

**ACCESSIBILITY AND ATTITUDINAL BARRIERS ENCOUNTERED BY
TRAVELERS WITH PHYSICAL DISABILITIES IN CHINA**

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Master of Science

by

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The undersigned, appointed by the Dean of the Graduate School, have examined the thesis entitled

ACCESSIBILITY AND ATTITUDINAL BARRIERS ENCOUNTERED BY
TRAVELERS WITH PHYSICAL DISABILITIES IN CHINA

Presented by Yuhua Bi

A candidate for the degree of Master of Science

And hereby certify that in their opinion it is worthy of acceptance.

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ACCESSIBILITY AND ATTITUDINAL BARRIERS ENCOUNTERED BY TRAVELERS WITH PHYSICAL DISABILITIES IN CHINA

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ABSTRACT

In 2003, China Disabled Persons Federation [CDPF] estimated that there were more than 60 million people with disabilities in China. Eleven million were people with physical disabilities. Travel is beneficial for improving quality of life of people with disabilities. Eleven million people with physical disabilities represent a large potential market to China's tourism industry. Yet, very few studies were published on travelers with disabilities and none has been conducted in mainland China. This study examined the accessibility and attitudinal barriers encountered by Chinese travelers with physical disabilities in four sectors of China's tourism industry. Four contact persons from four cities of China: Beijing, Xi'an, Fuzhou, and Guangzhou, conducted surveys on travelers with physical disabilities by the snowball sampling method. A profile of Chinese travelers and their travel patterns were delineated. Results of MANOVA tests indicated that functioning level has a significant influence on the accessibility and attitudinal barriers encountered; however, income and assistive devices were not good indicators of these barriers. Results of the study were also displayed and visually compared to the results of the U.S. travelers in the Accessibility and Attitudinal Barriers Model (AABM).

CHAPTER 1

Introduction

In 2003, the China Disabled Persons' Federation [CDPF] estimated that China had 60 million people with disabilities, the largest disability population in the world (Hampton, 2001). Eighteen percent of China's families had a member with a disability (Stratford & Ng, 2000). Among the 60 million people with disabilities, eleven million were people with physical disabilities, one fifth of the total disability population in China. China has passed several laws regarding people with disabilities, such as the Law of People's Republic of China on the Protection of Disabled Persons in 1990, the Disabilities Education Act in 1994, and the Design Codes for the Accessibility of People with Disabilities to Urban Roads and Buildings in 2001. With the implementation of these laws, people with disabilities in China have improved their social and economic status (CDPF, 2003) and many more people with disabilities in China are participating in recreational activities.

Tourism, a major component of recreation (Cordes & Ibrahim, 1999; Kraus, 2001; Turco, Stumbo, & Garnicarz, 1998), is beneficial for improving the quality of life for people with disabilities. Studies in the U.S. focusing on outdoor recreation and adventure activities and programs that included people with disabilities noted that people with disabilities benefited from taking trips, both psychologically and socially. The benefits included enhanced self-concept and self-esteem, personal growth, increased leisure skills, increased social adjustment, enhanced body image, and positive behavior changes (McAvoy, Schatz, Stutz, Schleien, & Lais, 1989; Robb & Ewert, 1987). These changes resulted in increased social acceptance by society and improved quality of life for people

with disabilities (McAvoy et al.; Sable, 1995). A study in Europe corroborated studies in the U.S. For people with disabilities and their families, the chance to go on a trip can be particularly important for relaxing and recuperating (European Disability Forum, 2001).

China's travelers with disabilities represent an untapped yet promising market in the tourism industry (China Central TV Station [CCTV], 2001). Eleven million people with physical disabilities are a significant potential market of China's tourism industry, especially when traveling companions are included. People with a physical disability rarely traveled alone (Burnett & Barker, 2001; Darcy, 1998). This potential market for travelers with disabilities became even larger when the market of the disability communities, employers, and service providers of people with disabilities was considered (U.S. National Organization on Disabilities, 2002). Everyone should be targeted when the travel industry provides travel services because people with disabilities in China are entitled to the same right to travel as people without disabilities.

Yet, few studies shed light on Chinese travelers with disabilities despite the benefits of travel in enriching the quality of life and the potential market value of travelers with disabilities. Little is known about Chinese travelers with disabilities traveling in China. What are their demographic characteristics? How often do they travel? What are their travel patterns? What barriers do they encounter when traveling?

Physical access is a major travel barrier for travelers with physical disabilities (Darcy, 1998). Park (1977) pointed out a major reason that many persons with disabilities did not participate in existing recreation programs, including travel, was simply that facilities were not physically accessible. Another barrier to participation is negative attitudes towards people with disabilities. Negative attitudes were the most limiting

barriers encountered by individuals with disabilities and the hardest to overcome (Schleien, Ray, & Green, 1997; Smith, Austin, & Kennedy, 2001). When travel sites contain accessibility and attitudinal barriers, travelers with disabilities will not use or use those sites less, and therefore, will enjoy less access to tourism opportunities than people without disabilities. Accessibility and attitudinal barriers were the key points for examining barriers encountered by travelers with disabilities.

Takeda and Card (2002) examined the accessibility and attitudinal barriers in the U.S. and developed the Accessibility and Attitudinal Barriers Model (AABM). The model illustrated the accessibility and attitudinal barriers that U.S. tour operators and travel agencies encountered when providing package tours for people with difficulty walking in four sectors of the U.S. tourism industry. The four sectors included transportation, accommodations, eating and drinking establishments, and attractions. The results indicated that accessibility barriers were more prevalent than attitudinal barriers in the travel and tourism industry (Takeda & Card, 2002).

Avis, Card, and Cole (2005) examined the accessibility and attitudinal barriers encountered by U.S. travelers with disabilities. Card, Cole and Avis (in press) visually compared these barriers encountered by travelers to the barriers encountered by tour operators in the AABM. Similar to the tour operators, U.S. travelers encountered more accessibility barriers than attitudinal barriers. Avis et al. also found that gender, age, assistive devices, and income were not good indicators of the accessibility and attitudinal barriers; they suggested, however, that functioning level may be a better predictor of these barriers.

The current study postulated that travelers with physical disabilities' functioning level may influence the amount of accessibility and attitudinal barriers they encountered in four sectors of China's tourism industry. Assistive devices and income were again tested to determine if the results in Avis et al.'s study applied in China. According to several studies (Burnett & Baker, 2001; Keroul, 2000; McKercher, Packer, Yau, & Lam, 2003), the functioning level of individuals with disabilities, or the severity of their disabilities, had an impact on travel experiences. People with disabilities' needs varied by their functioning level (Dolan, 2000). Travelers with severe disabilities may have more complicated needs during a trip, such as attendant needs, than travelers with slight or moderate disabilities. Thus, travelers with severe disabilities may encounter more accessibility barriers when their needs are not met, and, they may face more negative staff attitudes due to the severity of their disabilities.

Income is another important factor to consider in determining the accessibility and attitudinal barriers. Income has impact on a travel experience, such as the length of stay, transportation mode, and places to stay, and thus, it may be a barrier for travelers with disabilities (Cameron, Darcy, & Foggin, 2003; Darcy & Daruwalla, 1999). Cameron et al. found that Australian travelers with disabilities spent between 30 and 200 percent more for traveling than for people without disabilities. Added expenses included travel attendant costs, assistive devices, accessible hotel rooms and transportation. As Yau, McKercher, and Packer (2004) indicated, in Hong Kong and mainland China, international caliber hotels usually had better facilities but came with higher prices. Travelers with disabilities with low income may not be able to pay the extra costs for an

accessible room in expensive hotels. Thus, they may encounter more barriers than travelers with higher income.

Mobility assistive devices used by Chinese travelers during a trip may add additional insight into explaining barriers. Many individuals with disabilities used assistive devices for various activities, including travel (Jedeloo, Witte, Linssen, & Schrijvers, 2000). In the past two decades, CDPF (2002a) has distributed more than 4 million assistive devices to people with disabilities in China, which included mobility assistive devices. Yet, little has been done to evaluate the impact of the assistive devices on the accessibility and attitudinal barriers travelers encountered.

The purpose of the study was developed from the background information on Chinese travelers with physical disabilities. The purpose of the study is introduced in the following section.

Purpose

The purpose of this study was four-fold: 1) to determine the travel patterns of travelers with physical disabilities in China; 2) to examine the travel barriers encountered by people with physical disabilities in terms of accessibility and attitudinal barriers in four sectors of China's tourism industry; 3) to determine if income, level of functioning, and assistive device had an impact on the amount of accessibility and attitudinal barriers encountered; and 4) to visually compare the results of this study to the Card et al.'s study (in press) using the AABM.

Subproblems

The purpose of this study was accomplished through the following subproblems:

1. To describe demographics, disability information, and travel patterns of travelers with physical disabilities.
2. To determine accessibility and attitudinal barriers travelers with physical disabilities encountered in four sectors of the tourism industry.
3. To determine the differences in the amount of accessibility barriers encountered in four sectors of the tourism industry based on travelers' functioning level.
4. To determine the differences in the amount of attitudinal barriers encountered in four sectors of the tourism industry based on travelers' functioning level.
5. To determine the differences in the amount of accessibility barriers encountered in four sectors of the tourism industry based on travelers' income.
6. To determine the differences in the amount of attitudinal barriers encountered in four sectors of the tourism industry based on travelers' income.
7. To determine the differences in the amount of accessibility barriers encountered in four sectors of the tourism industry based on mobility assistive devices travelers used.
8. To determine the differences in the amount of attitudinal barriers encountered in four sectors of the tourism industry based on mobility assistive devices travelers used.
9. To determine the differences between the results of this study and Card et al.'s study (in press) using the AABM.

Hypotheses

The hypotheses for this study were developed using previous studies on travelers with disabilities (Avis et al., 2005; Burnett & Baker, 2001; Card et al., in press; Darcy, 1999; McKercher et al., 2003). This study tested the following hypotheses:

1. There was no significant difference in the amount of accessibility barriers encountered in four sectors of the tourism industry based on functioning level.
2. There was no significant difference in the amount of attitudinal barriers encountered in four sectors of the tourism industry based on functioning level.
3. There was no significant difference in the amount of accessibility barriers encountered in four sectors of the tourism industry based on income.
4. There was no significant difference in the amount of attitudinal barriers encountered in four sectors of the tourism industry based on income.
5. There was no significant difference in the amount of accessibility barriers encountered in four sectors of the tourism industry based on mobility assistive devices used.
6. There was no significant difference in the amount of attitudinal barriers encountered in four sectors of the tourism industry based on mobility assistive devices used.

Limitations

The study focused on travelers with physical disabilities in four city areas in China. The four city areas in China were Beijing, Xi'an, Guangzhou, and Fuzhou (See Appendix A for map). There was no way of estimating the representativeness of the entire disability population in China. Thus, the results of this study may only be generalized to the disability population in the four city areas in China.

Furthermore, this study sampled travelers with physical disabilities excluding hearing and visual disabilities. Other types of disabilities might affect the results in terms of the accessibility and attitudinal barriers encountered. Another limitation was that the participants were asked to recall their travel experience and the barriers encountered in

the past year. There might be a discrepancy between the actual barriers encountered and the barriers they recalled.

Delimitations

The study was delimited to people age 18 or older with physical disabilities from four city areas who had traveled in the past year in China.

Definitions

For the purpose of this study, the following terms were defined:

Accessibility: The degree to which people with physical limitations can get to, enter, and use a facility and its surrounding area(s) (American National Standard A 117.1-1986) (Dattilo, 1994). In China, accessibility includes architectural accessibility, information and communication accessibility. Architectural accessibility requires that the design of public roads, public buildings and residences be barrier-free to people with disabilities, such as entrances to buildings, floors, elevators, handrails, restrooms, rooms and counters (CDPF, 2002b).

Accessibility Barriers: Barriers producing a physical or structural impediment that limits leisure participation (Smith et al., 2001). This study focused on architectural accessibility barriers encountered by Chinese travelers with physical disabilities.

Accommodations: Lodging establishments located in or around tourist destinations areas, such as hotels and motels (Takeda & Card, 2002). Accommodations in China included star-rated hotels (from one-star to five-star hotels), non-star hotels, such as hostels and motels (Access Asia, 2001) and camp sites (Darcy, 1998).

Attitudinal Barriers: Barriers producing attitudes or negative behaviors toward another person (Smith et al., 2001). Schleien et al. (1997) contended that negative attitudes are

one of the most powerful obstacles to participation in recreation for individuals with disabilities. These included negative staff attitudes experienced in all travel and tourism sectors, such as neglecting needs of people with disabilities, offensive language or action toward people with disabilities, and overt and subtle discrimination against them.

Attraction: “The element of a tourism destination that stimulates visitation” (Turco et al., 1998, p. 80). Tourism resources were classified into 8 categories in China (China National Tourism Administration, 1999): 1) land resources, such as mountains and caves; 2) water, such as lakes and rivers; 3) plants and animals; 4) climatic phenomenon; 5) relics; 6) buildings and facilities; 7) tourism products; and 8) events, such as festivals and religious activities. Based on this tourism resource classification and her past experience as a tour guide and manager, the researcher selected six areas in the attractions: 1) natural landscapes (such as mountains, caves, lakes, rivers, and animals and plants); 2) historical and cultural sites (relics, such as prehistoric sites, buildings and facilities, such as palaces and temples); 3) city parks; 4) museums; 5) theatres and cinemas; and 6) zoos in the attractions sector.

CDPF: China Disabled Persons’ Federation, established in 1988, the agency overseeing disability issues in China, “represents the common interest and protects the lawful rights of people with disabilities in China while promoting humanitarianism, protection of the human rights of people with disabilities in order to ensure their equal participation in society and contribution to economic growth and social development” (Asia-Pacific Development Center on Disability [APCD], 2003, p. 3).

Eating-Drinking Establishments: Eating and drinking facilities located in or around tourist destination areas, such as restaurants and bars (Takeda & Card, 2002). This study

included Chinese and Western restaurants, Chinese and Western fast food restaurants, bars, and teahouses.

Functioning Levels: Functioning level was the capability of conducting daily activities (CDPF, 1995). In this study, the functioning levels include high, average, and low.

Mobility Assistive Devices: According to CDPF (2000), assistive devices for personal mobility of people with physical disabilities included crutches, canes, walkers, leg braces, manual wheelchairs, motorized wheelchairs, and scooters.

Physical Disability: A bodily impairment that physically limited an individual from performing everyday functions (Carter, Van Andel, & Robb, 1995). According to CDPF (1995), physical disabilities in China included: cerebral palsy, spinal cord disease and injury, hemiplegia, amputation, poliomyelitis, spinal column malformation, severe bone, joint or muscle disease and injury, peripheral nerve disease and injury, and congenital limb disorder. Based on the Avis et al.'s study (2005), physical disability in the U.S. included: head injury, spinal cord injury, multiple sclerosis, muscular dystrophy, and spina bifida.

Transportation: Services which transferred travelers to and from destination areas such as airplanes, trains, buses, ships, and their associated facilities (Takeda & Card, 2002).

Motor tricycle is a popular transportation tool for people with disabilities in city areas in China, so motor tricycle was added to the transportation sector. Taxi, subway, and tour bus were also included into this sector.

Trip: A trip was defined as a stay away from home of at least one night in the past year (Avis et al., 2005).

Need for the Study

Studies in the U.S. reported that recreation, including travel, enhanced the quality of life for individuals with disabilities (McAvoy et al., 1989; Modell & Imwold, 1998; Sable, 1995). Travelers with disabilities represent a large potential market. Eleven million people with physical disabilities in China are a significant potential market of China's tourism industry, especially when traveling companions are included. Past studies (Darcy & Daruwalla, 1999; Foggin, 2001; Smith, 1987; Yau, McKercher, & Packer, 2004) demonstrated that people with disabilities had the same desire to travel as the population without disabilities. Yet, very little research had been published on travel and people with disabilities (Burnett & Baker, 2001; Darcy, 1998, 2002; McKercher et al., 2003; Yau et al.). None has been conducted in mainland China. Avis et al. (2005) examined Missouri travelers with disabilities. Many other travelers in the U.S. and other countries should be studied for further indication of where barriers exist in the travel and tourism industry. Since travel is a global phenomenon, it is necessary to understand barriers encountered by travelers with physical disabilities from different countries. This study on Chinese travelers with physical disabilities and the barriers they encountered helped to fill the void in academic studies on travel for individuals with disabilities.

The results of the study have economic implications in regard to illustrating to China's travel and tourism industry the barriers encountered by travelers with physical disabilities. China's travel industry should realize the economic significance of making facilities accessible and improving staff attitudes towards travelers with disabilities. By not addressing the needs of all segments of the population, a business is simply harming itself by not maximizing its market potential (Keroul, 1995; Reedy, 1993). Providing

accessible tourism facilities and services may open doors to a large and growing market (Darcy, 1998), which, in turn, increases revenue for China's tourism industry.

Another important issue in travel is attitudinal barriers, which affect travel satisfaction as much as accessibility barriers (Bedini, 2000). Improving staff attitudes towards travelers with disabilities is as important as providing accessible facilities. Positive staff attitudes may help to alleviate the deficit in inaccessibility of facilities in the tourism industry. If the travel industry knows the accessibility and attitudinal barriers, reduces the barriers, and eliminates them, more travel opportunities will be available for travelers with disabilities. When barriers were non-existent, people with disabilities were more likely to be satisfied customers and more likely to choose these services again (Israeli, 2002). As a result, many more people with disabilities would be attracted to travel and tourism activities, creating revenue increases for the travel and tourism industry (Takeda & Card, 2002).

This study yielded important findings for both Chinese and U.S. researchers in the field of recreation and travel. The AABM visually displayed the barriers encountered by travelers with disabilities in the U.S. Barriers encountered by travelers with disabilities in other countries, such as China, should be studied for further indications of where barriers exist in the travel and tourism industry. Cultural variables may affect people's attitudes towards travelers with disabilities (Ray & Ryder, 2003). As Cameron et al. (2003) suggested, there were underlying differences between the way most Western and Eastern cultures conceptualized disability. China may experience different attitudes than the U.S. towards people with disabilities. In regard to accessibility development, the U.S., the first country in the world that set accessibility standards in 1961, is one of the most accessible

countries in the world (CDPF, 2002b), whereas China just started developing a barrier-free environment. Replicating the study in China could verify the validity of the AABM.

A better understanding of theory includes building better models. Models provide a connection between theory, research and practice (Harrill & Potts, 2002). The testing of the AABM was a building block in developing a systematic approach to research on travelers with disabilities (Card et al., in press). This study focuses on Chinese travelers with physical disabilities and the barriers they encountered in four sectors of the travel and tourism industry. By using and testing the AABM in China, this study expands this model to a larger scale. This study lays a cornerstone for Chinese studies on travel for individuals with disabilities.

CHAPTER 2

Literature Review

Introduction

Little research has been conducted on Chinese travelers with physical disabilities. Previous studies on travelers with disabilities in western countries provided theoretical support for this study on accessibility and attitudinal barriers Chinese travelers encountered when traveling in China. This chapter includes barriers for travelers with disabilities, studies on accessibility and attitudinal barriers, background information on accessibility in China, travel and people with disabilities in China, studies on travel patterns of people with disabilities, studies on income, functioning levels, and assistive devices, and the Accessibility and Attitudinal Barriers Model (AABM).

