

Examining Physical Accessibility of Campuses for University Students with Mobility Impairments in China

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Abstract

Various education laws in China clearly state that students with disabilities should be provided with the opportunities to fully participate in all activities in society, including studying at higher education institutions (HEIs). The present descriptive study examines physical accessibility of three university campuses in China. A checklist for data collection was developed based on the 2012 Codes for Accessibility Design (Codes) that was released by the Chinese government. The study reveals that facilities are inadequate in providing physical access to people with mobility impairments across all three universities' campuses. Poor government oversight, lack of university commitment, and invisibility of students with disabilities on university campuses are the probable reasons for the lack of accessible facilities across the university campuses. Three recommendations are made: (1) advocating to make amendments to current legislation, (2) addressing the importance of government enforcement and communication, and (3) committing to supporting an inclusive environment on campus.

Keywords: university students, mobility impairments, physical accessibility, university campus, China

The 2008 Summer Paralympic Games (Games) that took place in Beijing, China marked an important milestone for individuals with disabilities in China. About 4,000 athletes from 146 countries took part. The Games significantly raised awareness of disability and made transportation and other public services more accessible for persons with disabilities in China (EurActiv, 2008). Beijing, the host city, invested approximately 70 to 80 million U.S. dollars in organizing public awareness campaigns and in installing and improving accessible facilities in public transportation (e.g., subway routes to sporting venues, buses, taxis) to popular tourist attractions and places of interest, and other venues such as hospitals, museums, hotels, restaurants, and banks (EurActiv, 2008; People's Daily Online, 2008). The Games also provided the participating athletes and people with disabilities who attended the sports events with wireless hearing

devices and video sign language translation software. Because of the Beijing Olympics and Paralympics, the level of accessibility related to inner-city transportation in other major cities in China (e.g., Shanghai, Shenzhen) also improved significantly. Bus and subway lines provided in major cities and airports as well as train stations in China are now accessible (Paralympic Org, 2014; People's Daily Online, 2008). The Beijing Olympics and the Paralympics have brought attention to the importance of accessible facilities for individuals with disabilities in China. Since then, the Chinese government has recognized the need for and mandated the construction of accessible facilities in public and private places, including school campuses and buildings.

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Legislation on Disability in China

Similar to the Americans with Disabilities Act (ADA) of 1990 in the United States, the Law on the Protection of Disabled Persons (National People's Congress, 1990) and its 2008 revision (National People's Congress, 2008) has been enacted in China to safeguard the lawful rights and interests of persons with disabilities, including the rights to education. The Law on the Protection of Disabled Persons states that a person with disabilities refers to "one who suffers from abnormalities or loss of a certain organ or function, psychologically or physiologically, or in anatomical structure and who has lost wholly or in part the ability to engage in activities in a normal way" (Article 2, National People's Congress, 2008). This definition includes individuals with "visual, hearing, speech or physical disabilities, intellectual disabilities, psychiatric disabilities, multiple disabilities and/or other disabilities" (Article 2, National People's Congress, 2008). Prior to the 2008 revision of the Law on the Protection of Disabled Persons, the Law of People's Republic of China on Higher Education (National People's Congress, 1999) asserted "higher education institutions must accept the enrollment of students with disabilities if they meet the entrance standards set by the State and shall not refuse students with disabilities based on their disability" (Article 9, para 3).

On May 15, 2015, the Ministry of Education of China and the China Disabled Persons' Federation jointly issued Administrative Regulations for Persons with Disabilities to Participate in the Unified National College Entrance Examination and Enrollment of Higher Education Institutions (Provisional) (Ministry of Education, 2015) to further support and encourage students with disabilities to participate in the unified college entrance examination. These administrative regulations require examination centers or venues to provide necessary and reasonable accommodations for persons with disabilities, including Braille and/or large font-size examination papers, being the first to enter examination venues, and an extension of the prescribed time for examination completion (Zhao, 2015). Candidates with visual impairments are allowed to bring auxiliary apparatus and equipment (e.g., Braille pen, Braille writing pad, Braille drawing tools, rubber pad, non-storage Braille typewriter, desk lamp, optical magnifier, tactile stick) to answer examination questions. Candidates who are hearing impaired are permitted to carry hearing aid equipment and auxiliary listening devices such as hearing aids and artificial cochlea. Candidates who have mobility impairments can use wheelchairs and crutches and bring, if needed, their own special tables and chairs to participate in the examination (Zhao, 2015).

