificial limbs, etc.) making dressing and undressing more difficult.					
Fasteners					
19. Overall, fasteners are a problem because of type, size, shape, etc.					
20. Fasteners (buttons, snaps, etc.) are too close together to open or close easily.					
21. Clothing has too many fasteners (buttons, snaps, etc.) and dressing and undressing take too long.					
22. Zipper tab or pull is too small or difficult to grasp.					
23. Zippers are difficult to hold in position while opening or closing.					
24. Separating zippers, which unfasten completely, are difficult to join at bottom.					
25. Hook and loop pressure tape (Velcro®, etc.) is difficult to line up quickly and easily.					

GENERAL COMMENTS:

	Never a Problem	Seldom a Problem	Sometimes a Problem	Frequently a Problem	Always a Problem
26. Buttons are too slippery to grasp and handle easily.					
27. Size and shape of buttons makes them difficult to handle.					
28. Snaps are difficult to grasp because of their size and/or shape.					
29. Snaps are difficult to open or close.					
30. Laces (on shoes, garments, etc.) are difficult to thread.					
31. Laces and other tied fasteners (on shoes, garments, etc.) are difficult to tie.					
Movement					
32. Clothing restricts movement because of style, fit and/or construction.					
33. Clothing styles do not have enough room for movement in sleeve, underarm, chest, or back area.					
34. Clothing styles are too narrow or tight for easy self-transfers.					
35. Clothing styles are too narrow for easy movement where assistive devices (braces, artificial limbs, etc.) are worn.					
Safety					
36. Clothing interferes with safety because it is too tight or too full.					
37. Fabrics cause body to slip from helper's grasp when being carried or transferred.					
38. Smooth soles on footwear cause instability, slipping, or falls.					
39. Fabrics cause slipping from chair or bed.					
40. Smooth glove palms interfere with grip of cane, crutches, wheels, railings, bars, etc.					

Retailer Questionnaire

MICHIGAN STATE UNIVERSITY

COLLEGE OF HUMAN ECOLOGY EAST LANSING, MICHIGAN 48824
DEPARTMENT OF HUMAN ENVIRONMENT AND DESIGN

The Cooperative Extension Service is currently examining the clothing concerns and shopping problems of handicapper shoppers, defined in this case as persons with physical characteristics generally thought to be handicaps, disabilities, or limitations. The study will result in a community, educational program for retailers and handicapper citizens.

This questionnaire is vital to our research. We need your input to make this project a success. Please answer all of the questions and sign the consent form; this is necessary if we are to use your questionnaire. Your cooperation is greatly appreciated.

If you have any questions or need assistance in completing the questionnaire, call 485-8884 or 353-3877 and ask for Phyllis Miller.

Sincerely,

Phyllis Bell Miller
Graduate Assistant
Human Environment and Design

Jacquelyn Orlando
Associate Professor
Human Environment and Design

Store I.D. # _____

PART I

Directions: Please indicate your response by checking the appropriate box.

1. Sex: 1 ( ) male 2 ( ) female

2. Age group:

1 ( ) 18-19 years
2 ( ) 20-24 years
3 ( ) 25-34 years
4 ( ) 35-44 years
5 ( ) 45-54 years
6 ( ) 55-59 years
7 ( ) 60-64 years
8 ( ) 65-74 years
9 ( ) 75 years and over

3. Check the highest level of completed education:
   1 ( ) less than eighth grade
   2 ( ) eighth grade
   3 ( ) high school or equivalent
   4 ( ) some college or business school
   5 ( ) Associate or two-year college
   6 ( ) four year college degree
   7 ( ) advanced degree

4. What is your primary position? (check only one)
   1 ( ) store owner/partner
   2 ( ) store manager/assistant manager
   3 ( ) buyer/assistant buyer
   4 ( ) department manager/supervisor or
         assistant department manager/supervisor
   5 ( ) salesperson
   6 ( ) alterationist

5. How long have you worked in clothing sales?
   1 ( ) less than one year
   2 ( ) 1-5 years
   3 ( ) 5-10 years
   4 ( ) 10 years or more

6. How often do you work?
   1 ( ) part time
   2 ( ) full time

7. Have you assisted a shopper who had any of the following devices one or more times? (check all that apply)
   1 ( ) crutches
   2 ( ) wheelchair
   3 ( ) motorized scooter (Amigo® or other)
   4 ( ) walker
   5 ( ) cane (for assistance in walking, not vision)
   6 ( ) artificial limb (arm(s), leg(s), etc.)
   7 ( ) other _____
   8 ( ) have never assisted handicapper shopper

8. Do you think that there is a large handicapper clothing market?
   1 ( ) yes
   2 ( ) no

9. Do you think it is/would be cost effective/profitable to serve the handicapper market in your community?
   1 ( ) yes
   2 ( ) no

10. Do you think that retailers, as a group, are aware of the clothing needs of handicapper shoppers?
   1 ( ) yes
   2 ( ) no

11. Have you ever received training in or information about assisting handicapper shoppers?
   1 ( ) yes
   2 ( ) no

12. Do you see a need for such training?
   1 ( ) yes
   2 ( ) no

13. How often do you think that handicapper shoppers encounter the problems below?

	Never 1	Seldom 2	Sometimes 3	Frequently 4	Always 5
a. lack of transportation					
b. limited access to store (lack of accessible parking, entrances, elevators; no path ramps in sidewalks, etc.)					
c. difficulty in moving through store/clothing department (because of floor covering, steps, arrangement of racks and counters, etc.)					
d. difficulty in reaching and/or seeing items (racks, counters, or displays too high, clothing items awkward to reach alone, etc.)					
e. lack of accessible fitting rooms (large enough to be entered and used by wheelchair users)					
f. inability to try on clothes at all					
g. sales staff not trained to help with handicapper clothing problems					

14. How often do you think that handicapper shoppers are able to purchase garments that are attractive, suitable, and that fit their need?

PART II

Directions: Below is a list of clothing problems and concerns that handicappers may have. Please check the appropriate box to indicate how much of a problem you think each items is for handicappers.

	1 Never a Problem	2 Seldom a Problem	3 Sometimes a Problem	4 Frequently a Problem	5 Always a Problem
Appearance					
1. Clothing especially design for handicappers is not similar to those worn by others in social and/or occupational groups.					
2. Clothing especially designed for handicappers is not attractively styled.					
3. Clothing does not minimize or hide physical differences or assistive devices (braces, artificial limbs, etc.) worn underneath them.					
4. Clothing rides up and is too short when wheelchair or assistive devices (braces, artificial limbs, etc.) are used.					
5. Orthopedic or other necessary footwear is not attractive and/or not suitable with dressier clothing.					
6. Clothing's fit is unattractive because it is too snug or tight in areas where assistive devices (braces, artificial limbs, etc.) are worn.					
Durability					
7. Clothing does not last long enough because of the way it is made.					
8. Clothing develops holes and snags or wears out easily in areas that rub against assistive devices (crutches, braces, artificial limbs, wheelchairs, etc.)					
9. Hems snag on assistive devices (crutches, braces, artificial limbs, etc.) and pull out during walking.					

	Never a Problem 1	Seldom a Problem 2	Sometimes a Problem 3	Frequently a Problem 4	Always a Problem 5
Comfort					
10. Clothing is not comfortable because of fit, style, fabric type, or the way it is made.					
11. Clothing is too snug or tight in areas where assistive devices (braces, artificial limbs, etc.) are worn.					
12. Outerwear (coats, jackets, ponchos, etc.) is too long and is too bulky under the seat of wheelchair users.					
Dressing and Undressing					
13. Dressing and undressing is difficult.					
14. Clothing openings are difficult to reach.					
15. Sleeve or cuff openings are difficult to reach or to open and close.					
16. Clothing is difficult to pull over calipers, artificial limbs, appliances, etc.					
17. Pant cuff styles are too narrow for easy dressing and undressing, especially when appliances or assistive devices (braces, artificial limbs, etc.) are worn.					
18. Fabrics catch on assistive devices (braces, artificial limbs, etc.), making dressing and undressing more difficult.					
Fasteners					
19. Overall, fasteners are a problem because of type, size, shape, etc.					