Barriers for Travelers with Disabilities

Studies on barriers to participation in recreation in the past two decades laid the theoretical framework for examining barriers to travel for individuals with disabilities. In examining barriers in general, McGuire (1984) defined barriers as those impediments encountered while participating or attempting to participate in a tourism experience. Crawford and Godbey (1987) classified these barriers into three categories: (a) intrapersonal; (b) interpersonal; and (c) structural. Intrapersonal constraints include lack of self-confidence, lack of encouragement, or lack of information about opportunities for leisure. Interpersonal factors are those associated with other individuals, such as lack of leisure partners or lack of social interaction skills. Structural barriers are those that exist between individual preferences and participation in a leisure activity, including lack of finances, lack of transportation, limited abilities, lack of time, or architectural barriers. In

other words, they were describing the internal (intrapersonal) barriers and the external (interpersonal and structural) barriers.

Regarding the barriers for people with disabilities, Murray and Sproats (1990) identified three types of barriers for travelers with disabilities: economic, physical, and attitudinal barriers, while Smith et al. (2001) categorized barriers as intrinsic, environmental and communication. Intrinsic barriers resulted from an individual's own levels of physical, cognitive or psychological functioning, while environmental barriers were external to individuals with disabilities, including attitudes towards people with disabilities and architectural barriers. No matter what terms the researchers used to delineate barriers, they all included accessibility and attitudinal barriers, namely, the external barriers.

The study focused on accessibility and attitudinal barriers because they were the key points for examining barriers travelers with physical disabilities encountered during a trip and the travel industry has control over these external barriers. Travel providers cannot make a change to internal barriers but they can improve accessibility and staff attitudes towards travelers with disabilities (Card, et al., in press).

Accessibility and Attitudinal Barriers

Keroul (2000), a Canadian organization for travelers with physical disabilities, examined barriers of Canadian travelers with physical disabilities. A large portion of the population had no access to tourism opportunities. Travelers encountered barriers in transportation, hotels, restaurants, and tourist attractions. One third of the travelers mentioned accessibility was their main reason for choosing a destination. Accessibility of

transportation was also an important criterion. Nearly all travelers with disabilities expected service staff to be trained in meeting their specific needs.

In a similar study, Takeda and Card (2002) examined barriers that U.S. tour operators and travel agencies encountered when handling tours for people with difficulty walking. Accessibility and staff attitudes were assessed in the sectors of transportation, accommodations, eating and drinking establishments, and attractions. The results indicated that accessibility barriers were more prevalent than attitudinal barriers in the tourism industry. The majority of tour operators and travel agencies encountered the most accessibility and attitudinal barriers in the eating and drinking establishments and the least barriers in the attractions sector.

To build on Takeda and Card's study (2002), U.S. travelers with physical disabilities from two organizations in Missouri were queried on barriers they encountered when traveling (Avis et al., 2005). The study found similar results as the previous one in that travelers encountered more accessibility barriers than attitudinal barriers. Travelers with physical disabilities encountered the most accessibility barriers and the most attitudinal barriers in the eating and drinking establishment sector (Card, et al., in press) (See Accessibility and Attitudinal Barriers Model for more details on page 23).

Research on accessibility and attitudinal barriers that travelers with physical disabilities experience provides the travel industry information about the importance of eliminating these barriers (Card et al., in press). As Darcy (1998) contended, accessibility is the key problem for travelers with physical disabilities. The current study garnered information regarding China's accessibility development.

Accessibility in China

With the social and economic development in China, the Chinese government has paid increasing attention to building a barrier-free environment in the past decade. Mr. Deng, Pufang, president and founder of the China Disabled Persons' Federation, the agency overseeing disability issues in China, delivered a speech at the 2002 China National Conference on Building a Barrier-free Environment. He said:

Building a barrier-free environment lays a foundation in providing equal rights and opportunities for people with disabilities to participate in social activities. Instead of being a financial burden for the society, developing a barrier-free environment will yield great benefits by improving the physical environment for people with disabilities and providing them opportunities to contribute to the society (pp. 24-25).

China's first National Standards for Accessibility on Public Roads and Buildings passed in 1989 (CDPF, 2002b). These standards required that newly-built public roads and buildings in large and provincial capital cities in China must be barrier-free to people with disabilities. The old public roads and buildings in these cities should be reconstructed to be accessible. These standards were recommended but not required for medium and small size cities in China. Since 1990, China has made progress in building a barrier-free environment. Underground passes and overhead walkways with ramps for people with physical disabilities have been built on the main streets in medium and large cities in China, such as Shanghai, Beijing, Guangzhou, Shenzhen, and Shenyang. Accessible entrances, elevators, telephones, restrooms, and hotel rooms began emerging in medium and large cities. However, the 1989 National Standards, still in the experimental stage, were only suggestions for medium and small cities and thus not fully implemented. Construction of a barrier-free environment in China still lags far behind developed countries (CDPF).

In 2001, China passed the Design Codes for the Accessibility of People with Disabilities to Urban Roads and Buildings. More detailed accessibility standards were added to the previous standards and 24 codes were obligatory nationwide. Among the 24 codes, sixteen of them are directly related to accessibility of recreation and travel for people with physical disabilities. For example, some standards require that the passageways and restrooms in public parks must be accessible for people with physical disabilities. Public buildings that provide lodging service must have accessible rooms for people with physical disabilities.

China's first city legislation on building a barrier-free environment, the Law Regulations on the Management and Construction of the Barrier-Free Environment of Beijing, passed in April 2004. The legislation was expected to provide comprehensive regulations on the planning, design, construction, use, management and maintenance of barrier-free buildings, facilities and equipment (Beijing Review, 2003). Because of this legislation, Beijing reconstructed barrier-free environments in public facilities, transportation and sightseeing areas. More than 3,000 buildings were reconstructed, 33 overhead walkways and underground passes with ramps, 10,000 intersections with ramps, and more than 200 barrier-free restrooms were built (Beijing Portal, 2004).

With the development of a barrier-free environment in China, more and more people with disabilities are able to access transportation, accommodations, eating-drinking establishments, and attractions. More people with physical disabilities in China are now able to travel because of reduced architectural barriers in the environment.

Travel and People with Disabilities in China

The travel industry is one of the fastest growing industries in China. In 2004, the number of domestic travelers totaled 1.1 billion and China's travel industry realized an annual income of \$59 billion from travelers' spending (China State Information Center, 2005). According to the World Tourism Organization (1997), 12%-15% of the potential traveling public in the world had some form of temporary or permanent disability. Also, the number of tourists in the world is estimated to more than double by 2020 (Parker, 2001). In the Asia-Pacific region, the population of people with disabilities is growing (Economic and Social Commission for Asia and the Pacific [ESCAP], 2000). China has the largest disability population in Asia and the world (Hampton, 2001). China's eleven million people with physical disabilities represent a significant potential market for the travel industry.

In 2008, China will host the Olympics Games and the Paralympics Games in Beijing, which are expected to bring long-term promotional benefits to China and a significant increase in tourism revenue. The Paralympics include thousands of participants with disabilities. How well China accommodates the participants and their travel companions will draw international attention. "The Paralympics is expected to bring the host city an opportunity for a lasting legacy of accessible infrastructure, a raised level of disability awareness and an improved position in society" (Darcy, 2003, p. 737). The 2008 Paralympics Games in Beijing may stimulate construction of accessible infrastructure and improved attitudes towards people with disabilities in the host city and other areas as well.

The Chinese government and China's tourism industry must recognize the significance of knowing the existing barriers encountered by travelers with disabilities and minimizing the accessibility and attitudinal barriers in the tourism industry. Asian countries are at the very early stages of developing a barrier-free environment (Cameron et al., 2003). Physical improvements in accessibility for people with disabilities are slow to be implemented. Although attitudes toward people with disabilities have gradually improved, particularly in large cities in China (Let's Go, 2002), negative staff attitudes and behaviors towards travelers with disabilities still exist. McKercher et al.'s study (2003) reported widely overt and subtle discrimination against travelers with disabilities when traveling in Hong Kong and mainland China, such as receiving curious looks from others, being ignored or being discriminated against when receiving services.

More and more travelers with physical disabilities in China are traveling though they still encounter nationwide accessibility and attitudinal barriers. To attract this growing significant potential market, the travel industry must understand and identify travelers' travel patterns.

Travel Patterns of People with Disabilities

Studies on travel patterns of people with disabilities delineated a general pattern of traveling. Darcy (1998) conducted a survey on the travel patterns of travelers with physical disabilities in Australia. On average, Australian travelers with disabilities took 4.3 trips a year. Their main reason for taking a trip was for pleasure/holiday (48%) followed by visiting friends and relatives (31%). The majority traveled with two to five people with friends/relatives (29%) and couples (28%) being the most frequent travel companions.

A similar study was conducted on travel patterns of Canadian travelers with physical disabilities (Keroul, 2000). More than half of the Canadian travelers took at least one trip a year. The main reason for their trip was visiting friends/relatives (45%), which was slightly higher than their Australian counterparts. Similar to the Australian travelers, the Canadian travelers with physical disabilities tended not to travel alone. The most frequently mentioned travel companions were family (37%) and couples (32%), matching the Australian travelers.

Travel-related behaviors of U.S. travelers with physical disabilities were also assessed (Burnett & Baker, 2001). The majority (60%) of U.S. travelers traveled 2 to 6 times a year. Their main reason for traveling was recreation (66%) which included visiting friends/relatives. Similar to previous studies (Darcy, 1998; Keroul, 2000), they rarely traveled alone and tended to travel with an attendant.

Based upon the previous studies, a profile of travelers with physical disabilities was developed. Travelers with physical disabilities rarely traveled alone. Their tendency of traveling with companions enlarged the potential market. Travelers with physical disabilities have the same desires and the same reasons to travel as people without disabilities. The travel industry must understand their travel patterns in order to target this segment of the market and satisfy their specific needs. Furthermore, the travel industry must realize barriers travelers encountered in order to reduce them and entice more people with disabilities to travel.

Income, Functioning Level, and Assistive Devices

Studies (Cameron et al., 2003; Darcy, 1999) on travelers with disabilities indicated that income had an impact on travel experiences. Generally, people with disabilities had

much less income than people without disabilities (Smith et al., 2001). Their leisure activity choices and life experiences were constrained by their economic circumstances. In addition to the economic constraints, travelers with physical disabilities may need to spend more on travel attendant costs, assistive devices, accessible hotel rooms and transportation than travelers without disabilities. Travelers with disabilities in Yau et al.'s study (2004) indicated hotels that provided better facilities usually came with higher prices in Hong Kong and mainland China. The costs of travel were further complicated for travelers with lower levels of functioning because they had more needs during a trip, thus paying more to meet their needs than those with higher levels of functioning (Cameron et al.).

Functioning level, or level of disability, may be another factor that contributes to the differences among the accessibility and attitudinal barriers travelers with physical disabilities encountered. Past studies (Avis et al., 2005; Darcy, 1998; Ray & Ryder, 2003) on travelers with disabilities concentrated on type of disability. According to the World Health Organization (2001), people with disabilities' participation in society is a complex interaction between body function, activity participation and the environment. Instead of emphasizing a person's disability, WHO promoted health and functioning and concentrated on how an individual functioned in society. Only looking at a person's disability type does not reveal the more complex and profound elements concerning a disability. People with the same type of disability may have different functioning levels. Thus, travelers with the same type of disabilities may experience different barriers when traveling. For example, a person who has a C1 spinal cord injury functions differently from a person with an S1 spinal cord injury because of injuries on different nerves on the

spinal cord. People with C1 spinal cord injury can move their arms and legs, whereas people with S1 spinal cord injury can only move their heads. They may have different needs during the trips, thus encountering different barriers. Travelers' functioning level may add insights into accessibility and attitudinal barriers encountered (Avis et al.).

Another factor to consider is mobility assistive devices. Mobility assistive devices are the key tools for meeting the needs and improving the independence of people with disabilities (Jedeloo et al., 2000). Since the establishment of CDPF in 1988, more than 4 million pieces of assistive devices have been distributed to people with disabilities (CDPF, 2002b). In order to meet the growing demand for assistive devices, the Chinese government has built 200 distribution centers for assistive devices, which include mobility assistive devices, and provided 2.5 million products to people with disabilities. Yet, no study has been done to evaluate the impact the assistive devices had on the accessibility and attitudinal barriers encountered by Chinese travelers with physical disabilities.

Accessibility and Attitudinal Barriers Model (AABM)

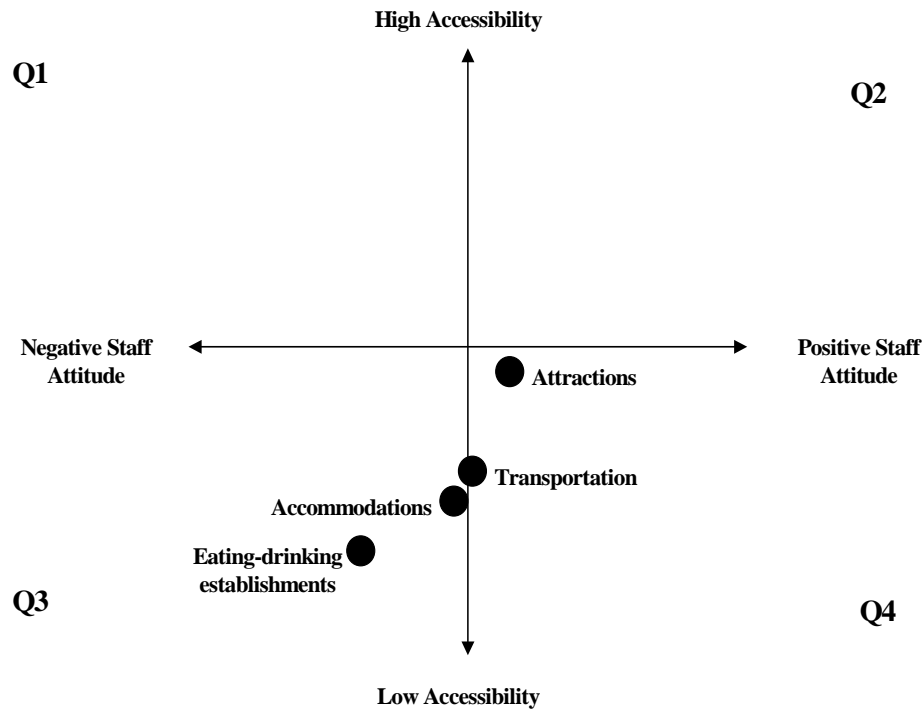
Theories on barriers to recreation help us better understand the observed event, such as the barriers travelers with disabilities encountered, and predict the occurrence of as yet unobserved events on the basis of the principles in the theory (Russell, 2002). Building a theory requires the building of models. Models provide a connection between theory and research (Harrill & Potts, 2002).

To illustrate, Takeda and Card (2002) graphically displayed their results in the Accessibility and Attitudinal Barriers Model (AABM) (Figure 1). The model depicts accessibility and attitudinal barriers in four sectors of the travel industry as encountered

by tour operators and travel agencies that provided tours for people who had difficulty walking. The model is broken into quadrants by axes. The horizontal axis indicates staff attitudes, and the vertical axis indicates accessibility. Quadrants explain the degree of accessibility and staff attitudes. Quadrant 1 indicates high accessibility and negative staff attitudes, which means less than 50% of the respondents encountered accessibility barriers and more than 50% encountered attitudinal barriers. In Q2, less than 50% reported accessibility and attitudinal barriers, which shows high accessibility and positive attitudes. Q2 is the ideal and most desirable environment for people with disabilities. Q3 includes low accessibility and negative staff attitudes with more than 50% reporting accessibility and attitudinal barriers. Quadrant 3 is the least desirable environment. It indicates low accessibility and negative staff attitudes. Q4 illustrates low accessibility and positive staff attitudes with more than 50% encountering accessibility barriers and less than 50% encountering attitudinal barriers (Takeda & Card).

All sectors were low in accessibility (falling into Q3 and Q4) for people who had difficulty walking. Eating-drinking establishments were the most restrictive area, while the attractions sector was the least restrictive. There were less attitudinal barriers than accessibility barriers in each sector. The attractions sector had the least attitudinal barriers while the other sectors had 50% or more of the providers reporting negative attitudes (Takeda & Card). The AABM illustrated that the travel industry was not meeting the ADA requirements. Many areas in the industry were not accessible to travelers who had difficulty walking and attitudinal barriers still existed (Figure 1).

Figure 1. Graphical Display of Accessibility and Staff Attitudes in Tourism Sectors



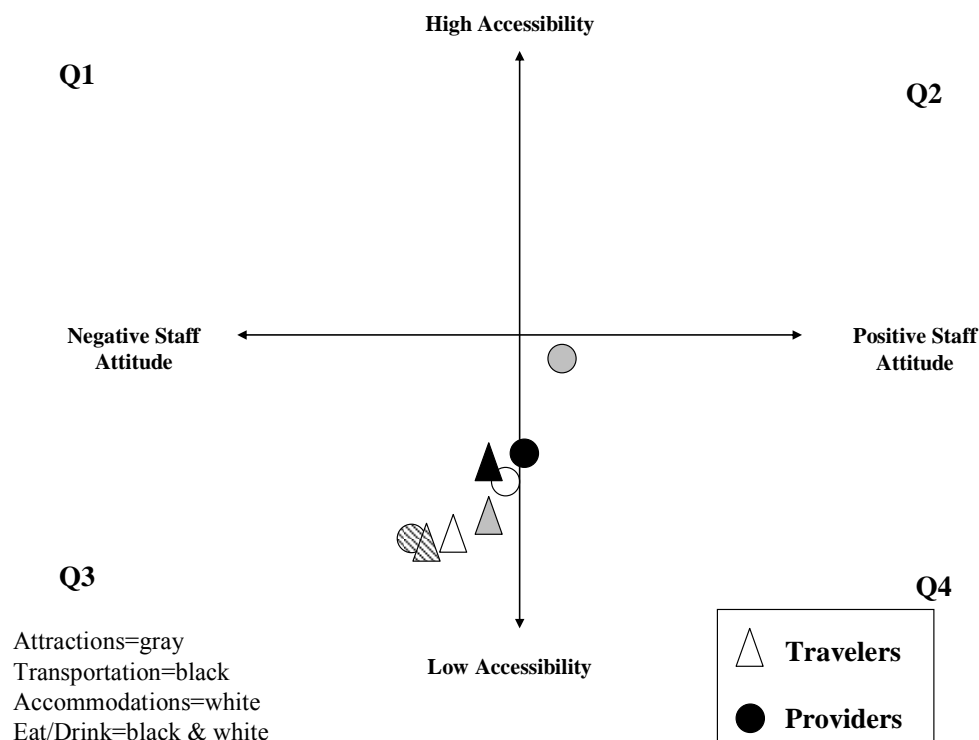
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In a similar study, Card et al. (in press) visually displayed and compared their results to Takeda and Card (2002). The purpose of the model comparison (Figure 2) was to determine if a linkage existed between barriers encountered by travel providers and travelers (Card et al.). In comparing the two models, the percentages of travelers reporting accessibility and attitudinal barriers were higher in all sectors than for providers. The largest difference occurred in accessibility for the attractions sector, in which three-fourth of travelers and only half of providers reported barriers. None of the sectors, however, fell in Q2, the most desirable environment (Card et al.).