Although the Law on the Protection of Disabled Persons of 2008 (Revision) (National People's Congress, 2008) addressed the importance of accessible environments for persons with disabilities, the Barrier-Free Environment Construction Regulations (Regulations) (The State Council, 2012) mandated public and private places in China to include accessible facilities. Article 9 of the Regulations states that "new urban construction, reconstruction, expansion of roads, public buildings, public transport facilities, residential construction and residential areas should meet the construction standards for the barrier-free facilities" (para 1). Any buildings "that are not in conformity with the barrier-free facility construction standards, the government agency responsible for housing and urban and rural construction should order the responsible party to make amends and impose penalties according to the laws, if amendments have not been made" (Article 31).

Students with Disabilities in Higher Education in China

Two large-scale nationwide household surveys on disability have been conducted in China since 1949: (1) First National Sampling Survey on Disability in 1987 (First China National Sample Survey on Disability & National Bureau of Statistics of the People's Republic of China, 1987) and (2) Second National Sampling Survey on Disability in 2006 (Second China National Sample Survey on Disability & National Bureau of Statistics of the People's Republic of China, 2006). In the first survey, it was estimated that a total of 51.64 million people experienced some form of disability which accounted for 4.9% of the total national population. In the second survey, an estimated 82.96 million persons with different types of disabilities were reported, which constituted 6.34% of the total national population. According to About the Aim of Fairness for Candidates with Disabilities (China Education News, 2016), there are 85 million Chinese who have at least one disability.

China has approximately 3,000 colleges and universities. The total undergraduate enrollment was 28.31 million in 2018 (Ministry of Education, 2019). The China Disabled Persons' Federation reported more than 11,154 students with disabilities were accepted in regular higher education institutions (HEIs) in 2018 (Xinhua Net, 2019), less than one percent of the overall university student population. In addition, 2,053 students with disabilities were enrolled in one of the 18 special HEIs in China. These institutions specifically admit students with disabilities including physical disabilities, visual impairments, and hearing impairments (Ma & Sun, 2012). Approved by

the Ministry of Education and regional examination authorities, these 18 universities conduct their own university entrance examinations and have their own admissions criteria (China Disabled Persons' Federation, 2016).

Since the promulgation of the Law on the Protection of Disabled Persons in 1990 (National People's Congress, 1990), the overall social status and living conditions of people with disabilities in China have improved to a great degree as a result of the constructive work of local governments and non-government agencies (Wang, 2016). The rights of university students with disabilities and their full participation in academic, social, and cultural activities have been brought to public attention since the enactment of the Law of People's Republic of China on Higher Education (National People's Congress, 1999). It has been anticipated that the Administrative Regulations for Persons with Disabilities to Participate in the Unified National College Entrance Examination and Enrollment of Higher Education Institutions (Provisional) (Ministry of Education, 2015) is going to encourage more students with disabilities to enroll in regular universities in China. However, the key question is if China is ready to enroll more students with mobility impairments, as it has been reported that many universities are not equipped with accessible facilities (Fang et al., 2005; Li, 2013; Ma, 2012; Wang, 2013; Yu et al., 2010; Zhang, 2014; Zhao, 2007).

Literature Review

Campus Disability Access in North America

China is now addressing the issue of providing physically accessible campuses for university students with disabilities, similar to what the United States and Canada experienced in the 1990s. Research literature in these two countries provides a historical narrative; therefore, a comparison on the development of physically accessible university campuses between North America and China is useful.

Descriptors used to identify relevant English literature were "accessibility," "university/college," and "students with disabilities." Research studies found are presented chronologically to narrate the development of physically accessible campuses in both Canada and the United States. Hill (1992) examined the level of accessibility for students with disabilities in 27 universities across Canada to identify specific problematic areas, in particular physical barriers, that might prevent students from pursuing university studies. A questionnaire was mailed to either the coordinator of services for students with disabilities or dean of students at each university. The findings

showed that accessibility was a problem at both small and large universities and that wide variation of barriers was found for different disability groups.

A subsequent study explored the experiences of nine students with disabilities in one Canadian university (Low, 1996). While some of the buildings on campus were equipped with ramps and elevators, some older buildings were equipped only with freight elevators or no elevators at all. Freight elevator doors were so heavy that patrons with disabilities could be crushed if they let the doors go quickly. Moreover, no accessible toilets were available in those buildings. Other problems included objects left obstructing corridors and steep ramps making wheelchair users unsafe. There was also an issue with the amount of time and energy climbing and walking required. Students who relied on braces and crutches could not run to make their next classes. One interesting observation reported by the students was that the university slapped a disabled sticker on a freight elevator and called the building accessible.