	Never a Problem 1	Seldom a Problem 2	Sometimes a Problem 3	Frequently a Problem 4	Always a Problem 5
20. Fasteners (buttons, snaps, etc.) are too close together to open or close easily.					
21. Clothing has too many fasteners (buttons, snaps, etc.) and dressing and undressing takes too long.					
22. Zipper tab or pull is too small or difficult to grasp.					
23. Zippers are difficult to hold in position while openings or closing.					
24. Separating zippers, which unfasten completely, are difficult to join at the bottom.					
25. Hook and loop pressure tape (Velcro®, etc.) is difficult to line up quickly and easily.					
26. Buttons are too slippery to grasp and handle easily.					
27. Size and shape of buttons makes them difficult to handle.					
28. Snaps are difficult to grasp because of their size and/or shape.					
29. Snaps are difficult to open or close.					
30. Laces (on shoes, garments, etc.) are difficult to thread.					
31. Laces and other tied fasteners (on shoes, garments, etc.) are difficult to tie.					

	1 Never a Problem	2 Seldom a Problem	3 Sometimes a Problem	4 Frequently a Problem	5 Always a Problem
Movement					
32. Clothing restricts movement because of style, fit, and/or construction.					
33. Clothing styles do not have enough room for movement in sleeve, underarm, chest, or back area.					
34. Clothing styles are too narrow or tight for easy self-transfers.					
35. Clothing styles are too narrow for easy movement where assistive devices (braces, artificial limbs, etc.) are worn.					
Safety					
36. Clothing interferes with safety because it is too tight or too full.					
37. Fabrics cause body to slip from helper's grasp when being carried or transferred.					
38. Smooth soles on footwear cause instability, slipping, or falls.					
39. Fabrics cause slipping from chair or bed.					
40. Smooth glove palms interfere with grip of cane, crutches, wheels, railings, bars, etc.					

Retail Clothing Store Accessibility Checklist

RETAIL CLOTHING STORE ACCESSIBILITY CHECKLIST

I. Store Identification

A. 1. Name of store _____ I.D. # _____

2. Address _____

3. City _____ Zip _____

4. County _____

5. Telephone _____

6. Store contact person _____

7. Department contact _____ Ext. _____

B. Type of store:

1 [ ] Men's specialty store

2 [ ] Women's specialty store

3 [ ] Clothing/specialty store

4 [ ] Department store

5 [ ] Discount store

6 [ ] Other _____

C. Location of store:

1 [ ] On street in an auto strip development

2 [ ] On street in a concentrated retail area with pedestrian way

3 [ ] Within an open mall

4 [ ] Within an enclosed mall

5 [ ] Other _____

D. Area surrounding store:

1 [ ] Central city and its suburbs (metropolitan area of 50,000 or more)

2 [ ] Small town (population of 100 or more)

3 [ ] Open country/rural (non-suburban)

E. 1. Department:

1 [ ] Men's 2 [ ] Women's 3 [ ] Not applicable

2. Number of personnel: _____

3. Questionnaires distributed: _____

II. Parking and Public Way Access

A. Is handicapper designated parking available?

1 [ ] Yes

2 [ ] No

If yes:

a. Are the parking spaces signed as reserved for handicappers?

1 [ ] Yes

2 [ ] No

b. Are all of the spaces at least 12 feet wide?

1 [ ] Yes

2 [ ] No

c. Are the required number of parking spaces available (check list below)?

1 [ ] Yes

2 [ ] No

Total Parking Spaces in Lot	Required Number of Accessible Spaces
Up to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1000	2% of total
Over 1000	20 plus 1 for each 100 over 1000

d. How far are the accessible spaces located from the accessible entrance?

1 [ ] 300 feet or more

2 [ ] 200-299 feet

3 [ ] 100-199 feet

4 [ ] 99 feet or less

B. Is the surface of the parking lot smooth and hard (no sand, gravel, etc.)?

1 [ ] Yes

2 [ ] No

II. Parking and Public Way Access (continued)

C. Is the surface of all of the handicapper slots level or sloped less than 2% (1 unit in 50)?

1 [ ] Yes

2 [ ] No

D. Where is parking provided?

1 [ ] On street

2 [ ] Parking structure/garage

3 [ ] Lot

E. Are the accessible parking area and building separated by a street or other line of motorized travel?

1 [ ] Yes

2 [ ] No

F. Is the route from the handicapper-designated parking area to the public way free from obstructions (i.e. bollards, bumper blocks, pedestrian overpasses, railroad tracks, gateways, steps, steep inclines)?

1 [ ] Yes

2 [ ] No

a. If yes, how?

1 [ ] Curb cut

2 [ ] Open and path ramped to store

3 [ ] Open and grade level to store

b. If a path ramp is provided:

i. What is the gradient of the ramp?

1 [ ] More than 1 unit in 12

2 [ ] 1 unit in 12 or less

3 [ ] 1 unit in 15 or less

ii. Is the ramp 5 feet or wider over its entire run?

1 [ ] Yes

2 [ ] No

c. Are there signs designating the barrier-free route to the accessible entrance?

1 [ ] Yes

2 [ ] No

III. Approach to Building/Store/Shopping Mall

A. Is there a passenger loading zone for cars?

1 [ ] Yes

2 [ ] No

B. Is there a passenger loading zone for public transit?

1 [ ] Yes

2 [ ] No

C. What type of approach to building entrance area is provided?

1 [ ] Steps

2 [ ] Path ramp

3 [ ] Grade level

4 [ ] Other _____

a. If a ramp is provided:

i. Is is properly signed?

1 [ ] Yes

2 [ ] No

ii. Is the width of the ramp 5 feet along its entire run?

1 [ ] Yes

2 [ ] No

iii. What is the gradient of the ramp?

1 [ ] More than 1 unit in 12

2 [ ] 1 unit in 12 or less

3 [ ] 1 unit in 15 or less

b. If there are steps:

i. Is there a handrail on at least one side or in the center?

1 [ ] Yes

2 [ ] No

ii. Is/are handrail(s) 30-33 inches in height, measured from the surface of the steps?

1 [ ] Yes

2 [ ] No

IV. Malls - Line of Travel - Complete only if store is located in an open or enclosed mall.

A. Open mall

a. Is the path through the mall from parking to store grade level, sloped, and/or ramped when there are changes in level?

1 [ ] Yes

2 [ ] No

b. Is the route from handicapped-designated parking to the store fairly direct when compared to the usual foot path?

1 [ ] Yes

2 [ ] No

B. Enclosed mall

a. Is there an accessible building entrance or one so designated?

1 [ ] Yes

2 [ ] No

i. If yes, what is the primary use of accessible entrance?

1 [ ] Service

2 [ ] General public/shoppers

b. What type of doors are present?

1 [ ] Revolving

2 [ ] Hinged

3 [ ] Sliding

4 [ ] Automatic hinged

5 [ ] Automatic sliding

c. Does doorway have a clear open width of 33.5 inches or more?

1 [ ] Yes

2 [ ] No

d. Do doors require more or less than 6.6 to 8.8 pounds of pull to open?

1 [ ] Yes

2 [ ] No

IV. Malls - Line of Travel (continued)

B. e. Are there doors in series?

1 [ ] Yes

2 [ ] No

If yes:

i. Is there a B.C.F.A. (basic clear floor area) of 63 inches between doors clear of any door swing?

1 [ ] Yes

2 [ ] No

ii. Does second door have a clear open width of 33.5 inches or more?