Results from this comparison showed that there were differences between the accessibility and attitudinal barriers that providers encountered and those that travelers

with disabilities encountered, indicating that the model was testing what it was supposed to test. The differences between travel providers and travelers added more insight into how to best meet travelers' needs. Accessibility barriers were high for both groups; however, travelers encountered more attitudinal barriers than providers in all four sectors. This indicated that staff needs more training to meet the needs of travelers with disabilities. Travelers encountered more barriers than travel providers in accessibility of attractions. Perhaps providers were more familiar with accessible attractions through on-site inspection or feedback from travelers while travelers were not aware of inaccessibility until they encountered barriers at the sites (Card et al., in press).

Figure 2. Model of Accessibility and Attitudinal Barriers in Four Tourism Sectors: Comparison of Travelers and Providers



As Card et al. (in press) suggested, future studies need to be performed on a larger audience of travelers and travel providers for further reliability of the AABM. The current study focused on Chinese travelers with physical disabilities in terms of the accessibility and attitudinal barriers encountered. Results of this study were visually compared to the results of the Card et al's study.

Summary

With the social and economic development in China in the past two decades, the Chinese government has paid increasing attention to building a barrier-free environment for people with disabilities. As Parker (2001) stated, accessibility is a physical manifestation of a society's acceptance and respect for people with disabilities. Although changes to improve accessibility and attitudes towards people with disabilities are slowly being implemented, more and more people with physical disabilities in China have gained access to travel opportunities because of reduced barriers in the environment. As an integrated part of the fastest growing industry in China, travelers with physical disabilities are a significant potential market in the travel industry. People with disabilities are expressing more and more interest in traveling despite nationwide barriers.

Studies on accessibility and attitudinal barriers (Avis, et al., 2005; Keroul, 2000; Takeda & Card, 2002) illustrated that travelers with physical disabilities encountered large numbers of accessibility and attitudinal barriers when traveling. Accessibility barriers were more prevalent than attitudinal barriers. Accessibility and staff attitudes were both low in four sectors of the travel industry.

Income, functioning level, and assistive devices may add insight into understanding and explaining accessibility and attitudinal barriers encountered. Travelers with higher

income may encounter fewer barriers because of extra costs involved with traveling.

Travelers with higher functioning levels may encounter fewer barriers than travelers with lower functioning levels. Assistive devices, which are essential in improving or maintaining the independence of people with disabilities (Jedeloo et al., 2000), may add additional insight.

Travel patterns are another important facet of studies on travelers with physical disabilities (Burnett & Baker, 2001; Darcy, 1998; Keroul, 2000). Travelers with physical disabilities, though traveling less frequently than travelers without disabilities (ODO, 2002), traveled at least once a year. They tended not to travel alone, which even enlarged this potential market. All provide the travel industry information on how to identify travelers with disabilities and target this segment of the market.

Lastly, research (Avis, et al., 2005; Card, et al., in press; Takeda & Card, 2002) developed and expanded the AABM. Models connect theories to practice; building better theories require building better models. The AABM helped to better explain accessibility and attitudinal barriers encountered by travelers with disabilities. Testing the model in China verified the findings in the previous studies, further validating the model on a global scale. The current study examined accessibility and attitudinal barriers encountered by Chinese travelers with physical disabilities and visually displayed and compared the results to previous studies using the AABM.

CHAPTER 3

Methods

Introduction

This study examined the four sectors of the tourism industry in China in terms of accessibility and attitudinal barriers encountered by Chinese travelers with physical disabilities. This chapter presents the methods and procedures that were used in this study, including the research design, sampling, subject selection, data collection, questionnaire, and statistics and software.

Research Design

This study is a quantitative assessment using a non-experimental and comparative design. The researcher used the survey method to collect data for the study.

Sampling

This study surveyed Chinese people age 18 or older with physical disabilities who had traveled away from home in China in the past year. No study has been conducted on Chinese travelers with physical disabilities in mainland China before and very little is known about this population. A population for which there is no usable sampling frame is often referred to as a ‘hidden population’, which is characterized by difficulties in locating, gaining access to and recruiting participants for research purposes (Goor van de, Garretsen, Kaplan, Korf, Spruit, & Zwart de, 1994). The researcher used the snowball sampling technique to collect data, which recruits participants through social networks and personal referrals.

Four contact persons were located through the researcher’s social networks and personal referrals. These four persons were people with physical disabilities and they

worked for governmental disability organizations in four cities in China (Appendix D). Each had networks of people with physical disabilities. The four cities were Beijing, Xi'an, Fuzhou, and Guangzhou (Appendix A). The researcher e-mailed and telephoned the four contacts and they all agreed to help with data collection.

Subject Selection

Based on the Protocol for Conducting the Survey (Appendix C), the four contact persons were asked to select individuals with physical disabilities who met the criteria: 1) 18 years or older; 2) with physical disabilities (excluding hearing or visual disabilities); 3) took a trip of at least one overnight stay away from home in the past year; and 4) willing to participate in the survey.

The four contacts recruited individuals to participate in the survey who met the inclusion criteria through their social networks and personal referrals. They conducted the survey in five ways: 1) handed out surveys during organization activities; 2) handed out surveys during friends' or family get-togethers; 3) handed out surveys to colleagues at work; 4) mailed surveys to participants; and 5) interviewed participants by phone. When they contacted a participant and he or she agreed to participate in the survey, they then asked him or her to contact more individuals with disabilities who met the criteria. Then the referral procedure was repeated for the next participant. The researcher communicated with the four contacts at least once a week during the survey period through phone calls and e-mails.

Data Collection

In June, 2005, the researcher mailed 240 surveys to the four contacts in the four city areas in China. Seventy surveys each were mailed to Beijing and Guangzhou, and 50

each were sent to Xi'an and Fuzhou. The researcher called and trained the four contacts on how to conduct the survey by explaining concepts and procedures of the survey. She also mailed them the Protocol for Conducting the Survey (Appendix C), which specified all the requirements for conducting the survey. The four contacts returned 227 surveys by mail to the researcher by August 30, 2005. Ten surveys were invalid because of no trip taken or ages below 18 years. Therefore, 217 surveys were used in this study (Beijing 73, Fuzhou 50, Guangzhou 52, Xi'an 42).

AAB Questionnaire

The AAB questionnaire (Appendix E) was developed by Takeda and Card (2002) and revised by Avis et al. (2005). Due to different tourism resources classification systems in China and U.S., the researcher modified the content in four sectors of the tourism industry (See Appendix I for the modifications) and added questions to garner information on travel patterns of travelers with physical disabilities (Darcy, 1998). The questionnaire included information on travelers' demographics, travel patterns, accessibility and attitudinal barriers they encountered, and comments. The researcher used Cronbach's alpha to measure the reliability of the questionnaire. Cronbach's alpha is the proportion of the variability in the responses in the questionnaire that is due to the differences of the respondents (SPSS 13.0, 2005). Cronbach's alpha in the current study was .92 on accessibility barriers and .93 on attitudinal barriers, indicating that the questionnaire used in this study was more reliable than the one in Avis et al.'s study (2005) (.84 on accessibility and .83 on attitudinal barriers). Another factor to consider is that differences of the respondents in the current study may be larger than the differences

in the Avis's et al.'s study because the data were collected from four city areas in China whereas the previous study collected data from one city area in the U.S.

The questionnaire consisted of four sections. Section I was derived from Darcy's study (1998) on the travel patterns and travel experiences of Australian travelers with physical disabilities. Questions included: number of times the participants traveled in the past year; the main reasons for traveling; with whom the participants traveled, and the number of people with whom they traveled.

Section II served as an indicator of accessibility and attitudinal barriers encountered by travelers with disabilities. The classification of the four sectors and the measurement for the level of barriers ranging from few (1) to many (5) was derived from Takeda and Card (2002) and Avis et al. (2005). "Zero" means travelers did not encounter any barriers. "6" indicates "Did not use". "1" to "5" indicates the range of the amount of barriers from "few" to "many".

Because China has different tourism resource classifications than the U.S., the researcher modified some of the content in each tourism sector (Appendix I). The four sectors included transportation with 16 items, accommodations with 4 items, eating-drinking establishments with 7 items, and attractions with 8 items. For a better depiction of sectors in China, the researcher discussed the questionnaire with numerous individuals with physical disabilities from three disability organizations in Beijing in the summer of 2004 and 2005. The three organizations are Beijing Meibeili Cultural Exchange Center for Individuals with Disabilities, "Team of Dream", a group of travelers with physical disabilities, and Beijing Dongcheng District Chess Club for Individuals with Disabilities.

They offered suggestions on what items to include in each sector in the tourism industry and emphasized that questions must be easy to understand.

In the revised AAB, the areas in the transportation sector included airplane and airport, ship and port, bus and bus station, train and train station. Motor tricycle is a popular transportation tool for people with physical disabilities in city areas in China, so it was added in the transportation sector. Taxi, subway, and tour bus were also included into this sector.

The areas in the accommodations sector included starred-hotels, hostels and motels and camp sites (Darcy, 1998). The researcher included Chinese and Western restaurants, Chinese and Western fast food restaurants, and bars in the eating-drinking establishments sector. Since teahouse is common in city areas in China, it was also added. Tourists' attractions included: 1) natural landscapes (such as mountains, caves, lakes, rivers, and animals and plants); 2) historical and cultural sites (relics, such as prehistoric sites, buildings and facilities, such as palaces and temples); 3) city parks; 4) museums; 5) theatres and cinemas; and 6) zoos in the attraction sector. Since no complete list of the four sectors of China's travel industry existed, the researcher added "other" in each sector to include other possible answers (American Statistical Association, 1999). Section II was used to determine the amount of barriers and test hypotheses.

The third section included demographics and disability information of travelers with physical disabilities. The questions included gender, age, monthly income, educational level, type of disability, functioning level, and assistive devices. Income was reported in Chinese Yuan and categorized into different income levels. Based upon CDPF's classification (1995), physical disability types in this study included: cerebral palsy,

spinal cord disease and injury, hemiplegia, amputation, poliomyelitis, spinal column malformation, severe bone, joint or muscle disease and injury, peripheral nerve disease and injury, congenital limb disorder, and other. They were also asked to select their disability type according to the American classification of physical disabilities (Avis et al., 2005), which included head injury, spinal cord injury, multiple sclerosis, muscular dystrophy, spina bifida, and other.

Travelers evaluated their own functioning level, the capability of conducting daily activities (bathing, dressing, eating, writing, etc.), which included: high, average, and low. Assistive devices for personal mobility of people with physical disabilities included crutches, cane, walkers, leg braces, manual wheelchairs, motorized wheelchairs, scooters, and other (CDPF, 2000). Travelers were also asked if they had difficulty walking for the purpose of comparing to the Card et al.'s study (in press), which concentrated on travelers with difficulty walking.

Section IV elicited comments from the participants. Meadows (2003) stated that comments can help improve response rates and identify, in more depth, the respondent's thoughts, feelings and experiences. The researcher classified comments into three categories: accessibility barriers, attitudinal barriers, and other. The results were presented in a narrative format.

All the responses but comments were coded for statistical analysis. The coding method is shown in Table 1.

Table 1. *Coding for questionnaire*

Section Number	Question Number	Computer Code
Section I	1. How many times have you traveled in the past year	Written numerical response
	2. Main reasons for travel	r1=pleasure/holiday r2=medical r3= visiting friends/relatives r4=study r5= business r6=other
	3. With whom travel	with1=alone with2= other members of my organization with3= my family with4= colleagues with5= friends with6=other
	4. How many travel with	Written numerical response
Section II	5. Accessibility and	0=none 1=few 2= a few 3=some 4= quite a few 5=many 6=did not use
	6. Attitude	
Section III	7. Gender	1=female 2=male
	8. Age	Written numerical response
	9. Income	Written numerical response
	10. Education	1= Primary school 2= Middle school 3= High school 4= Training school or technical school degree 5=Associate degree 6=Bachelor's degree 7=Graduate degree

	11. Chinese disability type	8=Other 1= Cerebral palsy 2= Spinal cord disease and injury 3= Hemiplegia 4= Amputation 5= Poliomyelitis 6= Spinal column malformation 7= Severe bone, joint or muscle disease and injury 8= Peripheral nerve disease and injury 9= Congenital limb disorder 10= Other
	12. American disability type	1= Cerebral palsy 2= Spinal cord injury 3= Spina bifida 4= Muscular dystrophy 5= Multiple sclerosis 6= Brain injury 7= Other
	13. Functioning level	1= High 2= Average 3= Low
	14. Assistive devices	1= None 2= Cane 3= Manual wheelchair 4= Walker 5= Crutches 6= Leg brace 7= Scooter 8= Motorized wheelchair 9= Other
	15. Walk	1= Yes, with another person's assistance 2= Yes, with an assistive device 3= Yes, without any assistance 4= No

A panel of experts (Appendix J), the researcher's committee members at the University of Missouri-Columbia, examined the questionnaire for content validity. Dr. Jaclyn Card, Professor and Director of Graduate Studies in the Department of Parks, Recreation and Tourism, at the University of Missouri-Columbia, specializes in therapeutic recreation and tourism for individuals with disabilities. Dr. Card co-developed the AABM. Dr. Shu Cole, Assistant Professor in the Department of Parks, Recreation and Tourism, at the University of Missouri-Columbia, specializes in tourism studies and also contributed to developing the AABM. Dr. James Groves, Associate Professor and Chair of the Department of Hotel and Restaurant Management, at the University of Missouri-Columbia, specializes in hospitality studies. Committee members reviewed the content of the questionnaire and suggested editorial changes and changes on Chinese and American physical disability types. In addition, the Institutional Review Board at the University of Missouri-Columbia reviewed and approved the instrument to ensure human subject protection.

The researcher translated the questionnaire, the cover letter and the Protocol for Conducting the Survey into Chinese. Dr. Sarah Weaver, Director of the University of Missouri Disability Service, and Dr. Tzyh-chang Hwang, Professor at the University of Missouri Medical School, reviewed the questionnaire and the translation, and offered suggestions on physical disability types. Dr. Shu Cole, fluent in Chinese and English, reviewed and made minor changes to the translation.

The researcher asked the four contacts in China to review the Chinese version of the questionnaire. The researcher e-mailed the questionnaire and asked them to fill it out. The questionnaires were returned to the researcher through e-mail. The four contacts

confirmed the content of the questionnaire and offered a few revisions, such as adding Chinese fast food restaurant into the eating-drinking establishments sector. They also suggested highlighting the two titles of accessibility and attitudinal barriers in section II so that participants would not think of the two questions as the same. Lastly, the researcher made changes to the questionnaire from their feedback and the researcher's committee chair approved these changes.

Statistics and Software

This study presented descriptive and inferential analyses on Chinese travelers with physical disabilities and the accessibility and attitudinal barriers they encountered. The researcher analyzed the data using the Statistical Package for Social Sciences 13.0 for Windows (SPSS Inc., 2005).

Descriptive analyses were used to calculate means, standard deviations, frequencies, and percentages. Frequencies and percentages of gender, income level, and number of trips taken in the past year, with whom travel, reasons for travel, educational level, Chinese and American disability types, functioning level, can you walk, and assistive devices were calculated. Means and standard deviations were calculated for age and income. These depicted the demographics and travel patterns of Chinese travelers with physical disabilities. Frequencies and percentages of travelers selecting scores ranging from 0 to 5 and travelers selecting 6 (Did not use the service) for each item in each sector were also reported.

To determine the accessibility barriers and the attitudinal barriers in each sector, means and standard deviations of Section II were calculated to create 8 accessibility and attitudinal barriers mean scores in total: the accessibility and attitudinal mean scores in

transportation, the accessibility and attitudinal mean scores in accommodations, the accessibility and attitudinal mean scores in eating-drinking establishments, and the accessibility and attitudinal mean scores in attractions.

Scores of level of barriers ranging from 0 to 5 for each item of a sector were added to get a score for this sector. To calculate the mean score of the sector, this score was divided by the number of items in the sector. The researcher used the 8 mean scores from each sector as the dependent variables for hypotheses testing. An item with a score of 6 was not included in data analysis. Only percentages of travelers were reported for 6.

The alpha level for all statistical tests was .05. The researcher used Multivariate Analysis of Variance [MANOVA], Analysis of Variance [ANOVA], and Scheffé Post Hoc testing for analysis of the data in section II. Since there were four dependent variables for accessibility barriers and four for attitudinal barriers, the researcher used MANOVA. MANOVA tested whether mean differences among groups on a combination of dependent variables were likely to have occurred by chance (Tabachnick & Fidell, 1996). By measuring the accessibility and attitudinal scores of the four sectors instead of only one total score, the researcher improved the chance of discovering what changed as a result of different income, functioning levels, and assistive devices. Six MANOVAs were conducted, one for each hypothesis.

If the results of MANOVA were significant, ANOVA tests were conducted to locate the differences among the dependent variables. If the results of ANOVA were significant, Scheffé Post Hoc was used to show the differences among different levels of the independent variables. Means and standard errors of accessibility and attitudinal barriers by each level of functioning, income, and assistive devices were calculated.

For the purpose of visually comparing the results of the study on Chinese travelers with physical disabilities with the results in Card et al.'s study (in press) in the AABM, travelers with walking difficulties were selected and compared to U.S. travelers who had difficulty walking. Travelers with walking difficulties in the current study included travelers who cannot walk and/or walked with the assistance of other people and/or the mobility assistive devices. The percentages of barriers in four sectors were calculated. In the barriers section of the questionnaire, responses 1 through 5 were coded 1, meaning a barrier was encountered, while a 0 response indicated no barrier. To figure the percentage of barriers in each sector, the total number of items coded 1 (barriers encountered) and 0 (barriers not encountered) was divided by the number of barriers encountered (1) (Card et al.). The higher percentages indicated that more respondents encountered barriers. To illustrate differences and similarities, the percentage of Chinese travelers encountering barriers in each sector was compared to that of their counterparts in the U.S. These percentages were also used to locate positions and display the results visually in the four quadrants in the AABM with the horizontal axis indicating staff attitudes and vertical axis indicating accessibility.

CHAPTER 4

Results of Data Analysis

This chapter reports results derived from Chinese travelers with physical disabilities. Demographic information, travel patterns, accessibility and attitudinal barriers encountered, and comments are described in this chapter. Evidence is demonstrated to support, or reject each hypothesis. Last, results of the current study are visually compared to the Card et al.'s study (in press) in the AABM.

Demographic Information

Four Cities

The researcher received 227 questionnaires from the four cities. Ten questionnaires were invalid because of no trip taken or ages below 18 years. Therefore the total sample size of the study was 217. Table 2 illustrates the frequency and percentage of the questionnaires returned from the four cities.

Table 2. *Frequency and percentage of travelers from four cities*

City	Frequency	Percentage
Xi'an	42/50	.84
Beijing	73/70	1.04*
Fuzhou	50/50	1.00
Guangzhou	52/70	.74

*Note: Beijing contact made 3 extra copies of the survey.

Demographic information

Of the 214 respondents indicating their gender, 42.1 percent were female and 57.9 were male. Ages ranged from 18 to 67 years and were categorized into four age groups:

between 18 and 29, between 30 and 39, between 40 and 49, and 50 and over. The average age was 40.4 with a standard deviation of 9.0. The highest responses of age were travelers between 40 and 49 (47.7%). Table 3 shows the frequency and percentages of gender and age.