The findings reported in Canadian studies are also found in a number of U.S. university campuses. A large-scale study examined the extent to which HEIs in the United States offer structural accessibility to students with orthopedic disabilities (Singh, 2003). A survey was sent to the directors of services for students with disabilities at 137 universities across the United States to accrue data describing the selected facilities and services for students with disabilities. The results showed that only 10% of the universities in the study offered structural accessibility to the students who have orthopedic disabilities. Moreover, public universities offered more accessibility than private HEIs except the accessibility of dorm living. However, there were no differences in structural accessibility of institutions according to size. Several studies on accessibility of university's campus showed that ADA compliant implementations were uneven across campuses of respective universities (Knapp, 2008; Simonson et al., 2013; Stumbo et al., 2010/2011). Although the campuses in these studies were found to be ADA compliant, there were places where it was difficult or impossible for people with disabilities to access programs or facilities, especially those programs or facilities housed in older buildings.

In one study, 325 students with disabilities completed a survey including questions about campus climate, satisfaction with the university, and use of campus services and resources (Fleming et al., 2017). The students largely described accessibility negatively by using words such as inadequate, completely inaccessible, and without equal access to the campus and its laboratories. Specific complaints from stu-

dents included entry push buttons and ramps to buildings on campus, inaccessibility related to the on-site facilities, and the danger imposed by heavy exterior doors of freight elevators.

Similar results were reported in another study using photovoice research methodology (Aamlid & Brownfield, 2019). The photographs taken by students with disabilities that were perceived negatively included high water fountains, wall soap dispensers in the bathrooms that were unreachable from wheelchair users, and elevators that did not accommodate more than one or two wheelchairs at a time. Moreover, most students spoke about difficulty maneuvering around campus and the challenge of using elevators. Other problems included elevators and sidewalks that were not in good repair or working properly and holes in sidewalks.

Even with the presence of legislations and relevant building codes protecting the rights of university students with disabilities, these U.S. and Canadian studies reported that there were still university campuses where it was difficult for students with disabilities to access facilities today.

Campus Disability Access in China

Chinese descriptors used to identify relevant literature were “accessibility,” “university/college,” and “students with disabilities.” Since 2015, after the passage of Administrative Regulations for Persons with Disabilities to Participate in the Unified National College Entrance Examination and Enrollment of Higher Education Institutions (Provisional) (Ministry of Education, 2015), more students with disabilities have begun to be admitted to regular universities via college entrance examination (Li, 2018). Thus, only journal articles that focus on university accessibility in China from 2005 to 2019 were included. Of 20 articles found, 18 were opinion papers, and only two were research articles. Most opinion articles addressed the general concerns over students with disabilities in higher education in China, such as the shortage of investment in education, insufficient policy support and legal protection, imperfect policies involving both entrance examinations and financial assistance, and great difficulty in employment and further studies after graduation, with brief mentions of the importance of accessible facilities on university campuses (Fang et al., 2005; Huang, 2011; Li, 2013; Ma, 2012; Meng, 2005; Zhao, 2007). One opinion paper specifically addressed the importance of barrier-free university libraries in China and provided suggestions on specific areas for university libraries to meet the barrier-free standards (Zhang, 2014). A computer teacher in a technical institute of special

education made recommendations to construct a barrier-free computer room for students with disabilities by modifying input and output devices of computers and using related software to support inclusive education (He, 2012). Two articles provided ideas and methods based on general architectural design concepts to construct a barrier-free campus environment (Han & Wang, 2015; Wang, n.d.).

Using participant observation and semi-structured interviews, a research study examined the barriers and their impacts to postsecondary education experienced by six students with disabilities in Hong Kong, China (Gilson & Dymond, 2010). The respondents did not report that physical accessibility on campus was a common concern. Nonetheless, environmental barriers, such as noise level outside the classroom and slippery paths during rainy weather, often posed challenges for students with disabilities. The authors highlighted the importance of legislation to eliminate barriers for people with disabilities in employment, education, and public accommodation.

Yu and Wang (2008) investigated the support service needs of 253 university students with visual impairments. Of the four needs reported by the participants, barrier-free environment was ranked as the third most important need after career planning and development and campus life, and before learning and examination. The more severe the visual impairment, the more the need for a barrier-free environment. Students who attended special high schools before entering universities were in greater need for barrier-free environments than those from mainstream schools.

Given the relevant findings from research studies reported in this literature review, it could be concluded that the presence of students with disabilities on campus, human rights legislation and local building codes have mandated university campuses to provide accessible facilities for students with disabilities (Gilson & Dymond, 2010; Hill, 1992). The lack of Chinese literature is especially disturbing, since such literature could help convince academics in China to work towards admitting more students with disabilities to universities. The present study is the first research endeavor to provide empirical data to fill the void in the paucity of information on university campus accessibility in China. The research aim is to examine if the campuses of three universities in this study are equipped with physically accessible facilities for students with mobility impairments.