1 [ ] Yes

2 [ ] No

iii. Does second door require more or less than 6.6 to 8.8 pounds of pull to open?

1 [ ] Yes

2 [ ] No

f. What type of handle/opener does each door have?

i. Ingoing door(s)

1 [ ] Plain, round knob

2 [ ] Knurled knob

3 [ ] Lever

4 [ ] Stirrup

5 [ ] Automatic

ii. Outgoing door(s)

1 [ ] Plain, round knob

2 [ ] Knurled knob

3 [ ] Lever

4 [ ] Panic bar

5 [ ] Flat push bar (Van Dupren style)

6 [ ] Automatic

IV. Malls - Line of Travel (continued)

C. Floor of entrance

a. Does the entrance have:

1 [ ] Two or more steps

2 [ ] One step

3 [ ] Ramp

4 [ ] Incline

5 [ ] Threshold, unbeveled on one or both edges

6 [ ] Threshold, beveled on both edges

7 [ ] Level area for 63 inches on both sides of door

b. If a ramp is present:

i. What is the gradient?

1 [ ] More than 1 unit in 12

2 [ ] 1 unit in 12 or less

3 [ ] 1 unit in 15 or less

ii. Is the ramp at least 5 feet wide along its entire run?

1 [ ] Yes

2 [ ] No

D. Is the route through the mall to the store or to the provision for level changes (i.e., elevator, stairs) grade level?

1 [ ] Yes

2 [ ] No

a. If no, what provision is made for level changes in <u>most</u> cases (check one)?

1 [ ] Steps

2 [ ] Inclinator

3 [ ] Path ramps (gradient of 1 unit in 12 or less)

4 [ ] Sloped floor (gradient of 1 unit in 20 or less)

5 [ ] Other _____

IV. Malls - Line of Travel (continued)

E. Predominate floor covering along lines of travel:

1 [ ] Carpeting with padding and/or with pile of more than 1/4 inch

2 [ ] Carpeting without padding and/or with pile of 1/4 inch or less

3 [ ] Tile

4 [ ] Wood or cement

F. Is the store in question located on an accessible entrance level?

1 [ ] Yes

2 [ ] No

a. If no, what provisions are made to provide access to the level on which the store is located? (If more than one means of circulation exists, check the one that appears lowest on the list)

1 [ ] Stairs/steps

2 [ ] Escalator

3 [ ] Lift

4 [ ] Inclinator

5 [ ] Elevator

6 [ ] Ramp(s) (gradient of 1 unit in 12 or less)

7 [ ] Sloping floor (gradient of 1 unit in 20 or less)

b. If there is an elevator, what features does it have (check all that apply)

1 [ ] Minimum clear open door width of 36 inches

2 [ ] Clear cab area of 25 square feet, with a minimum of 51 inches from rear cab wall to inside face of car door

3 [ ] Buttons in corridor not more than 47 7/16 inches above floor

4 [ ] Dual set of cab control buttons, with the higher set at 59 inches above the floor and the lower set at 29.5 inches above the floor

5 [ ] Automatic doors with safety shoe reversing device, light ray door reversing device or other type of proximity-sensing reversing device

V. Entrance to Store - If there is a particular entrance that is designated as or is said to be accessible, use it in your evaluation.

A. Type of store entrance:

1 [ ] Doors

2 [ ] Open front (as in enclosed mall)

B. If there are doors:

a. What type?

1 [ ] Revolving

2 [ ] Hinged

3 [ ] Sliding

4 [ ] Automatic hinged

5 [ ] Automatic sliding

b. Does door have at least 33.5 inches of clear open width?

1 [ ] Yes

2 [ ] No

c. Does door require more or less than 6.6 to 8.8 pounds of pull to open?

1 [ ] Yes

2 [ ] No

d. Are there doors in series?

1 [ ] Yes

2 [ ] No

If yes:

i. Is there a B.C.F.A. or 36 inches squared between doors clear of any door swing?

1 [ ] Yes

2 [ ] No

ii. Does the second door have at least 33.5 inches of clear open width?

1 [ ] Yes

2 [ ] No

iii. Does the second door require more or less than 6.6 to 8.8 pounds of pull to open?

1 [ ] Yes

2 [ ] No

V. Entrance to Store (continued)

B. e. What type of handle/opener does each door have?

i. Ingoing door(s):

1 [ ] Plain, round knob
2 [ ] Knurled knob
3 [ ] Lever
4 [ ] Stirrup
5 [ ] Automatic
6 [ ] Other _____

ii. Outgoing door(s):

1 [ ] Plain, round knob
2 [ ] Knurled knob
3 [ ] Lever
4 [ ] Panic bar
5 [ ] Flat push bar (Van Dupren style)
6 [ ] Automatic
7 [ ] Other _____

C. Floor of entrance/doorway:

1 [ ] Two or more steps
2 [ ] One step
3 [ ] Ramp (gradient of 1 unit in 12 or less)
4 [ ] Incline
5 [ ] Threshold unbeveled on one or both edges
6 [ ] Threshold beveled on both edges
7 [ ] Level for 63 inches on both sides of door

VI. Access to Levels within the Store

A. Type of building:

1 [ ] Multi-story

2 [ ] Split-level

3 [ ] Single story

B. Are all clothing (men's and women's wear) and facilities used by customers (restrooms, cutomer services, etc.) located on the accessible entrance level?

1 [ ] Yes

2 [ ] No

If yes, proceed to Section VII.

If no, complete remainder of this section.

C. What kind of circulation is provided between levels (if more than one check the one that appears lowest on the list)?

1 [ ] Stairs/steps

2 [ ] Escalator

3 [ ] Lift

4 [ ] Inclinator

5 [ ] Elevator(s) (see Part E)

6 [ ] Ramp(s) (see Part D)

7 [ ] Sloping floor (gradient of 1 unit in 20 or less)

D. Interior ramps

a. Are ramps properly signed?

1 [ ] Yes

2 [ ] No

b. Approximate gradient of ramp:

1 [ ] More than 1 unit in 12

2 [ ] 1 unit in 12 or less

3 [ ] 1 unit in 15 or less

VI. Access to Levels within the Store (continued)

D. c. Surface of ramp:

1 [ ] Carpeting with padding and/or with pile of more than 1/4 inch

2 [ ] Carpeting without padding and/or with pile of 1/4 inch or less

3 [ ] Tile

4 [ ] Wood or cement

d. Are handrails present?

1 [ ] Yes

2 [ ] No

If yes:

i. Is handrail height 31.5 to 33.5 inches from ramp surface?

1 [ ] Yes

2 [ ] No

ii. Are the handrails smooth, without sharp edges?

1 [ ] Yes

2 [ ] No

iii. Do the handrails extend 18" beyond the top and bottom of the ramp and return to walls or posts at the ends?

1 [ ] Yes

2 [ ] No

iv. Is there a landing at all ramp points of turning, entrance, exiting, and doors?

1 [ ] Yes

2 [ ] No

E. Elevators

a. Is there an elevator on an accessible level?

1 [ ] Yes

2 [ ] No

b. Is there an elevator designated as accessible?

1 [ ] Yes

2 [ ] No

VI. Access to Levels within the Store (continued)

E. c. Primary use of accessible elevator:

1 [ ] Passenger

2 [ ] Freight

d. Must another person be contacted prior to each use of the accessible elevator?

1 [ ] Yes

2 [ ] No

e. Does accessible elevator serve all levels used by customers?