One hundred and eighty-four respondents reported their monthly income. The exchange rate for Chinese Yuan to U.S. dollars was approximately 1:8. The researcher categorized the responses into three income levels: 1) less than ¥700; 2) ¥ 701-1200; and 3) ¥1200 and over. The researcher detected three outliers (¥15, ¥20,000, and ¥50,000) in the responses and removed the outliers from the data. The majority of the respondents (68.4%) reported a monthly income less than ¥1,200. The average monthly income was ¥1,100. Table 3 illustrates the frequency and percentage of travelers' income.

Travelers' educational level ranged from primary school to a graduate degree. The most frequent response was high school (36.9%) followed by associate degree (20.3%) and middle school (19.4%). Other included 2 travelers who did not go to school because of their disabilities. Table 3 shows the frequency and percentages of educational levels.

Table 3. *Frequency and percentage of gender, age, income, and educational level*

Demographic Factor	Frequency	Percentage
Gender		
Female	90	42.1
Male	124	57.9
Age		
18-29	22	10.3
30-39	63	29.4
40-49	102	47.7
50 and over	27	12.6
Income Level*		
Less than ¥700	63	34.2
¥701-1200	63	34.2
¥1201 and over	58	31.5
Educational Level		
Primary school	7	3.2
Middle school	42	19.4
High school	80	36.9
Training school or technical school degree	20	9.2
Associate degree	44	20.3
Bachelor's degree	19	8.8
Graduate degree	3	1.4
Other	2	.9

*Missing 33 values

Disability Information

In addition to the demographic information, travelers were asked to provide their disability information, which included disability types by Chinese classification and by American classification, functioning level, assistive devices used, and walking ability.

According to the Chinese physical disability classification, the majority of the respondents reported poliomyelitis as their primary physical disability (69.8%) followed by amputation (14.9%). Other (3.7%) included injury on the job, wound, and frostbite (See Table 4).

Table 4. *Frequency and percentage of Chinese physical disability types*

Disability	Frequency	Percentage
Poliomyelitis	150	69.8
Amputation	32	14.9
Other	8	3.7
Congenital limb disorder	6	2.8
Cerebral palsy	5	2.3
Spinal cord disease and injury	5	2.3
Severe bone, joint or muscle disease and injury	5	2.3
Peripheral nerve disease and injury	2	.9
Hemiplegia	1	.5
Spinal column malformation	1	.5

Travelers were also asked to select their physical disability type by the American physical disability classification. Thirty percent of the respondents left this question blank perhaps because they were not familiar with the American classification of physical disabilities. For those who responded to this question, a little less than one third (31.8%) selected spinal cord injury, the most frequent response for this question. However, the most frequently selected disability type in the previous question was poliomyelitis (69.8%). The large discrepancy may result from travelers mistaking polio as a spinal cord injury (See Table 5).

Table 5. *Frequency and percentage of American physical disability types*

Disability	Frequency	Percentage
Spinal cord injury	69	31.8
Other	67	30.9
Missing	65	30.0
Muscular dystrophy	5	2.3
Cerebral palsy	5	2.3
Spina bifida	3	1.4
Multiple sclerosis	2	.9
Brain injury	1	.5

Travelers' functioning levels included: high, average, and low. One hundred and fourteen respondents perceived their functioning level as average (55.3%) followed by 54 travelers with low functioning (26.2%) and 38 travelers with high functioning (18.4%).

Travelers were asked to check all the assistive devices they used. Multiple responses were reported. Forty-two travelers (19.8%) indicated they used no devices. Of those who used devices, 133 travelers reported using only one device (76.4%) and 41 travelers used more than one device (23.6%). The most frequently selected device was crutches (31.3%) followed by motorized wheelchair (21.2%) and manual wheelchair (15%). Other (9.7%) included artificial limb, motor tricycle, bicycle, and car.

Table 6 shows the cross tabulation of the devices by gender. The most frequently selected device used by both males (42) and females (24) was crutches, followed by a motorized wheelchair (m=23; f=23) and manual wheelchair (m=15; f=19).

Table 6. *Frequency of devices used by gender**

	Male	Female
Device	Freq.	Freq.
Cane	14	8
Manual wheelchair	15	19
Walker	3	2
Crutches	42	24
Leg brace	9	4
Scooter	5	3
Motorized wheelchair	23	23
Other	16	5
None	23	19

*Two respondents did not indicate their gender

The cross tabulation of devices used by functioning level was also illustrated (Table 7). The most frequently selected device for travelers with high, average, and low functioning level was crutches. Motorized wheelchair was the second most frequently used device for travelers with average and low functioning. Leg brace was the second most frequently used device for travelers with high functioning. Half of travelers with high functioning (50.0%) did not use a device whereas only one traveler with low functioning (1.4%) did not use a device.

Table 7. *Frequency and percentage of devices used by functioning levels*

Function	Cane		Manual WC		Walker		Crutches		Leg Braces		Scooter		Motorized WC		Other		None	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
High	1	2.4	3	7.1	0	0.0	6	14.3	5	11.9	0	0.0	3	7.1	3	7.1	21	50.0
Average	15	11.1	16	11.9	3	2.2	35	26.0	7	5.2	4	3.0	23	17.0	12	8.9	20	14.8
Low	6	8.5	14	19.7	2	2.8	23	32.4	1	1.4	4	5.6	15	21.1	5	7.0	1	1.4

Travelers with Walking Difficulty

For the purpose of comparing the results to the Card et al.'s study (in press), only travelers with walking difficulty (n=137) were selected. One hundred and thirty-seven travelers reported that they had difficulty walking (63.1%). Among travelers with walking difficulty, 94 travelers reported that they could walk with assistive devices and 23 travelers could walk with another person's assistance. Nineteen travelers could not walk. Table 8 shows the cross tabulation of travelers who had difficulty walking and travelers who had no difficulty walking by functioning level (See Table 8).

The majority of travelers with average functioning (64.9%) and travelers with low functioning (86.8%) had difficulty walking while the majority of travelers with high functioning (76.3%) had no difficulty walking. Travelers with lower functioning were more likely to have walking difficulty than travelers with higher functioning.

Table 8. *Frequency and percentage of travelers with and without walking difficulty by functioning level*

Function	With Walking Difficulty		Without Walking Difficulty	
	Freq.	%	Freq.	%
High	9	23.7	29	76.3
Average	74	64.9	40	35.1
Low	46	86.8	7	13.2

Travel Patterns

The number of trips travelers had taken in the past year ranged from 1 to 50. The most frequent number of trips was one trip (38.3%) followed by two trips (25.7%). More

than half of the travelers (51.2%) indicated they were traveling for pleasure or holiday. Nearly one fourth (24.4%) were visiting friends or relatives and 21.2% were traveling for business. Other reasons included study (11.1%), medical (6.9%), and sports event (3.8%).

The most frequent travel companions for travelers with physical disabilities were other members of their organizations for people with disabilities (40.6%) followed closely by family members (39.2%). Twenty nine percent of the travelers traveled with friends. The number of travel companions ranged from 0 to 200. Respondents traveled with an average of 13 persons. More than one-third traveled with 3 to 5 persons (37.6%). Only 9.7 percent indicated they traveled alone. Table 9 illustrates the travel patterns of Chinese travelers with physical disabilities.

Table 9. *Travel patterns of Chinese travelers with physical disabilities*

# of Trips Taken*	Frequency	Percentage
1	82	38.3
2	55	25.7
3	34	15.9
4	17	7.9
5	10	4.7
6 or more	16	7.5
Reasons for Trip		
Pleasure/Holiday	111	51.2
Visiting Friends/Relatives	53	24.4
Business	46	21.2
Study	24	11.1
Other	24	11.1
Medical	15	6.9
Travel Companions		
Other members	88	40.6
Family members	85	39.2
Friends	63	29.0
Colleagues	37	17.1
Alone	21	9.7
Other	3	1.4

Table 9 Contd.

# of Travel Companions**		
0	2	1.1
1-2	25	13.2
3-5	71	37.6
6-9	25	13.2
10-19	32	16.9
20-29	13	6.9
30 or more	21	11.1

*Missing 3 values

**Missing 28 values

Note: Percentages for reasons for trip and travel companions do not add up to 100% because respondents provided multiple choices.

Cross tabulation of number of trips by functioning level was conducted. The most frequently reported number of trips for travelers with high functioning (35.1%) was 2 trips closely followed by 1 trip (32.4%). For travelers with average functioning (36.6%) and travelers with low functioning (48.1%) was 1 trip. Table 10 illustrates the cross tabulation of number of trips taken by functioning level.

Table 10. *Frequency and percentage of number of trips by functioning level*

Level	Number of Trips											
	1		2		3		4		5		6 or more	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
High	12	32.4	13	35.1	5	13.5	2	5.4	1	2.7	4	10.8
Average	41	36.6	31	27.7	16	14.3	12	10.7	5	4.5	7	6.3
Low	26	48.1	9	16.7	10	18.5	3	5.6	1	1.9	5	9.3

Cross tabulation of number of travel companions by functioning level was also conducted. The most frequent response in number of travel companions for travelers with high, average, and low functioning was between 3 to 5 persons. The two travelers who traveled alone were travelers with high functioning. Table 11 shows the cross tabulation of number of travel companions by functioning level.

Table 11. *Frequency and percentage of number of travel companions by functioning level*

	Number of Travel Companions													
	0		1-2		3-5		6-9		10-19		20-29		30 or more	
Level	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
High	2	5.6	4	11.1	11	30.6	7	19.4	7	19.4	4	11.1	1	2.8
Average	0	0.0	12	12.6	39	41.1	12	12.6	15	15.8	6	6.3	11	11.6
Low	0	0.0	8	15.7	18	35.3	5	9.8	9	17.6	3	5.9	8	15.7

[Note: A discrepancy on the number of travel companions was found. Twenty one travelers (9.7%) indicated they traveled alone when asked about with whom they traveled, but only two travelers (1.1%) reported “0” travel companion when asked about the number of travel companions in their travel group.]

Comments

Fifty-eight respondents made comments in the last section of the questionnaire. Their written responses were categorized into three topics: accessibility barriers, attitudinal barriers, and other comments (Appendix K). Respondents commented that barrier-free construction in China had just begun and accessibility was low. Many newly-built accessible facilities were not accessible. Accessibility on public buses, trains, parks, and restrooms needed to be improved as soon as possible. Travelers expressed hopes that the society would show more care and attention to people with physical disabilities. They also requested the government to promote awareness of accessibility to the public and grant more funding for barrier-free construction.

Accessibility and Attitudinal Barriers Encountered

Detailed information of accessibility and attitudinal barriers were provided by calculating frequencies and percentages of those barriers in each area of each sector. Many travelers selected “6”, “Did not use the service”. In transportation, over half of the travelers did not use the following facilities: ships (63.5%), ports (61.6%), airplanes (58.7%), airports (59.1%), motor tricycles (52.0%), motor tricycle stops (57.5%), subways (56.9%), and subway stations (57.1%). Of those who used the services in transportation, 25.6% travelers reported no barriers on airplanes, 24.7% in airports, 23.5% in motor tricycles, and 21.1% in taxis. The most accessibility barriers in transportation were in ports (48.7%), subway stations (43.2%), train stations (42.2%), public buses (41.4%), bus stations (39.5%), and motor tricycles (40.0%) (Refer to Appendix L for more information).

In accommodations, 69 percent did not use camping sites followed by starred hotels (32.5%). Of those who used the services, 22.3% of travelers reported no barriers in starred hotels while only 10 percent reported no barriers in camping sites. The most accessibility barriers in accommodations were in camping sites (38.7%) and motels/hostels (38.2%) (Appendix L).

For accessibility barriers in eating-drinking establishments, the highest percentages of “Did not use” occurred in bars (54.2%), teahouses (53.0%), and western restaurants (48.0%). The highest percentage of travelers reporting no barriers was found in Chinese restaurants (14.3%) and western restaurants (14.3%). Bars (45.7%) and teahouses (44.2%) had the highest percentage of travelers reporting the most accessibility barriers (Appendix L).

In attractions, over one-third of the travelers reported that they did not use amusement parks (39.7%), theatres/cinemas (37.5%), or zoos (36.5%). Of those who did use the services, low percentages of travelers reporting no barriers were detected in attractions. The highest percentages of travelers reporting the most accessibility barriers occurred in historical and cultural sites (48.7%), natural landscapes (47.3%), amusement parks (46.8%), and theatres/cinemas (45.4%) (Appendix L).

For attitudinal barriers in transportation, over one-third travelers reported no barriers on airplanes (33.3%) and in airports (30.4%) followed by motor tricycles (24.8%). Over one-third of the travelers reported the most negative attitudes on buses (34.2%), in bus stations (35.3%) and on tour buses (30.8%) (Appendix L).

In accommodations, over one fourth travelers reported no barriers in starred hotels (25.4%) followed by motels/hostels (16.8%). Of those who reported barriers, over one-fourth reported the most attitudinal barriers in motels/hostels (27.7%) (Appendix L).

In eating-drinking establishments, teahouses (21.3%) and Chinese restaurants (19.6%) had the highest percentages of travelers reporting no barriers. Bars (28.4%), western fast food restaurants (27.2%), and western restaurants (26.6%) had the highest percentages of travelers encountering the most negative attitudes (Appendix L).

For staff attitudes in attractions, natural landscapes (16.5%), and museums (18.2%) had the most travelers reporting no barriers. Of those who reported barriers, over one third reported the most attitudinal barriers in amusement parks (36.5%), historical and cultural sites (34.6%), and natural landscapes (34.1%) (Appendix L).

Mean scores and standard deviations of accessibility and attitudinal barriers in each sector were calculated. Accessibility and attitudinal barriers scores ranging from 0 to 5 in

each sector were added up and divided by the number of items in each sector. Any response of 6 was excluded from the calculation. Table 12 illustrates accessibility and attitudinal barriers encountered by the travelers in each sector. Attractions had both the largest accessibility barriers mean (3.41) and the largest attitudinal barriers mean(2.65), while accommodations had both the lowest accessibility barriers mean (2.80) and the lowest attitudinal barriers mean (2.21) (Table 12).

Table12. *Means and standard deviations of accessibility and attitudinal barriers*

Sector	N	Mean	Std. Deviation
Accessibility			
Transportation	209	3.07	1.62
Accommodations	204	2.80	1.78
Eating-Drinking	200	2.89	1.80
Attractions	202	3.41	1.55
Attitudinal			
Transportation	209	2.44	1.66
Accommodations	201	2.21	1.78
Eating-Drinking	199	2.27	1.76
Attractions	198	2.65	1.77

Hypotheses Testing

Hypothesis One

The researcher addressed the null hypothesis that there was no significant difference in the amount of accessibility barriers encountered in four sectors of the tourism industry

based on functioning level. Accessibility barriers mean scores of each sector were compared by three functioning levels: high, average, and low. Table 13 shows the MANOVA results for this hypothesis. The Wilk's λ was reported. A significant effect of functioning level was found on accessibility barriers in the four sectors ($\text{Lambda} (12, 468.59) = .85, p < .05$). Therefore, the researcher rejected the null hypothesis.

Table 13. MANOVA *for accessibility barriers by functioning level*

Effect	Wilk's λ	F	Hypothesis df	Error df	Sig.
Intercept	.29	106.45	4	177	.00*
Function	.85	2.48	12	468.59	.00*

* $p < .05$

As a follow up to the significant MANOVA, the univariate ANOVAs indicated that accessibility barriers scores in each sector were significantly influenced by functioning level. Travelers with higher functioning levels encountered significantly less accessibility barriers in transportation ($F (3, 180) = 7.55, p < .05$), accommodations ($F (3, 180) = 7.60, p < .05$), eating-drinking establishments ($F (3, 180) = 6.27, p < .05$), and attractions ($F (3, 180) = 8.06, p < .05$). The results from the univariate ANOVA tests are shown in Table 14.

Table 14. *Univariate ANOVAs for accessibility barriers in four sectors by functioning level*

	Sum of squares	Df	Mean Squares	F	Sig.
ACCTrans					
Between Groups	54.64	3	18.21	7.55	.00*
Within Groups	434.31	180	2.41		
ACCAccom					
Between Groups	65.11	3	21.71	7.60	.00*
Within Groups	513.92	180	2.86		
ACCEat					
Between Groups	56.36	3	18.79	6.27	.00*
Within Groups	539.08	180	3.00		
ACCAAttr					
Between Groups	52.40	3	17.47	8.06	.00*
Within Groups	390.36	180	2.17		

* $p < .05$

Note: ACCTrans=Accessibility barriers in transportation

ACCAccom= Accessibility barriers in accommodations

ACCEat= Accessibility barriers in eating-drinking establishments

ACCAAttr= Accessibility barriers in attractions

Scheffe Post Hoc was used to determine the nature of the differences between the functioning levels (Table 15) (See Appendix M for accessibility barriers means and standard errors by functioning level). Because of unequal sample sizes for different levels of functioning, the estimated marginal means were reported. This analysis revealed that travelers with high functioning encountered less accessibility barriers in transportation ($m = 2.19$, $se = .26$) than travelers with low functioning ($m = 3.76$, $se = .24$). However, travelers with average functioning ($m = 3.02$, $se = .16$) were not significantly different from travelers with high functioning and travelers with low functioning.

In accommodations, travelers with low functioning ($m= 3.63$, $se= .26$) encountered significantly more accessibility barriers than travelers with high functioning ($m=1.90$, $se= .28$) and travelers with average functioning ($m= 2.71$, $se= .17$). However, travelers with average functioning were not significantly different from travelers with high functioning.

The same results occurred in eating-drinking establishments. Travelers with low functioning encountered significantly more accessibility barriers ($m= 3.65$, $se= .27$) than travelers with high functioning ($m= 2.00$, $se= .29$) and travelers with average functioning ($m=2.74$, $se= .17$). However, travelers with average functioning and travelers with high functioning were not significantly different from each other.

The last Scheffe Post Hoc was conducted in the attractions sector. Travelers with high functioning encountered significantly less accessibility barriers in attraction ($m=2.46$, $se= .25$) than travelers with average functioning ($m= 3.37$, $se= .15$) and travelers with low functioning ($m= 4.02$, $se= .23$). However, no significant difference was detected between travelers with average functioning and travelers with low functioning.

Table 15. *Multiple comparisons for accessibility barriers encountered among functioning levels*

Dependent Variable	Function	Function	Mean Difference	Standard Error	Sig.
ACCTrans	High	Average	-.83	.30	.06
		Low	-1.57	.35	.00*
	Average	High	.83	.30	.06
		Low	-.74	.29	.08
	Low	High	1.57	.35	.00*
		Average	.74	.29	.08
ACCAccom	High	Average	-.81	.33	.11
		Low	-1.73	.38	.00*
	Average	High	.81	.33	.11
		Low	-.92	.31	.04*
	Low	High	1.73	.38	.00*
		Average	.92	.31	.04*
ACCEat	High	Average	-.74	.34	.19
		Low	-1.65	.39	.00*
	Average	High	.74	.34	.19
		Low	-.91	.32	.04*
	Low	High	1.65	.39	.00*
		Average	.91	.32	.04*
ACCAAttr	High	Average	-.91	.29	.02*

Table 15 Contd.