1 [ ] Yes

2 [ ] No

f. Elevator design (check all that apply):

1 [ ] All buttons in corridor not more than 47 7/16 inches above floor

2 [ ] Minimum clear open door width of 36 inches

3 [ ] Clear cab area of 25 square feet, with a minimum of 15 inches from rear cab wall to inside face of car door

4 [ ] Dual set of control buttons inside cab

5 [ ] Higher set of control buttons at 59 inches above floor

6 [ ] Lower set of control buttons at 29.5 inches above the floor

7 [ ] Metal, braille or tactile numbers provided adjacent to cabin control buttons and switches

8 [ ] Metal, braille or tactile numbers provided for floor designation on each floor

9 [ ] Visual, floor level indicator

10 [ ] Audible gong when elevator lands on level where an accessible entrance is located

11 [ ] Audible, floor level indicator

12 [ ] Automatic doors, with safety shoe reversing device and a light ray door reversing device or other type of proximity-sensing reversing device

13 [ ] At least one handrail in cab

14 [ ] Handrail height of 31.5 to 33.5 inches above floor

VII. Clothing Sales Area

A. Furnishings

a. Are all counters 34 inches high or less?

1 [ ] Yes

2 [ ] No

i. If no, how many are more than 34 inches high?

1 [ ] 75-100%

2 [ ] 50-74%

3 [ ] 25-49%

4 [ ] Less than 25%

b. Are all clothing racks 52 inches high or less?

1 [ ] Yes

2 [ ] No

i. If no, how many are more than 52 inches high?

1 [ ] 75-100%

2 [ ] 50-74%

3 [ ] 25-49%

4 [ ] Less than 25%

c. Are all display shelves 52 inches high or less?

1 [ ] Yes

2 [ ] No

i. If no, how many are more than 52 inches high?

1 [ ] 75-100%

2 [ ] 50-74%

3 [ ] 25-49%

4 [ ] Less than 25%

d. Are all open stock displays (e.g. merchandise stored and displayed on walls, racks, etc.) 52 inches in height or less?

1 [ ] Yes

2 [ ] No

VII. Clothing Sales Area (continued)

A. d. i. If no, how many are more than 52 inches in height?

1 [ ] 75-100%

2 [ ] 50-74%

3 [ ] 25-49%

4 [ ] Less than 25%

B. Aisles

a. Do major aisles have a clear width of 63 inches or more?

1 [ ] Yes

2 [ ] No

b. Do minor aisles have a clear width of at least 40 inches?

1 [ ] Yes

2 [ ] No

c. Are there at least 63 square inches for turning around at the end of closed aisles?

1 [ ] Yes

2 [ ] No

d. Are there at least 43.3 inches for turning and access to other areas at the ends of open aisles?

1 [ ] Yes

2 [ ] No

C. Access within Department

a. Floor covering along lines of travel within clothing area:

1 [ ] Carpeting with padding and/or a pile of more than 1/4 inch

2 [ ] Carpeting without padding and/or a pile of 1/4 inch or less

3 [ ] Tile

4 [ ] Wood or cement

b. Is the floor level within the clothing area?

1 [ ] Yes

2 [ ] No

VII. Clothing Sales Area (continued)

C. b. i. If no, what features accommodate level changes?

1 [ ] Steps

2 [ ] Ramp (gradient of 1 unit in 12 or more)

3 [ ] Sloping floor (gradient of 1 unit in 20 or more)

ii. If a ramp is present, what is its surface?

1 [ ] Carpeting with padding and/or a pile of more than 1/4 inch

2 [ ] Carpeting without padding and/or a pile of 1/4 inch or less

3 [ ] Tile

4 [ ] Wood or cement

D. Fitting area

a. Is there a handicapper-designated fitting room (if yes, refer to it when answering the questions below)?

1 [ ] Yes

2 [ ] No

b. Entrance to fitting room(s):

1 [ ] Through a corridor

2 [ ] Directly from sales floor

If entry is through a corridor:

i. Does corridor entrance have at least 32 inches clear width?

1 [ ] Yes

2 [ ] No

ii. Is there a B.C.F.A. of 53 inches for turning into the corridor?

1 [ ] Yes

2 [ ] No

iii. Is corridor at least 40 inches wide?

1 [ ] Yes

2 [ ] No

VII. Clothing Sales Area (continued)

E. Fitting room closures

a. Does fitting room entrance have at least 33.5 inches clear width?

1 [ ] Yes

2 [ ] No

b. Type of closure on fitting room:

1 [ ] None (no provision for privacy)

2 [ ] Door

3 [ ] Sliding door

4 [ ] Saloon doors (shutters)

5 [ ] Curtain(s)

c. Do(es) door(s) open:

1 [ ] Toward fitting room interior

2 [ ] Toward aisle or sales floor

i. If door opens towards outside of room, are there 63 inches of clearance to get around the door and into the room?

1 [ ] Yes

2 [ ] No

ii. If door opens toward room interior, are there 63 square inches of clearance to get inside room and to close the door?

1 [ ] Yes

2 [ ] No

d. Type of hardware on fitting room closure:

1 [ ] Round knob

2 [ ] Lever

3 [ ] Stirrup handle

4 [ ] None needed

5 [ ] Other _____

F. Fitting room interior

a. Is clear floor space in fitting room 53 square inches?

1 [ ] Yes

2 [ ] No

VII. Clothing Sales Area (continued)

F. b. Are clothes hooks 40 inches from floor or less?

1 [ ] Yes

2 [ ] No

c. Is a chair, shelf, or other surface for parcels available?

1 [ ] Yes

2 [ ] No

i. If yes, is this surface 47 7/16 inches or less from the floor?

1 [ ] Yes

2 [ ] No

d. Is there a full length mirror, extending as low as 15 inches from floor?

1 [ ] Yes

2 [ ] No

e. Floor surface:

1 [ ] Carpeting with padding and/or pile of more than 1/4 inch

2 [ ] Carpeting without padding and/or a pile of 1/4 inch or less

3 [ ] Tile

4 [ ] Wood or cement

G. Alternative fitting areas

If standard fitting rooms are not design-balanced (according to the above fitting area and fitting room criteria), is there some alternative fitting area?

1 [ ] Yes

2 [ ] No

VII. Clothing Sales Area (continued)

G. If yes:

a. Facilities in this area (check all that apply)

1 [ ] Clothes hooks 40 inches or less from floor

2 [ ] Parcel shelf or surface 47 7/16 inches or less from floor

3 [ ] Full-length mirror that extends to within 15 inches from floor

4 [ ] Floor area of at least 53 square inches

5 [ ] Door or other partition to conceal customer from passing public or staff

6 [ ] Flooring of wood, cement, or low pile/low padding carpet

7 [ ] Clean floor, without sticky wax buildup, dirt, etc.

8 [ ] Adequate lighting (daylight conditions)

9 [ ] Surface for sitting (chair, dressing bench, etc.)

10 [ ] Other _____

b. If no accessible dressing room exists, can other arrangements be made for trying on, taking garment on approval, etc., without purchasing?

1 [ ] Yes

2 [ ] No

VIII. Check Out/Purchasing Area

A. Is counter 34 inches or less in height?

1 [ ] Yes

2 [ ] No

B. Does checkout area utilize checkout lanes?

1 [ ] Yes

2 [ ] No

a. If yes, is at least one checkout lane at least 40 inches wide?

1 [ ] Yes

2 [ ] No

C. Does checkout area utilize turnstiles?

1 [ ] Yes

2 [ ] No

a. If yes, is there a clearly marked, adjacent alternate and independent access route which is at least 40 inches wide?

1 [ ] Yes

2 [ ] No

IX. Customer Service Area

A. Is customer service area (layaway, adjustment department, cashier's office, etc.) on accessible entrance level or accessible by elevator, ramp, etc.?

1 [ ] Yes

2 [ ] No

B. Is a writing surface of 34 inches or less in height provided?

1 [ ] Yes

2 [ ] No

C. Is window/counter, etc. at which business is conducted 40 inches or less in height, providing the handicapper a clear view of the transaction?

1 [ ] Yes

2 [ ] No

D. Are wheelchairs available for customer use in the store here or elsewhere in the store?

1 [ ] Yes

2 [ ] No

E. Restrooms:

1 [ ] No restroom(s) available for customer use

2 [ ] Restroom(s) available but not accessible

3 [ ] Accessible unisex restroom

4 [ ] Accessible, separate facilities for men and women (if specialty store, accessible facility for the gender served)

Retail Clothing Store Rating System

Retail Clothing Store Rating System

	Point[a] Value	Optimal[b] Value
I. Store Identification		
C. Store Location		49
1. auto strip	49	
2. retail area	49	
3. open mall	47	
4. enclosed mall	0	
TOTAL 3 (Store Location Accessibility)		49
II. Parking and Public Way Access		
A. Handicapper Parking		
1. yes	1	1
2. no	0	
a. signed spaces		
1. yes	1	1
2. no	0	
b. space width		
1. yes	1	1
2. no	0	
c. required number		
1. yes	1	1
2. no	0	
d. distance		3
1. 300 ft. or more	0	
2. 200-299 ft.	1	
3. 100-199 ft.	2	
4. 99 ft. or less	3	
B. Lot Surface		
1. yes	1	1
2. no	0	
C. Lot Slope		1
1. yes	1	
2. no	0	

[a]Points assigned to each of them

[b]Total possible points for items, sections contributing to the maximal rating.

	Point[a] Value	Optimal[b] Value
D. Parking Area		2
1. street	0	
2. structure/garage	1	
3. lot	2	
E. Motorized Travel		1
1. yes	0	
2. no	1	
F. Obstruction - Free Route		1
1. yes	1	
2. no	0	
a. yes		5
1. curb cut	0	
2. ramped	1	
3. grade level	5	
b. ramp		
i. ramp gradient		
1. more than 1:12	0	
2. 1:12 or less	1	
3. 1:15 or less	2	
ii. adequate ramp width		
1. yes	1	
2. no	0	
c. barrier - free route signs		1
1. yes	1	
2. no	0	
TOTAL 1 (Parking/Public Way Accessibility)		19
III. Approach to Building/Store/Shopping Mall		
A. Car Loading Zone		1
1. yes	1	
2. no	0	
B. Public Transit Loading Zone		1
1. yes	1	
2. no	0	
C. Approach		8
1. steps	0	
2. ramp	1	
3. grade level	8	

	Point[a] Value	Optimal[b] Value
4. Other	0	
a. ramp		
i. signed		
1. yes	1	
2. no	0	
ii. adequate width		
1. yes	1	
2. no	0	
b. steps		
i. handrail		
1. yes	1	
2. no	0	
ii. adequate handrail height		
1. yes	1	
2. no		
TOTAL 2 (Building Approach Accessibility)		10
IV. Malls - Line of Travel		
A. Open Mall		
1. level path		
a. yes	1	
b. no	0	
2. direct route		
a. yes	1	
b. no	0	
TOTAL 4 (Open Mall Accessibility)	2	
B. Enclosed Mall		
1. acccessible entrance		1
a. yes	1	
b. no	0	
i. if yes, entrance's use:		1
1. service	0	
2. general public	1	
2. doors		4
a. revolving	0	
b. hinged	1	
c. sliding	2	
d. automatic hinged	3	
e. automatic sliding	4	

	Point[a] Value	Optimal[b] Value
3. adequate doorway width		1
a. yes	1	
b. no		
4. heavy/light door pressure		1
a. yes	0	
b. no	1	
5. doors in series		4
a. yes	0	
b. no	4	
If yes:		
i. adequate B.C.F.A.		
1. yes	1	
2. no	0	
ii. 2nd door: adequate width		
1. yes	1	
2. no	0	
iii. 2nd door: heavy/light pressure		
1. yes	0	
2. no	1	
6. door handles		
i. ingoing		4
1. round knob	0	
2. knurled knob	1	
3. lever	2	
4. stirrup	3	
5. automatic	5	
ii. outgoing		5
1. round knob	0	
2. knurled knob	1	
3. lever handle	2	
4. panic bar	3	
5. push bar	4	
6. automatic	5	
C. Floor of Entrance		
1. entrance has		9
a. steps	0	
b. one step	1	
c. ramp	2	
d. incline	6	
e. unbeveled threshold	7	
f. beveled threshold	8	
g. level	9	

	Point[a] Value	Optimal[b] Value
2. ramp:		
i. gradient		
1. more than 1:12	0	
2. 1:12 or less	1	
3. 1:15 or less	2	
ii. adequate width		
1. yes	1	
2. no	0	
TOTAL 5 (Mall Entrance Accessibility)		30
D. Accessible Mall Route		4
1. yes	4	
2. no	0	
a. provision for level change		
1. steps	0	
2. inclinator	1	
3. ramp (1:13 gradient)	2	
4. sloped floor	3	
5. other	0	
E. Flooring		3
1. thick carpeting	0	
2. thin carpeting	1	
3. tile	2	
4. wood or cement	3	
F. Store on Accessible Entrance Level		12
1. yes	12	
2. no	0	
a. if no, means of circulation		
1. stairs/steps	0	
2. escalator	1	
3. lift	2	
4. inclinator	3	
5. elevator	4	
6. ramp (1:12 gradient)	10	
7. sloping floor	11	
b. elevator		
1. adequate door width	1	
2. adequate cab area	1	
3. low call buttons	1	
4. dual cab controls	1	
5. automatic doors	1	
TOTAL 6 (Mall Interior Accessibility)		19

	Point[a] Value	Optimal[b] Value
V. Store Entrance		
A. Type		19
1. doors	0	
2. open front	19	
B. If doors:		
1. type		
a. revolving	0	
b. hinged	1	
c. sliding	2	
d. automatic hinged	3	
e. automatic sliding	4	
2. adequate width		
a. yes	1	
b. no	0	
3. heavy/light pressure		
a. yes	0	
b. no	1	
4. doors in series		
a. yes	0	
b. no	4	
i. adequate B.C.F.A.		
1. yes	1	
2. no	0	
ii. 2nd door: adequate width		
1. yes	1	
2. no	0	
ii. 2nd door: heavy/light pressure		
1. yes	0	
2. no	1	
5. door handles		
i. ingoing		
1. round knob	0	
2. knurled knob	1	
3. lever	2	
4. stirrup	3	
5. automatic	4	
6. other	2	
ii. outgoing		
1. round knob	0	
2. knurled knob	1	
3. lever	2	
4. panic bar	3	
5. push bar	4	

	Point[a] Value	Optimal[b] Value
6. automatic	5	
7. other	2	
C. Entrance Floor:		
1. steps	0	6
2. one step	1	
3. ramp (1:12 gradient)	2	
4. incline	3	
5. unbeveled threshold	4	
6. beveled threshold	5	
7. level	6	
TOTAL 7 (Store Entrance Accessibility)		25
VI. Access to Levels Within the Store		
A. Building Type:		2
1. multi-story	0	
2. split-level	1	
3. single story	2	
B. All clothing/facilities on entrance level		25
1. yes	25	
2. no	0	
C. Circulation		
1. steps	0	
2. escalator	1	
3. lift	2	
4. inclinator	3	
5. elevator	3	
6. ramp(s)	12	
7. sloping floor	24	
D. Interior ramps		
1. signed		
a. yes	1	
b. no	0	
2. gradient		
a. more than 1:12	0	
b. 1:12 or less	1	
c. 1:15 or less	2	
3. surface		
a. thick carpeting	0	
b. thin carpeting	1	