	Low	-1.56	.33	.00*
Average	High	.91	.29	.02*
	Low	-.65	.27	.13
Low	High	1.56	.33	.00*
	Average	.65	.27	.13

* $p < .05$ *Hypothesis Two*

The researcher addressed the null hypothesis that there was no significant difference in the amount of attitudinal barriers encountered in four sectors of the tourism industry based on functioning level. The attitudinal barriers means for each sector were compared by three functioning levels: high, average, and low. Table 16 shows the MANOVA results for this hypothesis. A significant effect of functioning level was found for attitudinal barriers in the four sectors ($\text{Lambda} (12, 465.94) = .87, p < .05$). Therefore, the researcher rejected the null hypothesis.

Table 16. MANOVA for attitudinal barriers by functioning level

Effect	Wilk's λ	F	Hypothesis df	Error df	Sig.
Intercept	.47	49.88	4	176	.00*
Function	.87	2.19	12	465.94	.01*

* $p < .05$

As a follow up to the significant MANOVA, the univariate ANOVAs indicated that the attitudinal barriers in transportation, accommodations, and eating-drinking

establishments were significantly influenced by functioning level. Travelers with higher functioning levels encountered significantly less accessibility barriers in transportation ($F(3, 179) = 6.13, p < .05$), accommodations ($F(3, 179) = 5.02, p < .05$), and eating-drinking establishments ($F(3, 179) = 3.96, p < .05$). Attitudinal barriers in attractions, however, were not significantly influenced by functioning level ($F(3, 179) = 1.57, p > .05$). The results from the univariate ANOVA tests are shown in Table 17.

Table 17. *Univariate ANOVAs for attitudinal barriers in four sectors by functioning level*

	Sum of Squares	Df	Mean Squares	F	Sig.
ATTTrans					
Between Groups	47.37	3	15.79	6.13	.00*
Within Groups	461.33	179	2.58		
ATTAccom					
Between Groups	43.84	3	14.61	5.02	.00*
Within Groups	521.06	179	2.91		
ATTEat					
Between Groups	35.74	3	11.91	3.96	.00*
Within Groups	538.00	179	3.01		
ATTAttr					
Between Groups	14.88	3	4.96	1.57	.20
Within Groups	564.90	179	3.16		

* $p < .05$

Note: ATTTrans= Attitudinal barriers in transportation

ATTAccom= Attitudinal barriers in accommodations

ATTEat= Attitudinal barriers in eating-drinking establishments

ATTAttr= Attitudinal barriers in attractions

Follow-up Scheffé Post Hoc tests were conducted on attitudinal barriers in transportation, accommodations, and eating-drinking establishments (Table 18) (See Appendix M for attitudinal barriers means and standard error by functioning level). The

multiple comparisons showed similar results in these three sectors in that travelers with low functioning encountered significantly more negative attitudes (transportation, $m=3.18$, $se=.24$; accommodations, $m=2.76$, $se=.26$; eating-drinking establishments, $m=2.86$, $se=.26$) than travelers with high functioning (transportation, $m=1.67$, $se=.28$; accommodations, $m=1.40$, $se=.30$; eating-drinking establishments, $m=1.69$, $se=.30$). However, travelers with average functioning (transportation, $m=2.41$, $se=.16$; accommodations, $m=2.15$, $se=.17$; eating-drinking establishments, $m=2.16$, $se=.17$) were not significantly different from travelers with low functioning and travelers with high functioning in all three sectors in terms of attitudinal barriers encountered.

Table 18. *Multiple comparisons for attitudinal barriers encountered among functioning levels*

Dependent Variable	Function	Function	Mean Difference	Standard Error	Sig.
ATTTrans	High	Average	-.74	.32	.16
		Low	-1.50	.37	.00*
	Average	High	.74	.32	.16
		Low	-.76	.29	.08
	Low	High	1.50	.37	.00*
		Average	.76	.29	.08
ATTAccom	High	Average	-.74	.34	.20
		Low	-1.36	.40	.01*
	Average	High	.74	.34	.20
		Low	-.61	.31	.27
	Low	High	1.36	.40	.01*
		Average	.61	.31	.27
ATTEat	High	Average	-.47	.35	.61
		Low	-1.18	.40	.04*
	Average	High	.47	.35	.61
		Low	-.70	.31	.18
	Low	High	1.18	.40	.04*
		Average	.70	.31	.18

Table 18 Contd.

ATTAttr	High	Average	-.42	.36	.71
		Low	-.87	.41	.22
	Average	High	.42	.36	.71
		Low	-.45	.32	.58
	Low	High	.87	.41	.22
		Average	.45	.32	.58

* $p < .05$

Hypothesis Three

The researcher addressed the null hypothesis that there was no significant difference in the amount of accessibility barriers encountered in four sectors of the tourism industry based on income level. The accessibility barriers means for each sector were compared by three income levels: high, average, and low. Table 19 shows the MANOVA results for this hypothesis. No significant effect of income was found on accessibility barriers in the four sectors ($\text{Lambda}(8, 296) = .96, p > .05$). Therefore, the researcher failed to reject the null hypothesis.

Table 19. MANOVA for accessibility barriers by income level

Effect	Wilk's λ	F	Hypothesis df	Error df	Sig.
Intercept	.17	179.15	4	148	.00*
Function	.96	.72	8	296	.68

* $p < .05$

Hypothesis Four

The researcher addressed the null hypothesis that there was no significant difference in the amount of attitudinal barriers encountered in four sectors of the tourism industry based on income level. The attitudinal barriers means for each sector were compared by three income levels: high, average, and low. Table 20 shows the MANOVA results for this hypothesis. No significant effect of income on attitudinal barriers in four sectors was found ($\text{Lambda}(8, 292) = .91, p > .05$). Therefore, the researcher failed to reject this hypothesis.

Table 20. MANOVA for attitudinal barriers by income level

Effect	Wilk's λ	F	Hypothesis df	Error df	Sig.
Intercept	.29	91.73	4	146	.00*
Income	.91	1.78	8	292	.08

* $p < .05$

Hypothesis Five

The researcher addressed the null hypothesis that there was no significant difference in the amount of accessibility barriers encountered in four sectors of the tourism industry based on assistive devices. Forty-three travelers who reported using no device (19.8%) were excluded from the analysis. Of those who used device(s), the majority (76.4%) selected only one device (133 persons) and those not considered as assistive devices in other (e.g., car, bicycle, motor tricycle) were removed from the data. Therefore, 123 surveys were included in the analyses. Types of devices were collapsed into three groups: 1) manual wheelchair, motorized wheelchair, and scooter; 2) crutches, cane, and walker; 3) leg braces and artificial limbs. (Note: The researcher selected 7 persons who added

artificial limbs in other and combined these 7 persons who used artificial limbs with those who used leg braces into one group). The accessibility barriers means for each sector were compared by three assistive device groups. Table 21 shows the MANOVA results for this hypothesis. No significant effect of assistive devices was found on accessibility barriers in the four sectors ($\text{Lambda} (8, 188) = .92, p > .05$). Therefore, the researcher failed to reject the null hypothesis.

Table 21. MANOVA for accessibility barriers by assistive device group

Effect	Wilk's λ	F	Hypothesis df	Error df	Sig.
Intercept	.13	163.10	4	94	.00*
Device	.92	1.06	8	188	.39

* $p < .05$

Hypothesis Six

The researcher addressed the null hypothesis that there was no significant difference in the amount of attitudinal barriers encountered in four sectors of the tourism industry based on assistive device. The attitudinal barriers means for each sector were compared by three assistive devices groups. Table 22 shows the MANOVA results for this hypothesis. No significant effect of assistive devices was found on attitudinal barriers in the four sectors ($\text{Lambda} (8, 196) = .95, p > .05$). Therefore, the researcher failed to reject the null hypothesis.

Table 22. MANOVA *for attitudinal barriers by assistive device group*

Effect	Wilk's λ	F	Hypothesis df	Error df	Sig.
Intercept	.26	71.18	4	98	.00*
Device	.95	.59	8	196	.79

* $p < .05$

Comparison of the AABM: Chinese Travelers and U.S. Travelers

The results show high percentages of Chinese travelers encountering both accessibility and attitudinal barriers, indicating high inaccessibility and low staff attitudes in China's tourism industry. Percentage of accessibility barriers in each sector was higher than percentage of attitudinal barriers in each sector, indicating that accessibility barriers were more prevalent than attitudinal barriers in all sectors in China's tourism industry.

These percentages were visually compared to those of the U.S. travelers (Card et al., in press). Chinese travelers with difficulty walking (n=137) were selected in order to compare to U.S. travelers with difficulty walking (n=82). Both Chinese and U.S. travelers encountered less attitudinal barriers than accessibility barriers in four tourism sectors. The largest difference between Chinese travelers and U.S. travelers occurred in attitudes in attractions with 89% of Chinese travelers and 56% of U.S. travelers encountering barriers. The highest percentage of accessibility barriers was 96% for Chinese travelers in attractions and 83% for U.S. travelers in eating-drinking establishments. Chinese travelers encountered the most negative attitudes in attractions (89%) while U.S. travelers encountered the most in eating-drinking establishments (66%).

Overall, accessibility and attitudinal barriers encountered by Chinese travelers were higher in all the sectors than U.S. travelers. Comparison of the percentages of barriers

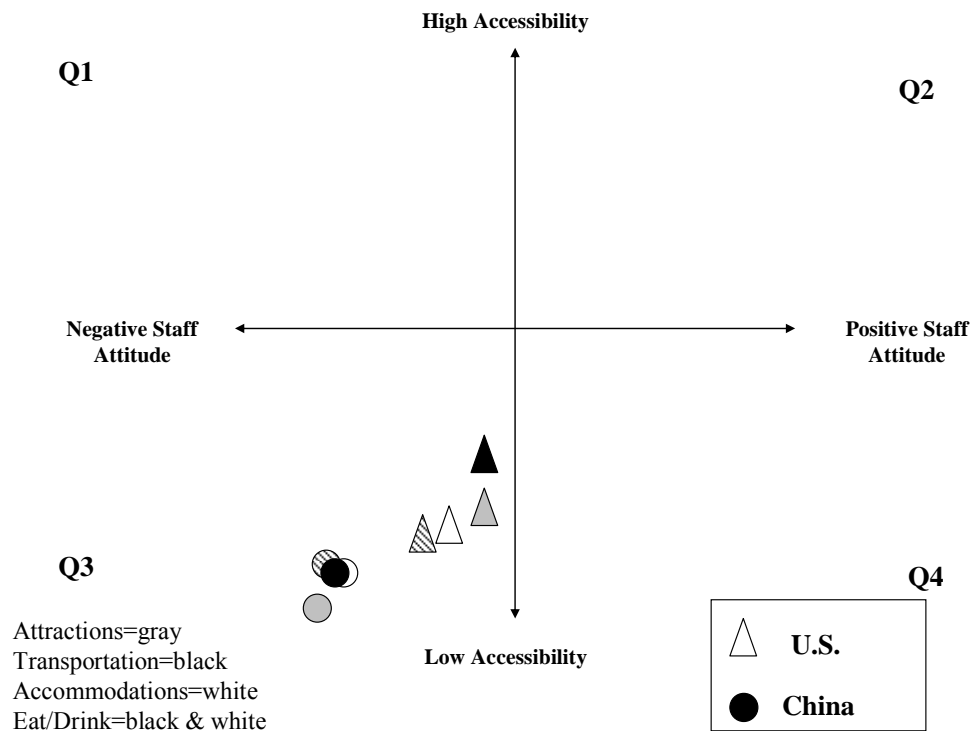
indicated that more Chinese travelers encountered accessibility and attitudinal barriers than their U.S. counterparts. Table 23 illustrates the percentages of Chinese travelers and U.S. traveler encountering barriers in four sectors of the tourism industry.

Table 23. *Percentages of accessibility and attitudinal barriers Chinese travelers and U.S. travelers encountered in four sectors*

Sector	Accessibility Barriers		Attitudinal Barriers	
	Chinese	U.S.	Chinese	U.S.
Transportation	90%	67%	85%	55%
Accommodation	90%	81%	84%	65%
Eat/Drink	94%	83%	86%	66%
Attractions	96%	78%	89%	56%

To visually compare these differences in the AABM (Figure 3), percentages of the accessibility and attitudinal barriers in each sector were used to locate points in the horizontal and vertical axes. The horizontal axis indicates staff attitudes and the vertical axis shows accessibility. Similar to the results of the U.S. travelers, the points of the accessibility and attitudinal barriers that Chinese travelers encountered were located in Quadrant 3, the least desirable environment for travelers with physical disabilities, which indicated more than half of travelers encountered accessibility and attitudinal barriers. The points of those barriers in four sectors were clustered in the lower corner of Q3, which indicated low accessibility and negative attitudes for Chinese travelers with physical disabilities.

Figure 3. Model of Accessibility and Attitudinal Barriers in Four Tourism Sectors:
Chinese Travelers and U.S. Travelers



Summary

This chapter presented the results of descriptive and inferential statistics. The mean age of the travelers was 40.4. There were more than 10% more male travelers than female travelers (57.9% male and 42.1% female). More than two-third travelers had a monthly income less than ¥1,200 (68.4%). More than one third of the travelers (36.9%) had a high school degree followed by an associate degree (20.3%). Only 8.8% of the travelers had a bachelor's degree.

Nearly 70 percent of the travelers reported poliomyelitis as their primary physical disability (69.8%). More than half of the travelers perceived their functioning level as average (52.3%) followed by travelers with low functioning (26.2%). About one fifth of

the total respondents did not use a device (19.8%). For those who used devices, crutches were the most frequently used by both male and female travelers (31.3%) followed by motorized wheelchair (21.2%). More than half of the respondents (63.1%) reported that they had difficulty walking which included those who could walk with an assistive device or with another person's assistance or could not walk.

The number of trips ranged from 1 to 50. More than half traveled for pleasure or holiday (51.2%) followed by visiting friends or relatives (24.4%) or business (21.2%). Respondents traveled mainly with other members of their disability organization (40.6%) followed by family members (39.2%). The number of travel companions ranged from 0 to 200. Overall, respondents traveled most frequently with 3 to 5 persons (37.6%).

While traveling, travelers encountered both the largest accessibility barriers (3.41) and attitudinal barriers (2.65) in attractions. Accommodations had both the lowest accessibility (2.80) and attitudinal barriers (2.21).

To determine the factors that influence the accessibility and attitudinal barriers, functioning level, income level, and assistive devices were tested to determine if they had any effect on the barriers encountered. A significant effect of functioning level was found on accessibility barriers in the four sectors. Accessibility barriers scores in transportation, accommodation, eating-drinking establishment, and attraction were significantly influenced by functioning level.

A significant effect of functioning level was detected on attitudinal barriers in four sectors. Attitudinal barriers scores in transportation, accommodation, and eating-drinking establishment were significantly influenced by functioning level. Attitudinal barriers in attractions, however, were not significantly influenced by functioning level.

Neither income nor assistive devices had any significant influence on accessibility and attitudinal barriers in the four sectors. In summary, functioning level had a significant impact on the amount of accessibility and attitudinal barriers encountered in four sectors, while income and assistive were not good indicators of barriers encountered.

Lastly, percentages of Chinese travelers with physical disabilities encountering barriers were calculated and visually compared to U.S. travelers with physical disabilities using the AABM. The results indicated high inaccessibility and low staff attitudes in China's tourism industry. Chinese travelers encountered more accessibility and attitudinal barriers than their U.S. counterparts in each sector of the tourism industry.

CHAPTER 5

Discussion

This chapter describes and discusses the results and the significance of the study. The researcher discusses the implications as well as the limitations of the study.

Overview of Demographics and Travel Patterns

A profile of travelers was derived from the results. The most frequent age group for Chinese travelers with disabilities was between 40 and 49. The majority had a monthly income less than ¥1,200 (68.4%). The average income for Chinese travelers with disabilities was ¥1,100, which was about half of the average Chinese monthly income in cities in 2005 (¥2,160) (National Bureau of Statistics of China, 2005).

The most frequent response in educational level for Chinese travelers with disabilities was high school (36.9%), which was slightly higher than data from a national sample survey (33.8%) (Well-off Society Magazine, 2005). However, their monthly income was nearly two times lower than the average income in cities despite their educational level. This may be due to the low employment rate of people with disabilities, which affected their income. This finding agreed with the widely-recognized results that disabilities led to financial disadvantages (Burnett & Baker, 2001; McKercher et al., 2002; Smith et al., 2001).

Similar to their Australian counterparts (Darcy, 1998) and Canadian counterparts (Keroul, 2000), most Chinese travelers took one trip in the past year. Most of the U.S. travelers took 2 to 6 trips (Burnett & Baker, 2001) or one trip (Avis et al, 2005). In accordance with the findings in Australia (Darcy, 1998), Canada (Keroul, 2000) and U.S. (Avis et al.; Burnett & Baker), Chinese travelers tended not to travel alone. Only 9.7% of

Chinese travelers traveled alone. Nearly 40% of Chinese travelers traveled with 3 to 5 persons. Most Chinese travelers traveled for the same purpose of pleasure/holiday as their Australian counterparts (Darcy, 1998) and U.S. counterparts (Avis et al.; Burnett & Baker). However, Chinese travelers differed from their Australian counterparts and Canadian counterparts on traveling companions. Australians and Canadians traveled mainly with their family and friends/relatives while Chinese travelers traveled most frequently with other members of their disability organization followed by family.

In summary, Chinese travelers with physical disabilities in the four cities tend to be between 40 and 49 years old with a high school degree and an average income of ¥1,100. Their travel patterns were similar to the Australian, Canadian, and U.S. travelers with disabilities.

Overview of Accessibility and Attitudinal Barriers

The researcher explored the cultural and historical background of disabilities in China to gain a better understanding of accessibility and attitudinal barriers encountered by Chinese travelers with physical disabilities. The traditional Chinese term for disability is “canji”, meaning “handicap” and “illness”. In previous time, a disability was regarded as a punishment for this person’s parental or past-life sins (Liu, 2001). Shame and guilt felt by the family members and the persons with disabilities were often associated with disabilities in China (Lam, 1992). Attitudes towards people with disabilities have improved; however, these ideologies still exist in some areas, especially less developed areas in China. Yau et al. (2004) pointed out a prevailing social attitude existed that people with disabilities were not worthy of having or wanting anything but the basics of life. People with disabilities were expected to be dependent and unproductive. Their

families assumed the responsibility of caring for them (Tseng, Lin, & Yeh, 1995). Thus, people with disabilities were expected to stay at home and live a simple life. The environment was not built to be accessible for people with disabilities because they were not expected to be active and mobile. “Accessibility”, or “barrier-free”, was a western term, which was new to Chinese people until recently. Accessibility and attitudes toward people with disabilities have improved gradually in China; however, changing the ideology of Chinese culture on disability will be a long process.

The current study revealed that Chinese travelers encountered high accessibility barriers and negative staff attitudes in all the four sectors of China’s tourism industry. Overall, the accessibility and attitudinal barriers means were higher than the U.S. travelers (Card et al., in press) in transportation, accommodations, eating-drinking establishments, and attractions, indicating that Chinese travelers encountered more barriers than their U.S. counterparts. Of special note, attractions stood out as the most inaccessible and the most negative attitudes in the four sectors, indicating that Chinese travelers encountered the most barriers in attractions.