	Point[a] Value	Optimal[b] Value
c. tile	2	
d. wood or cement	3	
4. handrails		
a. yes	1	
b. no	0	
i. adequate height		
1. yes	1	
2. no	0	
ii. smooth		
1. yes	1	
2. no	0	
iii. adequate length		
1. yes	1	
2. no	0	
iv. landing		
1. yes	1	
2. no	0	
TOTAL 8 (Store Level Accessibility)		27
E. Elevators		
1. elevator on accessible level		1
a. yes	1	
b. no	0	
2. accessible elevator		1
a. yes	1	
b. no	0	
3. primary use		1
a. yes	1	
b. no	0	
4. must contact employee to use		1
a. yes	0	
b. no	1	
5. serves all levels		1
a. yes	1	
b. no	0	
6. elevator design		14
a. low call buttons	1	
b. adequate door width	1	
c. adequate cab area	1	
d. dual cab controls	1	
e. high cab controls	1	
f. low cab controls	1	
g. tactile cab control designations	1	
h. tactile floor designations	1	
i. visual floor indicator	1	

	Point[a] Value	Optimal[b] Value
g. audible floor indicator	1	
h. audible gong	1	
i. proximity-sensing doors	1	
j. handrail	1	
k. adequate handrail height	1	
TOTAL 9 (Store Elevator Accessibility)		19
VII. Clothing Sales Area		
A. Furnishings		
1. low counters		4
a. yes	4	
b. no	0	
i. too high		
1. 75-100%	0	
2. 50-74%	1	
3. 25-49%	2	
4. less than 25%	3	
2. low racks		4
a. yes	4	
b. no	0	
i. too high		
1. 75-100%	0	
2. 50-74%	1	
3. 25-49%	2	
4. less than 25%	3	
3. low shelves		4
a. yes	4	
b. no	0	
i. too high		
1. 75-100%	0	
2. 50-74%	1	
3. 25-49%	2	
4. less than 25%	3	
4. low displays		4
a. yes	4	
b. no	0	
i. too high		
1. 75-100%	0	
2. 50-74%	1	
3. 25-49%	2	
4. less than 25%	3	
TOTAL 10 (Clothing Area Furnishings Access)		16

	Point[a] Value	Optimal[b] Value
B. Aisles		
1. wide major aisles		1
a. yes	1	
b. no	0	
2. wide minor aisles		1
a. yes	1	
b. no	0	
3. closed aisle turns		1
a. yes	1	
b. no	0	
4. open aisle turns		1
a. yes	1	
b. no	0	
C. Access within department		
1. floor covering		3
a. thick carpeting	0	
b. thin carpeting	1	
c. tile	2	
d. wood or cement	3	
2. level floor		6
a. yes	6	
b. no	0	
i. level change accomodations		
1. steps	0	
2. ramp (1:12 gradient)	1	
3. sloping floor	5	
ii. ramp		
1. thick carpeting	0	
2. thin carpeting	1	
3. tile	2	
4. wood or cement	3	
TOTAL 11 (Clothing Area Accessibility)		13
D. Fitting Area		
1. handicapper room		1
a. yes	1	
b. no	0	
2. entrance		4
a. through corridor	0	
b. from sales floor	4	
i. adequate corridor width		
1. yes	1	
2. no	0	
ii. adequate turning B.C.F.A. in corridor		
1. yes	1	
2. no	0	

	Point[a] Value	Optimal[b] Value
iii. adequate corridor width		
1. yes	1	
2. no	0	
E. Fitting Room Closures		
1. adequate door width		1
a. yes	1	
b. no	0	
2. closure		10
a. none	0	
b. door	1	
c. sliding door	2	
d. saloon doors	3	
e. curtain(s)	10	
3. door direction		
a. toward interior	0	
b. toward exterior	1	
i. exterior door turning B.C.F.A.		
1. yes	1	
2. no	0	
ii. interior door B.C.F.A.		
1. yes	1	
2. no	0	
4. door hardware		3
a. round knob	0	
b. lever	1	
c. stirrup handle	2	
d. none needed	3	
e. none	2	
F. Fitting Room Interior		
1. adequate B.C.F.A.		1
a. yes	1	
b. no	0	
2. low hooks		1
a. yes	1	
b. no	0	
3. parcel surface		1
a. yes	1	
b. no	0	
4. low mirror		1
a. yes	1	
b. no	0	
5. floor covering		3
a. thick carpeting	0	
b. thin carpeting	1	

	Point[a] Value	Optimal[b] Value
c. tile	2	
d. wood or cement	3	
TOTAL 12 (Fitting Area Accessibility)		26
G. Alternative Fitting Areas		1
1. yes	1	
2. no	0	
a. facilities		10
1. low hook(s)	1	
2. parcel surface	1	
3. low mirror	1	
4. adequate floor area	1	
5. partition/door	1	
6. accessible flooring	1	
7. clean floor	1	
8. adequate lighting	1	
9. seat	1	
10. other	1	
TOTAL 13 (Alternative Fitting Area)		11
3. other arrangements		5
1. yes	5	
2. no	0	
TOTAL 14 (Store Cooperativeness)		5
VIII. Check Out/Purchasing Area		
A. Low counter(s)		1
1. yes	1	
2. no	0	
B. Checkout lanes		1
1. yes	1	
2. no	0	
a. alternate route		1
1. yes	1	
2. no	2	
C. Turnstiles		1
1. yes	0	
2. no	1	
a. alternate route		1
1. yes	1	
2. no	0	
TOTAL 15 (Purchasing Area Accessbility)		5

	Point[a] Value	Optimal[b] Value
IX. Customer Service Area		
A. Accessible location		1
1. yes	1	
2. no	0	
B. Low writing desk		1
1. yes	1	
2. no	0	
C. Low window		1
1. yes	1	
2. no	0	
D. Wheelchairs available		1
1. yes	1	
2. no	0	
E. Restrooms		2
1. none	0	
2. available but inaccessible	0	
3. accessible, unisex	1	
4. accessible, separate facilities	2	
TOTAL 16 (Customer Service Accessibility)		6
TOTAL 17 = TOTALS 3 + 4 (Outdoor Mall Accessibility	49	
TOTAL 18 = TOTALS 3 + 5 + 6 (Enclosed Mall Accessibility)	49	
TOTAL 19 = TOTALS 7 + 8 + 9 (Store Entrance/ Circulation Accessibility)	71	
TOTAL 20 = TOTALS 10 + 11 + 12 + 13 + 14 (Clothing Sales Area Accessibility)	71	
TOTAL 21 = TOTALS 15 + 16 (Customer Service Accessibility)	11	
TOTAL 22 = Sum of TOTALS 1-16 (Total Store Accessibility)		280

Consent Form

CONSENT FORM

I have read the description of the project and am fully aware of its purpose and the intended use of the results. I have been given the opportunity to ask further questions about the details and the procedures of the study and have had them answered to my satisfaction. I also understand that my anonymity is guaranteed and that I may withdraw from the project at any time.

Date _____ Signed _____

APPENDIX C. PARTICIPATING HANDICAPPER AGENCIES

PARTICIPATING HANDICAPPER AGENCIES

Center of Handicapper Affairs
1026 East Michigan Avenue
Lansing, MI 48912

Easter Seal Society of Ingham County
2901 Wabash Road
Lansing, MI 48910

March of Dimes, Capital Chapter
500 South Capitol
Lansing, MI 48910

Multiple Sclerosis Society, Central Michigan Chapter
1436 Wellington
Lansing, MI 48910

Muscular Dystrophy Association, South-Central Michigan Chapter
6425 South Pennsylvania, Suite 10
Lansing, MI 48910

National Association of the Physically Handicapped, Inc.,
Michigan Area Chapter
c/o Mr. Walter A. Girard, President
2941 Kent Court
Trenton, MI 48183

Office of Programs for Handicappers
West 402, Library Building
Michigan State University
East Lansing, MI 48824

PAM Assistance Centre
110 Marshall Street
P.O. Box 21037
Lansing, MI 48909

Spina Bifida Association, Capitol Area Chapter
c/o Ruth Brazee, President
6084 Harkson
East Lansing, MI 48823