Accessibility and attitudinal barriers means illustrated the overall intensity of the barriers, while percentages of travelers encountering barriers demonstrated the overall impact of these barriers. In addition to the high barriers means, the percentages of Chinese travelers encountering accessibility and attitudinal barriers in the four sectors were both high in transportation, accommodations, eating-drinking establishments, and attractions. They were all higher than those of the U.S. travelers, indicating more Chinese travelers than U.S. travelers encountered barriers. Attractions, again, stood out with the

largest percentages of travelers encountering accessibility (96%) and attitudinal barriers (89%).

China is rich in cultural and historical heritages, which may make accessibility to attractions harder. Five thousand years of history have left a sea of cultural and historical buildings, such as the Forbidden City, the Great Wall, the Terra Cotta Warriors and Horses, the Summer Palace, the Tai Mountain, to name a few. It was complicated and costly to make these historical buildings accessible while trying to preserve them. Furthermore, the 2001 national accessibility standards, which, for the first time, mandated the detailed requirements for accessibility in attractions, took time to be widely accepted and implemented. Another factor to consider is that steps built in front of a building was one of the typical characteristics of traditional Chinese architecture, which highlighted the supremacy and power of the higher class of the residents, such as parents higher than their children and emperors higher than the court officials. Those steps in attraction sites presented an extra barrier for travelers with disabilities.

However, no excuses should be made in making the four sectors of the travel industry accessible for travelers with disabilities. China's government and tourism industry must take measures to reduce and tear down the accessibility and attitudinal barriers in these four sectors.

AABM

The percentages of Chinese travelers encountering barriers were visually compared to their U.S. counterparts (Card et al., in press) using the AABM. The comparison revealed that percentages for Chinese travelers were more clustered in the lower position of Quadrant 3 than for U.S. travelers, indicating more Chinese travelers than U.S.

travelers encountered accessibility and attitudinal barriers. It shows low accessibility and negative staff attitudes in China's tourism industry regardless of sectors, whereas there are differences in accessibility and attitudinal barriers in the U.S. by sectors. The U.S. is one of the most accessible countries in the world, whereas China is behind by other developed countries in accessibility development (CDPF, 2002b). Therefore, the results of the visual comparison in the AABM were matching.

Limitations

Just like other research projects, this study also has its limitations in its design and research method. First, this study examined Chinese travelers with physical disabilities. Other types of disabilities might affect the results in terms of accessibility and attitudinal barriers encountered. For example, a person with a mental illness may encounter different attitudinal barriers than people with a physical disability. A person with a hearing disability or a visual disability has different requirements for accessibility, thus encountering different accessibility barriers than people with other physical disabilities. Second, this study collected data on travelers with physical disabilities from four cities of China. There is no way of estimating the representativeness of the entire disability population in China. Therefore, the findings of the study may only be generalized to the four cities of China.

Third, one has to be cautious in interpreting the accessibility and attitudinal barriers mean scores. On a 0 to 5 scale, indicating few to many barriers, the accessibility barriers means ranged from 2.80 to 3.41 and the attitudinal barriers means ranged from 2.21 to 2.65. They were mainly located in the middle of the scale, indicating encountering some barriers. People from a less individualistic culture are more likely to praise if they receive

good service than those from a more individualistic culture. They tend not to give negative feedback even if they encountered a negative service (Liu, Furrer, & Sudharshan, 2001). China, traditionally, was a less individualist culture than the U.S. Chinese travelers may have rated the items more positively than they actually felt.

Another factor to consider is that Chinese travelers may not be as aware and informed of their rights for an accessible environment and positive attitudes as their U.S. counterparts. This might be due to a lack of an enforced accessibility law such as the Americans with Disabilities Act. Chinese travelers may have less knowledge of accessible environments and positive staff attitudes, thus demanding less and resulting in higher evaluations on barriers encountered.

Conclusions

The main purpose of the study was to test if functioning level, income, or assistive devices has any influence on the accessibility and attitudinal barriers encountered by Chinese travelers with physical disabilities. A significant multivariate effect of functioning was found on the accessibility and attitudinal barriers encountered in the four sectors, but not for assistive device or income. There is a significant difference among the amount of accessibility and attitudinal barriers encountered based on functioning level; however, there is no significant difference among the amount of accessibility and attitudinal barriers encountered based on income or assistive devices.

Existing literature (Avis et al., 2005; Burnett & Baker, 2002; Dolan, 2000; WHO, 2001) provided a basis for predicting the effect of functioning level on accessibility and attitudinal barriers. Significant differences were detected among accessibility barriers in four sectors across three functioning levels. Significant differences were also found

among attitudinal barriers across the three levels except in attractions. This result supports what Avis et al. (2005) predicted in their study that functioning level may be a better predictor of barriers than income and device.

As a result of ANOVAs and Scheffe Post Hoc multiple comparisons, at least three observations merit attention. First, significant differences were detected between travelers with low and high functioning. Travelers with low functioning encountered more accessibility barriers and attitudinal barriers than travelers with high functioning across the four sectors except attitudinal barriers in attractions. Second, travelers with average functioning tended not to stand out from travelers with high and low functioning in terms of barriers encountered. This might be explained by lack of variation among the three functioning levels (See Appendix M for barrier means and standard errors by functioning level). Range of the average functioning level may be too close to the high and low functioning levels, thus weakening the effect of the functioning level. Last, no significant effect of functioning on attitudinal barriers in attractions was detected. Perhaps attitudes were so overwhelming in attractions that the effect of functioning was weakened. As a result, travelers with different functioning did not differ significantly from each other in that they all received many negative attitudes in attractions.

Other factors that were tested in the study were income and assistive devices. The findings revealed that neither income nor assistive device had a significant effect on the amount of accessibility and attitudinal barriers encountered. These results matched Avis et al.'s findings (2005) that income and assistive devices were not good indicators of barriers encountered. Although assistive devices were key tools for improving independence for people with disabilities (Jedeloo et al., 2000), their effect became weak

when encountering accessibility barriers and negative staff attitudes. Income limits travel options (Cameron, Darcy, & Foggin, 2003; Darcy & Daruwalla, 1999). However, income level had no effect on barriers. Regardless of income level, travelers with physical disabilities encountered barriers. Indeed, it was functioning level that resulted in barrier differences.

Implications and Recommendations

In spite of the limitations of the study, the findings do provide meaningful conclusions about Chinese travelers with physical disabilities, their travel patterns, the accessibility and attitudinal barriers encountered, and the factors that influence these barriers. These results point to possible implications for the Chinese government and the travel industry regarding locating and reducing barriers and attracting and providing service for travelers with physical disabilities.

The findings of the current study suggest that travelers' functioning level can be used as a criterion to divide the disability market into different segments. Travelers with low functioning encountered more accessibility and attitudinal barriers than travelers with high functioning. Nonetheless, travelers with average functioning did not differ much from these two groups. These findings were in accordance with what Burnett and Baker (2001) indicated in their study that travelers with moderate and severe levels of disability had different travel-related behaviors than those with a mild disability.

These findings have practical implications. Travel providers need to be aware that travelers vary in their functioning. Thus, it is wrong to assume that travelers require the same services during a trip. Service providers in each sector of the travel industry should inquire about the functioning level of a traveler before making any travel arrangements

and providing the service because travelers with different functioning levels encountered different barriers. To understand and expect different barriers and try to reduce them helps service providers better satisfy the specific needs of clients with disabilities. Marketing strategies to target travelers with disabilities can also be designed based on travelers' functioning level. Tour programs catering to travelers with high functioning can be more active and physically involving than programs for travelers with low functioning. Instead, more detailed accessibility information should be included in tour programs for travelers with low functioning because they encountered more accessibility barriers.

The study has implications for academic studies on travelers with disabilities. Functioning level had a significant effect on the amount of accessibility and attitudinal barriers encountered by Chinese travelers with disabilities. The functioning level of travelers from other areas of China should be tested to determine if it serves as a good indicator of accessibility and attitudinal barriers beyond the four cities.

Testing functioning level in a Western cultural setting is also extremely important. As Miles argued (2000), disability was perceived differently between Eastern and Western and developing and developed countries. Will functioning level still significantly influence the barriers encountered in a Western cultural setting? Future studies are necessary for further testing of the effect of functioning level. A nation-wide study in the U.S. on functioning level is recommended. Regardless of functioning level, assistive devices and income did not impact accessibility and attitudinal barriers in China and U.S. Will it be true in other areas beyond the four cities in China and other countries

beyond these two countries? Further testing of these two factors may confirm the findings in the current study and Avis et al.'s study (2005).

This study examined the barriers existing in China's travel industry from travelers' perspectives. Further studies should be conducted from travel providers' perspectives. Are travel providers in China aware of the market of travelers with disabilities and what could they do to reduce inaccessibility and negative attitudes? What strategies could they use to target this growing market? What measures could they take to reduce these barriers and satisfy the needs of travelers with disabilities? Answers to these questions would add insight into understanding the disability travel market as a whole and help to address the gap between travelers and travel providers.

Another important finding in the study revealed that high percentages of "Did not use the service" occurred in the four sectors. For example, in transportation, more than one third reported they did not use bus and bus station, train and train station, and tour bus, and more than half did not use ship and port, airplane and airport, and subway and subway station. Why were travelers not using these transportation services? Is it because of lack of access to these facilities, inaccessibility at the facilities, lack of money, or negative staff attitudes at these services? What compromises did travelers make in dealing with the inaccessible accommodations, transportation services, eating-drinking establishments, or attractions? The current study presents a macro picture of the barriers in these four sectors. Future studies may look at barriers specifically in each sector and explore why travelers were not using certain services.

The researcher noted that Chinese travelers had difficulty understanding and selecting disability types by American physical disability classification, thus resulting in

a discrepancy between the disability types by Chinese and American classification. A standard disability classification is recommended for future studies on travel for individuals with disabilities, which is particularly important for cross cultural studies. Regarding the data collection, face to face training for surveyors is recommended in future studies.

A further recommendation is to conduct studies on the barriers encountered by international travelers traveling in China. Travel is a global phenomenon and international travel is becoming more and more common. China, one of the most popular tourist destinations in the world, must keep up its accessibility development with international standards. Particularly, China is hosting the 2008 Olympics Games and Paralympics Games in Beijing. China must improve accessibility so that both domestic and international travelers with disabilities will be able to travel barrier-free in China. Attitudes affect travel satisfaction as much as accessibility barriers (Bedini, 2000). A nation-wide disability awareness training in China's travel industry is recommended.

A visual comparison of barriers encountered between China and U.S. was made using the AABM. Further testing of its reliability should be conducted in other countries to determine if the model is effective for visual comparison of accessibility and attitudinal barriers beyond China and U.S. Visual comparisons of multiple countries can be displayed in the model. Travelers with physical disabilities may refer to the multiple comparisons in the model for a basic idea of the amount of accessibility and attitudinal barriers of a destination country before making a trip plan.

In summary, as the first study of Chinese travelers with disabilities in mainland China, the study yielded significant results on tourism for individuals with disabilities

and may be used as a basis for future studies. Chinese travelers with physical disabilities, though encountering barriers, were traveling. However, more people with disabilities would travel and travel more if accessibility and staff attitudes improve in China.

Travelers with physical disabilities represent a large potential market. To provide service for travelers with disabilities is not only the obligation of the travel industry, but also profitable. The Chinese government and the travel industry must take actions to reduce the accessibility and attitudinal barriers and include travelers with physical disabilities into mainstream travel.

People with disabilities have the same rights and desires to travel as people without disabilities. Accessibility should be an essential requirement for all places, and not a luxury. As the Global Code of Ethics for Tourism states, tourism is a universal right. Tourism for people with disabilities should be encouraged and facilitated (World Tourism Organization, 2001). China is no exception.

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APPENDIX A

Map of China

With Four Cities Data Collection Areas



APPENDIX B

Protocol for Conducting the Survey

(English)

Protocol for Conducting the Survey

1. The survey you are going to conduct is very important to my study on the accessibility and attitudinal barriers encountered by travelers with physical disabilities in China. To ensure the reliability and validity of the study, please follow all of the guidelines. I appreciate your help.
2. Participants' inclusion criterion: 1) 18 years or older; 2) with physical disabilities (excluding hearing or visual disabilities); 3) took a trip of at least one overnight stay away from home in the past year; and 4) willing to participate in the survey.
3. You can explain items to the subjects if they have questions on filling up the survey. You can also help the subjects to fill up the survey, if the subjects are not able to complete the survey independently. But do not influence the subjects' answers and do not answer the questions for them.
4. You may conduct the survey in formal and informal ways. For instance, formal ways include: 1) hosting sessions in their organizations and handing out the surveys during the sessions; 2) handing out surveys during your regular organization activities. Informal ways include: 1) handing out surveys during friends or family get-togethers; 2) handing out surveys to colleagues at work or people you meet at work; 3) sending surveys by mail; 4) interviewing participants by phone calls. You have various ways of conducting the survey, however, you must make sure that the subjects understand and complete the questions on the survey.

5. The time to conduct the survey is from June 25 to August 30, 2005. Please make sure you return the complete surveys by mail to the following address in Beijing before August 30, 2005.
6. Please return to

Yuhua Bi

5-402, Xisilou, Xinyuanli, Chaoyang District,

Beijing 100027

CHINA
7. For any questions concerning the survey, please e-mail me at yuhuabi2003@yahoo.com or call me at 86-10-64078702.
8. Please keep all the postage receipts and mail them to me. I will send you a check to cover the postage expense.
9. Again, thank you very much for your help!

APPENDIX C

Protocol for Conducting the Survey

(Chinese)

致北京， 西安， 福州， 广州四城市问卷调查负责人书

1. 您将要开展的社会调查对于研究中国肢体残疾旅游者在旅游过程中遇到的建筑物障碍和态度障碍至关重要。为了确保此次研究收集的数据可靠并且有效，请您依照以下说明进行问卷调查。我衷心感谢您的帮助!
2. 问卷调查表填写人条件: 1) 年龄 18 周岁 (含) 以上 2) 有肢体残疾 (不包括视力残疾和听力残疾 3) 在过去的一年，至少在国内旅游过一次。旅游指的是任何一次在常住地以外的地方过夜的旅行 4) 愿意参加此次社会调查。
3. 如果填写人在填写问卷调查表过程中对问卷有问题，您可以帮助解释。如果填写人不能独立填写问卷调查表，可以由填写人口述，您代为填写。但是您不可以影响填写人的答案，或者代填写人回答问题。
4. 您可以以正式或非正式的方式进行社会调查。举例说，正式的方式可以包括: 1) 组织座谈会，并在座谈会上发放问卷调查表; 2) 您所在组织进行常规活动时，发放问卷调查表。非正式的方式有: 1) 家人或朋友聚会见面时，发放问卷调查表; 2) 发放问卷调查表给您的同事，或者您在工作中认识的人。您可以多种方式进行社会调查，但是，请您确保填写人理解并且自己回答问卷调查表上的问题。
5. 次社会调查的时间从 6 月 20 日开始到 8 月 15 日结束。请您在 8 月 25 日之前，将所有填写好的问卷调查表邮寄到北京地址:

中国北京市朝阳区新源里西四楼五门 402 室 毕玉华 收
邮政编码 100027
6. 如果您在此次社会调查有任何问题，请发电子邮件到 yuhuabi2003@yahoo.com，或者打电话到 010-6407-8702(宅)。
7. 请您保留好所有的邮寄费用收据，邮寄到我在北京的地址，我会负担您的所有邮寄费用。
8. 再次衷心感谢您的帮助!

APPENDIX D

Contact Persons

Zhao, Xiaoyu
President of Fujian Province Association of People with Physical Disabilities, Fuzhou

Wang, Yan
President of Shannxi Province Association of People with Physical Disabilities, Xi'an

Wang, Kaiyan
Deputy Director of China Disabled Persons' Federation, Dongcheng District Branch,
Beijing

Tan, Bihong
Project Manager of Guangzhou Friendship Association of People with Physical
Disabilities, Guangzhou

APPENDIX E

Questionnaire on Accessibility and Attitudinal Barriers Encountered by Travelers with Physical Disabilities in China (English)

ACCESSIBILITY AND ATTITUDINAL BARRIERS ENCOUNTERED BY TRAVELERS WITH PHYSICAL DISABILITIES IN CHINA

This survey is to be completed by a person with a physical disability who is age 18 or older and has traveled in China in the past year. The purpose of the survey is to collect data on the accessibility and attitudinal barriers that you have encountered while traveling in the past year in China.

- **Accessibility barriers** are physical barriers that prevent you from entering or using transportation, accommodations, eating and drinking establishments, or attractions, such as an inaccessible bus or an inaccessible restroom. Accessibility barriers also include the surrounding areas such as a bus station or an airport.
- **Attitudinal barriers** include negative staff attitudes in transportation, accommodations, eating and drinking establishments, or attractions, such as neglecting your needs, offensive language or action toward you, and overt and subtle discrimination against you.
- **A trip** is any trip that you have taken in the past year in China that is a stay away from home for at least one night.

If you are unable to answer the questionnaire on your own, you may ask the person conducting the survey to help you, but please answer the questions by yourself. I appreciate your help!

Section I

1. How many times have you traveled in China in the past year? _____

Thinking about all trips you took in the past year—

2. What were the reasons for your trips? (Check ALL that apply)

- | | |
|---|---|
| <input type="checkbox"/> Pleasure/Holiday | <input type="checkbox"/> Medical |
| <input type="checkbox"/> Visiting Friends/Relatives | <input type="checkbox"/> Study |
| <input type="checkbox"/> Business | <input type="checkbox"/> Other (Please Specify) _____ |

3. With whom did you travel? (Check ALL that apply)

- | | |
|---|--|
| <input type="checkbox"/> Alone | <input type="checkbox"/> Other members of my organization
for persons with disabilities |
| <input type="checkbox"/> Family members | <input type="checkbox"/> Colleagues |
| <input type="checkbox"/> Friends | |
| <input type="checkbox"/> Other (Please Specify) _____ | |

4. How many people usually traveled with you? _____

Section II

5. Thinking about all trips you took in the past year, please circle the level of ACCESSIBILITY barriers you encountered. “0” represents “No Barriers”, “6” represents “Did not use”. “1” to “5” represents the range of the amount of barriers you encountered. Circle one response for each item.

<u>Transportation</u>	None	Few	—————▶				Many	Did not use
Bus	0	1	2	3	4	5	6	
Bus Station	0	1	2	3	4	5	6	
Tour Bus	0	1	2	3	4	5	6	
Train	0	1	2	3	4	5	6	
Train Station	0	1	2	3	4	5	6	
Airplane	0	1	2	3	4	5	6	
Airport	0	1	2	3	4	5	6	
Ship	0	1	2	3	4	5	6	
Port	0	1	2	3	4	5	6	
Motor Tricycle	0	1	2	3	4	5	6	
Motor Tricycle Stop	0	1	2	3	4	5	6	
Taxi	0	1	2	3	4	5	6	
Taxi Stop	0	1	2	3	4	5	6	
Subway	0	1	2	3	4	5	6	
Subway Station	0	1	2	3	4	5	6	
Other (Specify _____)	0	1	2	3	4	5	6	

<u>Accommodations</u>	None	Few	—————▶				Many	Did not use
Motel/Hostel	0	1	2	3	4	5	6	
Starred Hotel	0	1	2	3	4	5	6	
Camping Site	0	1	2	3	4	5	6	
Other (Specify _____)	0	1	2	3	4	5	6	

<u>Eating-Drinking Establishments</u>	None	Few	—————▶				Many	Did not use
Chinese Restaurant	0	1	2	3	4	5	6	
Western Restaurant	0	1	2	3	4	5	6	
Chinese Fast Food	0	1	2	3	4	5	6	
Western Fast Food	0	1	2	3	4	5	6	
Bar	0	1	2	3	4	5	6	
Teahouse	0	1	2	3	4	5	6	
Other (Specify _____)	0	1	2	3	4	5	6	

<u>Attractions</u>	None	Few	—————▶				Many	Did not use
Natural Landscape	0	1	2	3	4	5	6	
Historical & Cultural Site	0	1	2	3	4	5	6	
City Park	0	1	2	3	4	5	6	
Museum	0	1	2	3	4	5	6	

Attractions

	None	Few	—————▶				Many	Did not use
Theatre/Cinema	0	1	2	3	4	5	6	
Amusement Park	0	1	2	3	4	5	6	
Zoo	0	1	2	3	4	5	6	
Other (Specify_____)	0	1	2	3	4	5	6	

6. Thinking about all trips you took in the past year, please circle the level of ATTITUDINAL barriers you encountered. “0” represents “No Barriers”, “6” represents “Did not use”. “1” to “5” represents the range of the amount of barriers you encountered. Circle one response for each item.

Transportation

	None	Few	—————▶				Many	Did not use
Bus	0	1	2	3	4	5	6	
Bus Station	0	1	2	3	4	5	6	
Tour Bus	0	1	2	3	4	5	6	
Train	0	1	2	3	4	5	6	
Train Station	0	1	2	3	4	5	6	
Airplane	0	1	2	3	4	5	6	
Airport	0	1	2	3	4	5	6	
Ship	0	1	2	3	4	5	6	
Port	0	1	2	3	4	5	6	
Motor Tricycle	0	1	2	3	4	5	6	
Motor Tricycle Stop	0	1	2	3	4	5	6	
Taxi	0	1	2	3	4	5	6	
Taxi Stop	0	1	2	3	4	5	6	
Subway	0	1	2	3	4	5	6	
Subway Station	0	1	2	3	4	5	6	
Other (Specify_____)	0	1	2	3	4	5	6	

Accommodations

	None	Few	—————▶				Many	Did not use
Motel/Hostel	0	1	2	3	4	5	6	
Starred-Hotel	0	1	2	3	4	5	6	
Camping Site	0	1	2	3	4	5	6	
Other (Specify_____)	0	1	2	3	4	5	6	

Eating-Drinking**Establishments**

	None	Few	—————▶				Many	Did not use
Chinese Restaurant	0	1	2	3	4	5	6	
Western Restaurant	0	1	2	3	4	5	6	
Chinese Fast Food	0	1	2	3	4	5	6	
Western Fast Food	0	1	2	3	4	5	6	
Bar	0	1	2	3	4	5	6	
Teahouse	0	1	2	3	4	5	6	
Other (Specify_____)	0	1	2	3	4	5	6	

Attractions

	None	Few	—————→				Many	Did not use
Natural Landscape	0	1	2	3	4	5	6	
Historical & Cultural Site	0	1	2	3	4	5	6	
City Park	0	1	2	3	4	5	6	
Museum	0	1	2	3	4	5	6	
Theatre/ Cinema	0	1	2	3	4	5	6	
Amusement Park	0	1	2	3	4	5	6	
Zoo	0	1	2	3	4	5	6	
Other (Specify_____)	0	1	2	3	4	5	6	

Section III

7. Gender ☐ Female ☐ Male

8. Age _____

9. What is your monthly household income? _____ Yuan

10. What is the highest degree you have received? (Check one)

- ☐ Primary school
- ☐ Middle school
- ☐ High school
- ☐ Training school or technical school degree
- ☐ Associate degree
- ☐ Bachelor's degree
- ☐ Graduate degree
- ☐ Other (Please specify) _____

11. What is your **primary** physical disability? (Check one)

- ☐ Cerebral palsy
- ☐ Hemiplegia
- ☐ Poliomyelitis
- ☐ Severe bone, joint or muscle disease and injury
- ☐ Peripheral nerve disease and injury
- ☐ Congenital limb disorder
- ☐ Other (Please Specify) _____
- ☐ Spinal cord disease and injury
- ☐ Amputation
- ☐ Spinal column malformation

12. What is your **primary** physical disability according to the American standards of physical disabilities? (Check one)

- ☐ Cerebral palsy
- ☐ Spina bifida
- ☐ Multiple sclerosis
- ☐ Other (Please Specify) _____
- ☐ Spinal cord injury
- ☐ Muscular dystrophy
- ☐ Brain injury

13. Would you say your functioning level is? (Check one). Functioning level is the capability of conducting daily activities.

☐ High

☐ Average

☐ Low

14. What mobility device do you use the most? (Check one)

☐ None

☐ Cane

☐ Manual wheelchair

☐ Walker

☐ Crutches

☐ Leg brace(s)

☐ Scooter

☐ Motorized wheelchair

☐ Other (Please Specify) _____

15. Can you walk? (Check ALL that apply)

☐ Yes, with another person's assistance

☐ Yes, with an assistive device

☐ Yes, without any assistance

☐ No

Section IV

16. Comments (Please comment on your past travel experiences, accessibility requirements, staff attitudes and suggestions on improving accessibility and staff attitudes in China's tourism industry.)

THANK YOU VERY MUCH FOR YOUR TIME.

PLEASE PUT THE SURVEY IN THE ENVELOPE AND SEAL IT WHEN YOU
COMPLETE IT, AND RETURN IT TO THE PERSON WHO'S CONDUCTING THE
SURVEY

APPENDIX F

Questionnaire on Accessibility and Attitudinal Barriers Encountered by Travelers with Physical Disabilities in China (Chinese)

中国肢体残疾旅游者在旅游中遇到的建筑物障碍和态度障碍问卷调查表

本次社会问卷调查的对象是年龄在 18 周岁或以上，在过去的一年中 (过去的 12 个月) 在国内旅游过的肢体残疾朋友。 问卷调查的目的是收集关于在过去一年中，您在旅游过程中遇到的建筑物障碍和态度障碍的信息。

- **建筑物障碍**指的是妨碍您使用交通，住宿，餐饮，和景点景区设施的障碍，如没有低入口，或升降平台的公共汽车，残疾人无法使用的洗手间等等。这些障碍也包括设施的外围地带，如在公共汽车站，飞机场遇到的障碍。
- **态度障碍**指的是在使用交通，住宿，餐饮，和景点景区设施时，旅游服务人员对您消极态度。比如说，忽视您的需求，冒犯您的言语或行为，公然的或者不易察觉的对您的歧视。
- **旅游**指的是在过去一年中，您在国内任何一次在常住地以外的地方过夜的旅行。

如您不便填写问卷调查表，您可以请发放问卷调查表的负责人代为填写，但是您必须自己回答所有问题。 非常感谢您参与此次社会调查!

第一部分

1. 您在过去的一年中在国内旅游过几次? _____ 次
2. 您在过去一年中旅游的目的包括 (请选择所有适合的答案。在方框中划钩)。

<input type="checkbox"/> 休闲度假	<input type="checkbox"/> 寻医看病
<input type="checkbox"/> 访亲探友	<input type="checkbox"/> 学习考察
<input type="checkbox"/> 工作出差	<input type="checkbox"/> 其它 (请填写) _____
3. 在过去一年中，和您一同旅游的有 (请选择所有适合的答案。在方框中划钩)。

<input type="checkbox"/> 单独旅行	<input type="checkbox"/> 我所在残疾人组织的其他成员
<input type="checkbox"/> 家人	<input type="checkbox"/> 同事
<input type="checkbox"/> 朋友	<input type="checkbox"/> 其它 (请填写) _____
4. 在过去一年中，您通常和多少人一同旅游? _____ 人

第二部分

5. 建筑物障碍评估

请您对过去一年在旅游中遇到的交通，住宿，餐饮，和景点景区的建筑物障碍进行评估。“0”代表没有遇到障碍，“1”到“5”代表从“几乎没有遇到障碍”到“遇到非常多的障碍”，“6”代表没有使用该设施。请在您选择的数字上划圈。

交通

	没有遇到障碍	几乎没有	—————▶			非常多障碍	没有使用该设施
公共汽车	0	1	2	3	4	5	6
公共汽车站	0	1	2	3	4	5	6
旅游大巴	0	1	2	3	4	5	6
火车	0	1	2	3	4	5	6
火车站	0	1	2	3	4	5	6
飞机	0	1	2	3	4	5	6
机场	0	1	2	3	4	5	6
轮船	0	1	2	3	4	5	6
码头	0	1	2	3	4	5	6
摩托车	0	1	2	3	4	5	6
摩托车停车场	0	1	2	3	4	5	6
出租车	0	1	2	3	4	5	6
出租车上下站	0	1	2	3	4	5	6
地铁	0	1	2	3	4	5	6
地铁站	0	1	2	3	4	5	6
其它(请填写_____)	0	1	2	3	4	5	6

住宿

	没有遇到障碍	几乎没有	—————▶			非常多障碍	没有使用该设施
旅馆/招待所	0	1	2	3	4	5	6
星级宾馆	0	1	2	3	4	5	6
宿营地	0	1	2	3	4	5	6
其它(请填写_____)	0	1	2	3	4	5	6

餐饮

	没有遇到障碍	几乎没有	—————▶			非常多障碍	没有使用该设施
中式餐馆	0	1	2	3	4	5	6
西式餐馆	0	1	2	3	4	5	6
中式快餐店	0	1	2	3	4	5	6
西式快餐店	0	1	2	3	4	5	6
酒吧	0	1	2	3	4	5	6
茶馆	0	1	2	3	4	5	6
其它(请填写_____)	0	1	2	3	4	5	6

景区景区

	没有遇到障碍	几乎没有	—————▶				非常多障碍	没有使用该设施
自然风景区	0	1	2	3	4	5	6	
历史文化古迹	0	1	2	3	4	5	6	
城市公园	0	1	2	3	4	5	6	
博物馆	0	1	2	3	4	5	6	
剧院/电影院	0	1	2	3	4	5	6	
游乐园	0	1	2	3	4	5	6	
动物园	0	1	2	3	4	5	6	
其它(请填写_____)	0	1	2	3	4	5	6	

6. 态度障碍评估

请您对过去一年在旅游中遇到的交通，住宿，餐饮，和景区景区的服务人员的态度障碍进行评估。“0”代表没有遇到障碍，“1”到“5”代表从“几乎没有遇到障碍”到“遇到非常多的障碍”，“6”代表没有使用该设施。请在您选择的数字上划圈。

交通

	没有遇到障碍	几乎没有	—————▶				非常多障碍	没有使用该设施
公共汽车	0	1	2	3	4	5	6	
公共汽车站	0	1	2	3	4	5	6	
旅游大巴	0	1	2	3	4	5	6	
火车	0	1	2	3	4	5	6	
火车站	0	1	2	3	4	5	6	
飞机	0	1	2	3	4	5	6	
机场	0	1	2	3	4	5	6	
轮船	0	1	2	3	4	5	6	
码头	0	1	2	3	4	5	6	
摩托车	0	1	2	3	4	5	6	
摩托车停车场	0	1	2	3	4	5	6	
出租车	0	1	2	3	4	5	6	
出租车上下站	0	1	2	3	4	5	6	
地铁	0	1	2	3	4	5	6	
地铁站	0	1	2	3	4	5	6	
其它(请填写_____)	0	1	2	3	4	5	6	

住宿

	没有遇到障碍	几乎没有	—————▶				非常多障碍	没有使用该设施
旅馆/招待所	0	1	2	3	4	5	6	
星级宾馆	0	1	2	3	4	5	6	
宿营地	0	1	2	3	4	5	6	
其它(请填写_____)	0	1	2	3	4	5	6	

餐饮

	没有遇到障碍	几乎没有	→			非常多障碍	没有使用该设施
中式餐馆	0	1	2	3	4	5	6
西式餐馆	0	1	2	3	4	5	6
中式快餐店	0	1	2	3	4	5	6
西式快餐店	0	1	2	3	4	5	6
酒吧	0	1	2	3	4	5	6
茶馆	0	1	2	3	4	5	6
其它(请填写_____)	0	1	2	3	4	5	6

景点景区

	没有遇到障碍	几乎没有	→			非常多障碍	没有使用该设施
自然风景区	0	1	2	3	4	5	6
历史文化古迹	0	1	2	3	4	5	6
城市公园	0	1	2	3	4	5	6
博物馆	0	1	2	3	4	5	6
剧院/电影院	0	1	2	3	4	5	6
游乐园	0	1	2	3	4	5	6
动物园	0	1	2	3	4	5	6
其它(请填写_____)	0	1	2	3	4	5	6

第三部分

7. 您的性别是 ☐ 女性 ☐ 男性

8. 年龄 _____ 周岁

9. 您的月收入是多少? _____ 元

10. 您的教育程度?(请选择一项)

- ☐ 小学
☐ 初中
☐ 高中
☐ 技校或中专
☐ 大专
☐ 大学
☐ 研究生
☐ 其它(请填写) _____

11. 您主要的肢体残疾是?(请选择一项)

- | | |
|---|------------------------------------|
| <input type="checkbox"/> 脑瘫 | <input type="checkbox"/> 脊髓疾病及损伤 |
| <input type="checkbox"/> 偏瘫 | <input type="checkbox"/> 截肢 |
| <input type="checkbox"/> 小儿麻痹后遗症 | <input type="checkbox"/> 脊柱畸形 |
| <input type="checkbox"/> 严重骨、关节、肌肉疾病和损伤 | <input type="checkbox"/> 周围神经疾病和损伤 |
| <input type="checkbox"/> 先天性缺肢, 短肢, 肢体畸形, 侏儒症, 两下肢不等长 | |
| <input type="checkbox"/> 其它(请填写) _____ | |

12. 以下是美国肢体残疾分类, 您**主要**的肢体残疾属于哪一种? (请选择一项)

- | | |
|---|---------------------------------|
| <input type="checkbox"/> 脑瘫 | <input type="checkbox"/> 脊髓损伤 |
| <input type="checkbox"/> 脊柱裂 | <input type="checkbox"/> 肌营养不良症 |
| <input type="checkbox"/> 多发性硬化症 | <input type="checkbox"/> 脑损伤 |
| <input type="checkbox"/> 其它 (请填写) _____ | |

13. 您认为自己的身体功能是 (请选择一项)。身体功能指的是您进行日常生活活动的能力。

- ☐ 高 ☐ 中 ☐ 低

14. 您使用最多的助行工具是什么? (请选择所有适合的选项)

- | | |
|---|-------------------------------|
| <input type="checkbox"/> 不使用任何助行工具 | <input type="checkbox"/> 手杖 |
| <input type="checkbox"/> 手动轮椅 | <input type="checkbox"/> 助行架 |
| <input type="checkbox"/> 拐杖 | <input type="checkbox"/> 腿支架 |
| <input type="checkbox"/> 电动轮椅 | <input type="checkbox"/> 机动轮椅 |
| <input type="checkbox"/> 其它 (请填写) _____ | |

15. 您可以行走吗? (请选择所有适合的选项)

- ☐ 可以, 需要他人的帮助
☐ 可以, 需要助行工具的帮助
☐ 可以, 不需要帮助
☐ 不可以

第四部分

16. 建议 (如果您愿意, 您可以对您以往的旅游经历, 中国无障碍建设, 以及旅游业服务人员态度发表评论, 也可以对改进中国旅游业无障碍建设和服务人员态度提出您的建议和意见!)

非常感谢您的参与!

请将填写好的问卷放到信封里封好, 并交还给问卷调查负责人。

APPENDIX G

Cover Letter

(English)

May 20, 2005

Dear Friends,

In order to determine the barriers encountered by Chinese travelers with physical disabilities and their travel patterns, the University of Missouri-Columbia is conducting a survey. This survey will focus on accessibility and attitudinal barriers that travelers with physical disabilities encountered in four sectors of China's tourism industry when traveling in China. The four sectors include: transportation, accommodations, attractions and eating-drinking establishments.

This survey is sponsored by the University of Missouri-Columbia. Four contact persons from Beijing, Xi'an, Fuzhou and Guangzhou will distribute the surveys and collect the surveys in each city. It will take 15 minutes for you to complete, and your answers will be strictly confidential. Please complete the survey, seal the envelope, and return it to the person who conducts the survey before August 15, 2005. Your participation is voluntary. You may quit at any time and refuse to answer any questions.

If you should have any questions about this research, please contact the contact person in your city. Or you can contact me at yuhuabi2003@yahoo.com or 010-64078702 (H). Or you can contact my advisor, Dr. Jaclyn Card at 011-573-882-9516. If you have questions regarding your right as a participant in the study, please contact the University of Missouri-Columbia Campus Institutional Review Board by e-mail at umcresearchcirb@missouri.edu or by phone call at 001-573-8829585.

Thank you very much for your help!

Yuhua Bi
Graduate Student
Department of Parks, Recreation & Tourism
105 Anheuser-Busch Natural Resources Building
University of Missouri
Columbia, MO 65211-7230
(573) 884-8028

APPENDIX H

Cover Letter

(Chinese)

亲爱的朋友,

您好! 我叫毕玉华, 目前正在美国密苏里大学旅游系攻读硕士学位。 我的毕业论文研究的课题是“中国肢体残疾旅游者在旅游过程中遇到的建筑物障碍和态度障碍”。 为了能够完成这个研究, 我需要您填写一份问卷调查表, 对您在过去一年中在国内旅游所遇到的建筑物障碍和服务人员态度障碍进行评估。 我衷心感谢您的支持!

这次社会调查活动由密苏里大学赞助, 由来自北京, 西安, 福州, 广州的四位问卷调查负责人在各自的城市负责发放和收回问卷调查表。 您大约需要花 10 到 15 分钟的时间填写问卷调查表。 您不用填写姓名, 您的答案是保密的。 填写完毕后, 请您将问卷调查表放到信封里封好, 并在 8 月 15 日之前交还给您所在城市的问卷调查负责人。 您的参与是自愿的。 您可以拒绝回答任何问题, 并可以在任何时候放弃填写。

如果您对问卷有任何问题, 请与您所在城市的负责人联系。 您也可以给我发电子邮件 yuhuabi2003@yahoo.com。 我的电话是(010) 64078702。 我的导师卡德博士的电话是(001) 573-8829516。 如果您对参加这次调查活动的权利有任何问题, 请联系学校审查委员会, 电子邮件是umcresearchcirb@missouri.edu , 电话是(001)573-8829585。

非常感谢您的帮助!

祝您一切顺利!

此致,

敬礼!