Stroke Center
200 Mill Street
Lansing, MI 48933

United Cerebral Palsy of Michigan, Tri-County Chapter
1026 East Michigan Avenue
Lansing, MI 48912

APPENDIX D. SUPPLEMENTARY TABLES

Table D1. Analysis of Variance Summary Table for Appearance

Source	D.F.	Mean Squares	F.	p Less Than
Groups	1	128.76	101.96	.0001
Error	254	1.26		
TOTAL	255			

Group Means and Standard Deviations

Group	Count	Mean	Standard Deviation
Handicappers	132	1.67	1.36
Retailers	124	3.09	.79
Combination	256	2.35	

Table D2. Analysis of Variance Summary Table for Durability

Source	D.F.	Mean Squares	F.	p Less Than
Groups	1	113.80	85.93	.0001
Error	254	1.32		
TOTAL	255			

Group Means and Standard Deviations

Group	Count	Mean	Standard Deviation
Handicappers	132	1.82	1.40
Retailers	124	3.16	.81
Combination	256	2.47	

Table D3. Analysis of Variance Summary Table for Comfort

Source	D.F.	Mean Squares	F.	p Less Than
Group	1	101.14	86.43	.0001
Error	254	1.17		
TOTAL	255			

Group Means and Standard Deviations

Group	Count	Mean	Standard Deviation
Handicappers	132	1.77	1.31
Retailers	124	3.02	.77
Combination	256	2.37	

Table D4. Analysis of Variance Summary Table for Dressing Ease

Source	D.F.	Mean Squares	F.	p Less Than
Groups	1	148.33	102.74	.0001
Error	254	1.44		
TOTAL	255			

Group Means and Standard Deviations

Group	Count	Mean	Standard Deviation
Handicappers	132	1.81	1.43
Retailers	124	3.33	.89
Combination	256	2.55	

Table D5. Analysis of Variance Summary Table for Fasteners

Source	D.F.	Mean Squares	F.	p Less Than
Groups	1	32.14	30.88	.0001
Error	254	1.04		
TOTAL	255			

Group Means and Standard Deviations

Group	Count	Mean	Standard Deviation
Handicappers	132	1.91	1.28
Retailers	124	2.62	.63
Combination	256	2.25	

Table D6. Analysis of Variance Summary Table for Mobility

Source	D.F.	Mean Squares	F.	p Less Than
Groups	1	97.80	91.63	.0001
Error	254	1.07		
TOTAL	255			

- -

Group Means and Standard Deviations

Group	Count	Mean	Standard Deviation
Handicapper	132	1.82	1.25
Retailer	124	3.05	.73
Combination	256	2.41	

Table D7. Analysis of Variance Summary Table for Safety

Source	D.F.	Mean Squares	F.	p Less Than
Groups	1	89.64	91.62	.0001
Error	254	.98		
TOTAL	255			

Group Means and Standard Deviations

Group	Count	Mean	Standard Deviation
Handicappers	132	1.84	1.21
Retailers	124	3.03	.68
Combination	256	2.41	

Table D8. Analysis of Variance Summary Table for Ability to Purchase Suitable Clothing

Source	D.F.	Mean Squares	F	p Less Than
Groups	1	1.02	.99	.32
Error	238	1.04		
Total	239			

Group Means and Standard Deviations

Group	Count	Mean	Standard Deviation
Handicappers	119	3.40	1.15
Detailers	121	3.27	.87
Combination	240	3.34	

Table D9. Analysis of Variance Summary Table for Transportation

Source	D.F.	Mean Squares	F.	p Less Than
Groups	1	118.71	104.80	.03
Error	237	1.13		
TOTAL	238			

Group Means and Standard Deviations

Groups	Count	Mean	Standard Deviation
Handicappers	118	2.14	1.34
Retailers	121	3.55	.69
Combination	239	2.86	

Table D10. Analysis of Variance Summary Table for Access to Store

Source	D.F.	Mean Squares	F.	p Less Than
Groups	1	4.72	3.90	.05
Error	233	1.21		
TOTAL	234			

Group Means and Standard Deviations

Groups	Count	Mean	Standard Deviation
Handicappers	116	2.76	1.22
Retailers	119	3.04	.97
Combination	235	2.90	

Table D11. Analysis of Variance Summary Table for Difficulty in Moving Through Store

Source	D.F.	Mean Squares	F.	p Less Than
Groups	1	.55	.45	.50
Error	240	1.22		
TOTAL	241			

- -

Group Means and Standard Deviations

Groups	Count	Mean	Standard Deviation
Handicappers	119	3.08	1.22
Retailers	223	3.17	.97
Combination	242	3.12	

Table D12. Analysis of Variance Summary Table for Shopping Difficulty

Source	D.F.	Mean Squares	F.	p Less Than
Groups	1	10.68	8.30	.004
Error	236	1.29		
TOTAL	237			

Group Means and Standard Deviations

Group	Count	Mean	Standard Deviation
Handicappers	115	2.98	1.35
Retailers	123	3.41	
Combination	238	3.20	

Table D13. Analysis of Variance Summary Table for Fitting Room Accessibility

Source	D.F.	Mean Squares	F.	p. Less Than
Groups	1	6.94	3.79	.05
Error	233	1.83		
TOTAL	234			

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Group Means and Standard Deviations

Group	Count	Mean	Standard Deviation
Handicappers	112	3.06	1.65
Retailers	123	3.41	1.01
Combination	235	3.24	

Table D14. Analysis of Variance Summary Table for Inability to Try on Clothing

Source	D.F.	Mean Squares	F.	p Less Than
Groups	1	8.21	4.98	.03
Error	235	1.65		
TOTAL	236			

Group Means and Standard Deviations

Group	Count	Mean	Standard Deviation
Handicappers	119	2.92	.14
Retailers	118	3.29	.09
Combination	237	3.10	

Table D15. Analysis of Variance Summary Table for Unknowledgeable or Unhelpful Staff

Source	D.F.	Mean Squares	F.	p Less Than
Groups	1	2.66	1.51	.22
Error	235	1.76		
TOTAL	236			

Group Means and Standard Deviations

Group	Count	Mean	Standard Deviation
Handicappers	114	2.99	1.54
Retailers	123	3.20	.09
Combination	237		

Table D16. Planned Comparisons Summary Table for Appearance

Comparison	Difference in Means	T-Value	p Less Than
Contrast 1[a]	-2.83	-10.07	.001
Contrast 2[b]	- .13	- .62	.53

Group Means and Standard Deviations

Group[c]	Count	Mean	Standard Deviation
Group 1	132	1.67	1.36
Group 2	60	3.02	.76
Group 3	64	3.15	.82
Combination	256	2.35	

[a]Difference between handicappers and all retailers

[b]Difference between retailers in more and less accessible stores

[c]Group 1 = handicappers, Group 2 = retailers in more accessible stores, Group 3 = retailers in less accessible stores.

Table D17. Planned Comparisons Summary Table for Durability

Comparison	Difference in Means	T-Value	p Less Than
Contrast 1[a]	-2.66	-9.25	.001
Contrast 2[b]	- .23	-1.12	.26

Group Means and Standard Deviations

Group[c]	Count	Mean	Standard Deviation
Group 1	132	1.82	1.40
Group 2	60	3.04	.85
Group 3	64	3.27	.76
Combination	256	2.47	

[a]Difference between handicappers and all retailers

[b]Difference between retailers in more and less accessible stores

[c]Group 1 = handicappers, Group 2 = retailers in more accessible stores, Group 3 = retailers in less accessible stores.

Table D18. Planned Comparisons Summary Table for Comfort

Comparison	Difference in Means	T-Value	p Less Than
Contrast 1[a]	-2.52	-9.28	.001
Contrast 2[b]	.01	.08	.94

Group Means and Standard Deviations

Group[c]	Count	Mean	Standard Deviation
Group 1	132	1.77	1.31
Group 2	60	3.03	.76
Group 3	64	3.02	.79
Combination	256	2.37	

[a]Difference between handicappers and all retailers

[b]Difference between retailers in more and less accessible stores

[c]Group 1 = handicappers, Group 2 = retailers in more accessible stores, Group 3 = retailers in less accessible stores.

Table D19. Planned Comparisons Summary Table for Dressing Ease

Comparison	Difference in Means	T-Value	p Less Than
Contrast 1[a]	-3.04	-10.11	.001
Contrast 2[b]	- .11	- .52	.60

Group Means and Standard Deviations

Group[c]	Count	Mean	Standard Deviation
Group 1	132	1.81	1.43
Group 2	60	3.27	.92
Group 3	64	3.39	.87
Combination	256	2.55	

[a]Difference between handicappers and all retailers

[b]Difference between retailers in more and less accessible stores

[c]Group 1 = handicappers, Group 2 = retailers in more accessible stores, Group 3 = retailers in less accessible stores.

Table D20. Planned Comparisons Summary Table for Fasteners

Comparison	Difference in Means	T-Value	p Less Than
Contrast 1[a]	-1.42	-5.65	.001
Contrast 2[b]	- .06	- .52	.61

Group Means and Standard Deviations

Group[c]	Count	Mean	Standard Deviation
Group 1	132	1.91	1.28
Group 2	60	2.59	.66
Group 3	64	2.65	.60
Combination	256	2.25	

[a]Difference between handicappers and all retailers

[b]Difference between retailers in more and less accessible stores

[c]Group 1 = handicappers, Group 2 = retailers in more accessible stores, Group 3 = retailers in less accessible stores.

Table D21. Planned Comparisons Summary Table for Mobility

Comparison	Difference in Means	T-Value	p Less Than
Contrast 1[a]	-2.47	-9.55	.001
Contrast 2[b]	.02	.11	.92

Group Means and Standard Deviations

Group[c]	Count	Mean	Standard Deviation
Group 1	132	1.82	1.25
Group 2	60	3.06	.81
Group 3	64	3.04	.65
Combination	256		

[a]Difference between handicappers and all retailers

[b]Difference between retailers in more and less accessible stores

[c]Group 1 = handicappers, Group 2 = retailers in more accessible stores, Group 3 = retailers in less accessible stores.

Table D22. Planned Comparisons Summary Table for Safety

Comparison	Difference in Means	T-Value	p Less Than
Contrast 1[a]	-2.37	-9.54	.001
Contrast 2[b]	- .07	- .42	.68

Group Means and Standard Deviations

Group[c]	Count	Mean	Standard Deviation
Group 1	132	1.84	1.21
Group 2	60	2.99	.80
Group 3	64	3.06	.56
Combination	256		

[a]Difference between handicappers and all retailers

[b]Difference between retailers in more and less accessible stores

[c]Group 1 = handicappers, Group 2 = retailers in more accessible stores, Group 3 = retailers in less accessible stores.

Table D23. Planned Comparisons Summary Table for Transporatation

Comparison	Difference in Means	T-Value	p Less Than
Contrast 1[a]	-2.82	-10.22	.001
Contrast 2[b]	.08	.40	.69

Group Means and Standard Deviations

Group[c]	Count	Mean	Standard Deviation
Group 1	118	2.14	1.34
Group 2	59	3.59	.72
Group 3	62	3.52	.67
Combination	239	2.86	

[a]Difference between handicappers and all retailers

[b]Difference between retailers in more and less accessible stores

[c]Group 1 = handicappers, Group 2 = retailers in more accessible stores, Group 3 = retailers in less accessible stores.

Table D24. Planned Comparisons Summary Table for Access to Store

Comparison	Difference in Means	T-Value	p Less Than
Contrast 1[a]	-.57	-1.97	.05
Contrast 2[b]	.05	.26	.80

Group Means and Standard Deviations

Group[c]	Count	Means	Standard Deviation
Group 1	116	2.76	1.22
Group 2	58	3.07	.97
Group 3	61	3.02	.97
Combination	235	2.90	

[a]Difference between handicappers and all retailers

[b]Difference between retailer in more and less accessible stores

[c]Group 1 = handicappers, Group 2 = retailers in more accessible stores, Group 3 = retailers in less accessible stores.

Table D25. Planned Comparisons Summary Table of Difficulty in Moving Through Store

Comparison	Difference in Means	T-Value	p Less Than
Contrast 1[a]	-.19	-.67	.5
Contrast 2[b]	0	-.01	.99

Group Means and Standard Deviations

Group[c]	Count	Mean	Standard Deviation
Group 1	119	3.08	1.22
Group 2	59	3.17	1.00
Group 3	64	3.17	.95
Combination	242	3.12	

[a]Difference between handicappers and all retailers

[b]Difference between retailers in more and less accessibel stores

[c]Group 1 = handicappers, Group 2 = retailers in more accessible stores, Group 3 = retailers in less accessible stores.

Table D26. Planned Comparisons Summary Table for Shopping Difficulty

Comparison	Difference in Means	T-Value	p Less Than
Contrast 1[a]	.23	1.12	.265
Contrast 2[b]	-.54	-2.99	.003
Contrast 3[c]	-.31	-1.78	.077

Group Means and Standard Deviations

Group[d]	Count	Mean	Standard Deviation
Group 1	115	2.98	1.35
Group 2	59	3.53	.84
Group 3	64	3.30	.92
Combination	235	3.20	

[a]Difference between retailers in more and less accessible stores

[b]Difference between handicappers and retailers in more accessible stores

[c]Difference between handicappers and retailers in less accessible stores

[d]Group 1 = handicappers, Group 2 = retailers in more accessible stores, Group 3 = retailers in less accessible stores.

Table D27. Planned Comparisons Summary Table for Fitting Room Accessibility

Comparison	Difference in Means	T-Value	p Less Than
Contrast 1[a]	-.69	-1.94	.05
Contrast 2[b]	-.03	-.13	.90

Group Means and Standard Deviations

Group[c]	Count	Mean	Standard Deviation
Group 1	11.2	3.06	1.65
Group 2	59	3.39	.97
Group 3	64	3.42	1.05
Combination	235	3.24	

[a]Difference between handicappers and all retailers

[b]Difference between retailers in more and less accessible stores

[c]Group 1 = handicappers, Group 2 = retailers in more accessible stores, Group 3 = retailers in less accessible stores.

Table D28. Planned Comparisons Summary Table for Ability to Try On Clothing

Comparison	Difference in Means	T-Value	p Less Than
Contrast 1[a]	-.74	-2.22	.03
Contrast 2[b]	-.01	- .06	.95

Group Means and Standard Deviations

Group[c]	Count	Mean	Standard Deviation
Group 1	119	2.92	1.55
Group 2	57	3.28	.96
Group 3	61	3.30	.94
Combination	237	3.10	1.29

[a]Difference between handicappers and all retailers

[b]Difference between retailers in more and less accessible stores

[c]Group 1 = handicappers, Group 2 = retailers in more accessible stores, Group 3 = retailers in less accessible stores.

Table D29. Planned Comparisons Summary Table for Unknowledqeable or Unhelpful Staff

Comparison	Difference in Means	T-Value	p Less Than
Contrast 1[a]	-.42	-1.22	.22
Contrast 2[b]	-.06	- .27	.79

Group Means and Standard Deviations

Group[c]	Count	Mean	Standard Deviation
Group 1	114	2.99	1.54
Group 2	59	3.17	1.10
Group 3	64	3.23	1.08
Combination	237	3.10	

[a]Difference between handicappers and all retailers

[b]Difference between retailers in more and less accessible stores

[c]Group 1 = handicappers, Group 2 = retailers in more accessible stores, Group 3 = retailers in less accessible stores.

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