毕玉华
密苏里大学旅游系研究生

卡德博士
密苏里大学旅游系教授

APPENDIX I

Comparison of China and U.S. Tourism Industry Sectors

Four Sectors	U.S.	China
Transportation	Airplane Airport Bus-Coach Bus Station Riverboat Riverport Train Train Station	Airplane Airport Bus Bus Station Ship Port Train Train Station Tour Bus Motor Tricycle Motor Tricycle Stop Taxi Taxi Stop Subway Subway Station Other
Accommodations	Bed & Breakfast Campground Dude/Guest Ranch Hotel/Motel Resort	Motel/ Hostel Camping Site Starred Hotel Other
Eating-Drinking Establishments	Bar Brewery Fast Food Full Service Restaurant Winery	Bar Teahouse Chinese Fast Food Western Fast Food Chinese Restaurant Western Restaurant Other
Attractions	Historic Monument Museum National Park Theatre Theme/Water Park State Park Art/Culture Center Cave Casino Shopping Area Welcome Center	Historical & Cultural Site Museum Natural Landscape Theatre/Cinema Amusement Park City Park Zoo Other

APPENDIX J
Panel of Experts

University of Missouri-Columbia

Jaclyn Card, Ph.D., C.T.R.S.
Professor & Director of Graduate Studies, Department of Parks, Recreation and Tourism
University of Missouri-Columbia

Shu Cole, Ph.D.
Assistant Professor, Department of Parks, Recreation and Tourism
University of Missouri-Columbia

James Groves, Ph.D.
Chair, Associate Professor, & Director of Graduate Studies, Department of Hotel and
Restaurant Management
University of Missouri-Columbia

APPENDIX K

Comments

Accessibility Barriers

- Accessibility needs to be largely improved in China.
- Too few accessible facilities. For those that have been built, usually cannot be used.
- In many cities, facilities for people with disabilities were used for other purpose, such as parking. No accessible ramps for pwd in shopping malls. Railway stations rarely provide accessible passage and facilities. I hope the government will solve this problem as soon as possible.
- Barrier-free construction has improved a lot, but still far to meet the needs of pwd. Facilities in many areas of China are superficial, not designed for the best use of pwd. Because of the neglect, these facilities can not be fully used. Motorized wheelchairs can't go through many attractions, even in some main streets. Many parks don't allow the motorized wheelchair to pass through.
- No accessible facilities in railway stations. Hard to get on trains.
- Too few accessible facilities in attractions; Add more barrier-free facilities to attractions.
- Barrier-free facilities in China are superficial and almost "0".
- Provide wheelchairs in parks. Take measures to keep pwd from falling down to the floor in hotels or restaurants, such as carpet.
- Many industries in the travel business never think of providing any accessible facilities for pwd or if these facilities can be used by pwd, for example, most of overhead bridges in rail stations are not accessible. Trains are too high to get on. Even though ramps are built, the slope is too high. Airports are different in how to implement the regulations. Public transportation system has even more problems.
- Barrier-free is improving in tourism. In general, attractions still lag far behind in accessibility.
- Too many steps in attractions, too few handrails, which is not safe and slow down walking speed.
- Suggest: renovate the roads in attractions, install handrails along the steps; a connection between the station and train car; free admission to attractions.
- I hope there is an elevator in each stop in the subway and everywhere has the parking lot for pwd.
- Need to be largely improved. Better for newly-built buildings, but little renovation for old buildings. Inaccessibility of branches of the government offices. Parks and other recreation areas should provide wheelchairs for pwd and seniors. Note: there is a big difference among pwd with different levels of severity.
- Accessibility barriers that exist in some attractions, such as the Forbidden City, the Great Wall, the Tai Mount., and temples, can not be completely removed; travelers should be fully prepared for that. But transportation, accommodation should be barrier-free. Still a lot to be done.
- Barrier-free construction is developing fast; for some we didn't think about, the government thought about and did it for us.
- Should build more accessible ramps, more accessible restrooms for pwd.
- Speed up the barrier-free construction in China so that pwd can better participate in outdoor activities.
- Some progress compared to a few years ago, but still lots of facilities need to be built.

- More facilities for pwd in public transportation. It is very hard to take a bus!
- Improvement in transportation will encourage more pwd to come out. Meanwhile, facilities and attitudes will change too.
- Build handrails for areas with steps. Steps should be wide and not too steep.
- Lift for bus and train so that people with severe disabilities can get on and off freely; newly built buildings must be accessible.
- Public bus and restroom for pwd
- Restaurants and hotels should provide accessible toilets. Subway should have elevators installed.
- Attractions should provide more wheelchairs for pwd and recruit more volunteers to help us.

Attitudinal Barriers

- Improve staff attitudes.
- More care for people with physical disabilities.
- Show more love and less indifference towards pwd. I hope society becomes better.
- Staff attitudes are even worse. Indifference, no help.
- More staff training.
- Staff should not look down upon pwd.
- Staff attitudes are acceptable. But should provide specific service to people with different function.
- Pwd should be treated equally. Sometimes when I was taking a bus, people, who meant good, would say “Please leave the seat for this disabled person”. It was the biggest hurt. I will never take the seat even if I was tired to death of standing up.
- Staff attitudes have improved than a few years ago.
- Staff attitudes are so so/Staff attitudes are all right.
- Improve staff attitudes. Pwd need more warm and careful services.
- In some areas, no price discount for pwd. Staff is not good neither. Their attitudes need to be improved.
- Staff not well-educated, not aware of specific needs of pwd.
- As a person with cerebral palsy, I was always questioned by the security when entering a hotel or motel, which made me uncomfortable.
- Staff attitudes in parks, cinema, and public bus need to be improved.
- The key point is attitudes.

Other Comments

- Lack of the knowledge of China’s protection law for pwd is the main cause of all these barriers.
- Money first; people second.
- Economic development and social development are unbalanced.
- It is useless to say! / Will it make a difference if I say it???/ Useless to say!
- Law is not very supportive to barrier-free construction. Implementation of the regulation mostly relies on the government. It needs stringent supervision measures.
- High prices, little service, lack of humanitarianism and equality.

- Travel is growing fast in China with the economic development. But it is only a beautiful dream for us. To promote barrier-free, not only has economic benefits, but promotes humanitarianism. Pwd have the right to travel too! The government, the travel industry, and all walks of life should pay high attention to it.
- What matters is what you do but not what you say. How many surveys have we filled out? Did they have any effect?!
- So many problems exist in our country not only in accessibility but also staff attitudes. I hope people in charge in each layer of the government pay high attention to the problems and solve them rather than to accomplish the task for the purpose of accomplishing the task.
- Please recruit more volunteers when we are traveling with a travel agency.
- It should be written in law that pwd can visit attractions free. Money is the biggest barrier. Pwd's incomes are very low.
- More publicity of the barrier-free construction!
- Suggest more publicity and more funding, and improve awareness of respecting and helping pwd.
- NGO may stimulate the development of barrier-free construction.
- Building barrier-free facilities in public places should be enforceable and should have laws that can be implemented to support and safeguard; free admission; CDPF and grassroots organizations should promote and supervise it.
- More publicity, earn support from all sides of the society; set up model city, promote it in medium and small cities; legislation on barrier-free construction.
- Barrier-free construction has just started in China. Should have more publicity and it also symbolizes humanitarianism.
- Should develop the accessibility law so that barrier-free construction can develop fast.
- We need to care about people with disabilities and promote humanitarianism. Let us expect a better tomorrow!

APPENDIX L

Frequency and Percentage of Accessibility and Attitudinal Barriers in Each Area of the Four Sectors

Table Ia. *Frequency and percentage of accessibility barriers in each area in transportation*

Items	Freq.	Did not Use		0		1		2		3		4		5	
		F	%	F	%	F	%	F	%	F	%	F	%	F	%
Bus	212	79	37.3	15	11.3	19	14.3	11	8.3	16	12.0	17	12.8	55	41.4
Bus Station	210	81	38.6	17	13.2	20	15.5	10	7.8	15	11.6	16	12.4	51	39.5
Tour Bus	207	81	39.1	16	12.7	12	9.5	12	9.5	16	12.7	22	17.5	48	38.1
Train	206	70	34.0	12	8.8	20	14.7	14	10.3	21	15.4	20	14.7	49	36.0
Train Station	205	70	34.1	11	8.1	13	9.6	17	12.6	12	8.9	25	18.5	57	42.2
Air Plane	208	122	58.7	22	25.6	20	23.3	12	14.0	6	7.0	10	11.6	16	18.6
Airport	208	123	59.1	21	24.7	21	24.7	8	9.4	13	15.3	5	5.9	17	20.0
Ship	203	129	63.5	6	8.1	6	8.1	11	14.9	9	12.2	13	17.6	29	39.2
Port	203	125	61.6	6	7.7	6	7.7	7	9.0	8	10.3	13	16.7	38	48.7
Motor Tricycle	204	106	52.0	23	23.5	16	16.3	10	10.2	5	5.1	10	10.2	34	34.7
Tricycle Stop	200	115	57.5	14	16.5	11	12.9	10	11.8	7	8.2	9	10.6	34	40.0
Taxi	206	59	28.6	31	21.1	35	23.8	10	6.8	13	8.8	17	11.6	41	27.9

Table la Contd.															
Taxi stop	205	66	32.2	26	18.7	32	23.0	14	10.1	8	5.8	14	10.1	45	32.4
Subway	204	116	56.9	12	13.6	16	18.2	8	9.1	6	6.8	14	15.9	32	36.4
Subway Station	205	117	57.1	9	10.2	13	14.8	8	9.1	6	6.8	14	15.9	38	43.2
Other	70	50	71.4	3	15.0	1	5.0	1	5.0	1	5.0	1	5.0	13	65.0

Table 1b. *Frequency and percentage of accessibility barriers in each area in accommodations*

Items	Freq.	Did not Use		0		1		2		3		4		5	
		F	%	F	%	F	%	F	%	F	%	F	%	F	%
Motel/Hostel	209	39	18.7	21	12.4	23	13.5	22	12.9	24	14.1	15	8.8	65	38.2
Starred Hotel	206	67	32.5	31	22.3	32	23.0	15	10.8	12	8.6	15	10.8	34	24.5
Camping Site	198	136	68.7	10	16.1	8	12.9	5	8.1	6	9.7	9	14.5	24	38.7
Other	90	58	64.4	7	21.9	5	15.6	3	9.4	4	12.5	1	3.1	12	37.5

Table 1c. *Frequency and percentage of accessibility barriers in each area in eating-drinking establishments*

Items	Freq	Did not Use		0		1		2		3		4		5	
		F	%	F	%	F	%	F	%	F	%	F	%	F	%
Chinese Restaurant	211	22	10.4	27	14.3	38	20.1	23	12.2	15	7.9	26	13.8	60	31.7
Western Restaurant	202	97	48.0	15	14.3	15	14.3	15	14.3	8	7.6	13	12.4	39	37.1
Chinese Fast food	202	68	33.7	12	9.0	24	17.9	16	11.9	21	15.7	12	9.0	49	36.6
Western Fast food	200	93	46.5	9	8.4	16	15.0	20	18.7	11	10.3	10	9.3	41	38.3
Bar	201	109	54.2	11	12.0	9	9.8	8	8.7	10	10.9	12	13.0	42	45.7
Teahouse	202	107	53.0	11	11.6	10	10.5	10	10.5	10	10.5	12	12.6	42	44.2
Other	80	56	70.0	4	16.7	2	8.3	2	8.3	3	12.5	1	4.2	12	50.0

Table 1d. *Frequency and percentage of accessibility barriers in each area in attractions*

Items	Freq	Did not Use		0		1		2		3		4		5	
		F	%	F	%	F	%	F	%	F	%	F	%	F	%
Natural Landscape	213	31	14.6	11	6.0	13	7.1	21	11.5	22	12.1	29	15.9	86	47.3
Historical & Cultural Sites	211	55	26.1	9	5.8	10	6.4	9	5.8	18	11.5	34	21.8	76	48.7
City Park	209	39	18.7	18	10.6	19	11.2	30	17.6	17	10.0	32	18.8	54	31.8
Museum	209	66	31.6	14	9.8	23	16.1	14	9.8	11	7.7	23	16.1	58	40.6
Theatre/Cinema	208	78	37.5	8	6.2	17	13.1	18	13.8	11	8.5	17	13.1	59	45.4
Amusement Park	209	83	39.7	8	6.3	10	7.9	12	9.5	20	15.9	17	13.5	59	46.8
Zoo	211	77	36.5	9	6.7	16	11.9	20	14.9	14	10.4	20	14.9	55	41.0
Other	64	45	70.3	3	15.8	2	10.5	3	15.8					11	57.9

Table Le. *Frequency and percentage of attitudinal barriers in each area in transportation*

Items	Freq.	Did not Use		0		1		2		3		4		5	
		F	%	F	%	F	%	F	%	F	%	F	%	F	%
Bus	209	63	30.1	15	10.3	36	24.7	19	13.0	14	9.6	12	8.2	50	34.2
Bus Station	209	73	34.9	16	11.8	32	23.5	15	11.0	17	12.5	8	5.9	48	35.3
Tour Bus	208	75	36.1	18	13.5	30	22.6	18	13.5	15	11.3	11	8.3	41	30.8
Train	208	60	28.8	21	14.2	39	26.4	31	20.9	12	8.1	11	7.4	34	23.0
Train Station	207	62	30.0	20	13.8	38	26.2	26	17.9	13	9.0	13	9.0	35	24.1
Airplane	206	110	53.4	32	33.3	32	33.3	8	8.3	3	3.1	7	7.3	14	14.6
Airport	207	115	55.6	28	30.4	28	30.4	8	8.7	6	6.5	8	8.7	14	15.2
Ship	207	126	60.9	14	17.3	16	19.8	11	13.6	8	9.9	12	14.8	20	24.7
Port	206	126	61.2	11	13.8	14	17.5	12	15.0	8	10.0	13	16.3	22	27.5
Motor Tricycle	203	102	50.2	25	24.8	23	22.8	11	10.9	8	7.9	12	11.9	22	21.8
Tricycle Stop	199	115	57.8	17	20.2	15	17.9	10	11.9	6	7.1	14	16.7	22	26.2
Taxi	206	54	26.2	34	22.4	36	23.7	21	13.8	16	10.5	14	9.2	31	20.4
Taxi Stop	203	63	31.0	30	21.4	33	23.6	19	13.6	12	8.6	16	11.4	30	21.4

Table 1.f. *Frequency and percentage of attitudinal barriers in each area in accommodations*

Items	Freq	Did not Use		0		1		2		3		4		5	
		F	%	F	%	F	%	F	%	F	%	F	%	F	%
Motel/Hostel	210	37	17.6	29	16.8	42	24.3	31	17.9	6	3.5	17	9.8	48	27.7
Starred Hotel	206	72	35.0	34	25.4	37	27.6	18	13.4	10	7.5	14	10.4	21	15.7
Camping Site	202	131	64.9	18	8.9	11	5.4	6	3.0	7	3.5	5	2.5	24	11.9
Other	84	55	65.5	5	17.2	8	27.6	2	6.9	1	3.4	2	6.9	11	37.9

Table 1g. Frequency and percentage of attitudinal barriers in each area in eating-drinking establishments

Items	Freq	Did not Use		0		1		2		3		4		5	
		F	%	F	%	F	%	F	%	F	%	F	%	F	%
Chinese Restaurant	206	17	8.3	37	19.6	56	29.6	27	14.3	13	6.9	16	8.5	40	21.2
Western Restaurant	203	94	46.3	21	19.3	27	24.8	9	8.3	12	11.0	11	10.1	29	26.6
Chinese Fast food	201	68	33.8	23	17.3	30	22.6	21	15.8	12	9.0	14	10.5	33	24.8
Western Fast food	198	95	48.0	17	16.5	21	20.4	14	13.6	12	11.7	11	10.7	28	27.2
Bar	202	114	56.4	17	19.3	15	17.0	4	4.5	14	15.9	13	14.8	25	28.4
Teahouse	204	110	53.9	20	21.3	18	19.1	8	8.5	13	13.8	12	12.8	23	24.5
Other	81	50	61.7	7	22.6	6	19.4					8	25.8	10	32.3

Table 1h. *Frequency and percentage of attitudinal barriers in each area in attractions*

Items	Freq	Did not Use		0		1		2		3		4		5	
		F	%	F	%	F	%	F	%	F	%	F	%	F	%
Natural Landscape	212	30	14.2	30	16.5	34	18.7	22	12.1	18	9.9	16	8.8	62	34.1
Historical & Cultural Sites	210	57	27.1	22	14.4	27	17.6	18	11.8	15	9.8	18	11.8	53	34.6
City Park	209	44	21.1	26	15.8	31	18.8	25	15.2	21	12.7	26	15.8	36	21.8
Museum	207	75	36.2	24	18.2	24	18.2	15	11.4	13	9.8	17	12.9	39	29.5
Theatre/Cinema	209	81	38.8	18	14.1	23	18.0	18	14.1	15	11.7	15	11.7	39	30.5
Amusement Park	208	93	44.7	15	13.0	14	12.2	15	13.0	11	9.6	18	15.7	42	36.5
Zoo	207	85	41.1	15	12.3	22	18.0	14	11.5	12	9.8	18	14.8	41	33.6
Other	82	51	62.2	8	25.8	5	16.1	3	9.7	1	3.2	1	3.2	13	41.9

APPENDIX M

Accessibility and Attitudinal Barriers

Means and Standard Errors in Four Sectors by Functioning Level

Table Ma. *Accessibility and attitudinal barriers means and standard errors by functioning level*

Sectors	Function	Mean	Standard Error
ACCTrans	High	2.19	.26
	Average	3.02	.16
	Low	3.76	.24
ACCAccom	High	1.90	.28
	Average	2.71	.17
	Low	3.63	.26
ACCEat	High	2.00	.29
	Average	2.74	.17
	Low	3.65	.27
ACCAAttr	High	2.46	.25
	Average	3.37	.15
	Low	4.02	.23
ATTTrans	High	1.67	.28
	Average	2.41	.16
	Low	3.18	.24
ATTAccom	High	1.40	.30
	Average	2.15	.17
	Low	2.76	.26
ATTEat	High	1.69	.30
	Average	2.16	.17

Table Ma Contd.

ATTAttr	Low	2.86	.26
	High	2.17	.31
	Average	2.59	.18
	Low	3.04	.27

Table Mb. *Accessibility and attitudinal barriers means and standard errors by income level*

Sectors	Income	Mean	Standard Error
ACCTrans	1	3.06	.24
	2	3.13	.22
	3	2.75	.23
ACCAccom	1	2.71	.26
	2	2.93	.23
	3	2.46	.25
ACCEat	1	2.92	.26
	2	2.88	.24
	3	2.46	.25
ACCAAttr	1	3.46	.23
	2	3.52	.21
	3	2.94	.22
ATTTrans	1	2.58	.23
	2	2.63	.22
	3	1.95	.24
ATTAccom	1	2.32	.25
	2	2.27	.24
	3	1.73	.25
ATTEat	1	2.53	2.24
	2	2.33	.23

Table Mb Contd.

.	3	1.61	.25
ATTAttr	1	3.06	.25
	2	2.63	.24
	3	1.90	.25

Table Mc. *Accessibility and attitudinal barriers means and standard errors by assistive device group*

Sectors	Device Group	Mean	Standard Error
ACCTrans	1	3.80	1.26
	2	3.40	1.63
	3	3.14	1.56
ACCAccom	1	3.50	1.80
	2	3.22	1.66
	3	2.72	1.73
ACCEat	1	3.79	1.45
	2	3.04	1.85
	3	2.60	1.87
ACCAAttr	1	4.11	1.09
	2	3.72	1.35
	3	3.28	1.57
ATTTrans	1	3.25	.26
	2	2.82	.23
	3	2.58	.42
ATTAccom	1	2.85	.29
	2	2.67	.25
	3	2.26	.46
ATTEat	1	2.94	.28
	2	2.67	.25

Table Mc Contd.

	3	2.27	.46
ATTAttr	1	3.36	.27
	2	3.05	.24
	3	2.49	.44