Methods

Setting

This study used convenience sampling procedures to select three regular universities in China for the study (Johnson & Christensen, 2016), as these universities are all located in the same metropolis of the same province, along the southeastern coast of China, and their campuses are easy to reach. University A has a full-time student population of 21,000. The university has three campuses; the main campus was the focus in this investigation. University B has a total full-time student enrollment of 27,000. The main campus received accolades as one of the classic and high-quality construction projects in China. University C has three campuses with a full-time student population of 40,000. Two campuses from University C were investigated in this study.

The campuses and buildings of Universities A, B, and C1 were constructed before the 2012 Regulations. However, there have been new constructions, alterations, and additions in all three campuses since 2012. University C2 campus started to operate in September 2012 (i.e., commencement of lecture). University A moved into the current campus in October 2005. University B was completed in May 2008. University C1 campus and its buildings were constructed in the 1920s.

Instrument

The researchers developed a checklist for data collection based on the *Codes for Accessibility Design* (Codes) (The Standardization Administration of the People's Republic of China, 2012) which was jointly released on March 20, 2012 by the Ministry of Housing and Urban-Rural Development and the General Administration of Quality Supervision, Inspection, and Quarantine. The Codes are the mandatory standards in China that are enforced by laws and administrative regulations with the purpose of protection of human health, personal property, and safety. The date of implementing the Codes in China was September 1, 2012.

Based on the Codes, 13 accessible facilities were included in the checklist addressing (1) curb ramps; (2) tactile ground surface indicators; (3) accessible entrances; (4) wheelchair ramps; (5) accessible routes and doors; (6) accessible stairs and steps; (7) wheelchair accessible elevators; (8) public toilets and individual washrooms for wheelchair users; (9) wheelchair accessible seats; (10) accessible vehicle parking lots; (11) low-height service facilities (including drinking facilities and emergency phones); (12) reminders (accessible signs, braille, and voice

prompts); and (13) handrails. The content of the checklist contained check boxes for the absence or presence of each of the 13 accessible facilities, yes or no check boxes for meeting the requirements if an accessible facility was present, and space to take note of the condition of an accessible facility. Sample items from the checklist included the absence or presence of an accessible entrance, wheelchair user's rotation space, slip resistance or slope flatness of a curb ramp, width and height of a wheelchair accessible elevator, absence or presence of automatic doors, and absence or presence of obstacles, among others.

Procedures

Public areas on each of these campuses were assessed for accessibility (present or not present) in the following five areas: (1) campus pavement/sidewalk; (2) public toilet for wheelchair users; (3) accessible vehicle parking lot; (4) signage; and (5) low-height service facilities (see Table 1). The cafeterias and libraries on each of the four campuses were reviewed in six areas: (1) accessible entrance; (2) wheelchair ramp/handrail; (3) accessible route/door; (4) accessible stair/step; (5) wheelchair accessible elevator; and (6) toilet for wheelchair users (see Table 2). The same areas addressed in the cafeteria and library were also checked for accessibility in 18 buildings on Campus A, eight buildings on Campus B, 22 buildings on Campus C1, and nine buildings on Campus C2 (see Table 3).

The four campuses of the three universities are open to the public. However, the administration buildings of all three universities required researchers to present their ID cards, register personal information, and state the purpose of the visit. The researchers were unable to visit student housing in each campus for security reasons. Two researchers involved in the current investigation visited the campuses of University A, B, and C2. The same two researchers and one additional researcher visited University C1 campus. On each campus visit, a checklist as previously described was used to measure if a physically accessible facility was available and met the required standards as stated in the Codes. The researchers walked around the campuses together and entered each building to examine physical accessibility.

When the researchers independently observed a physically accessible facility that was not available in the building, they ticked 'NO' on their respective checklists. When the researchers independently observed a physically accessible facility that was present, they first ticked 'YES' on their respective checklists, then checked if the facility met the required measurement (e.g., the width of the elevator car). If

Table 1*Accessible Facilities Campus Public Areas*

Accessible Facilities	University Campus			
	A	B	C1	C2
Campus Pavement/Sidewalk:				
Tactile Ground Indicator (TGI)	X	X	X	√ ^a
Curb Ramp	X	X	X	√
Public Toilet for Wheelchair User	X	X	√ ^b	X
Accessible Vehicle Parking Lot	X	X	X	X
Accessible Signs Reminder	X	X	X	X
Low-Height Service Facilities (emergency phones, accessible drinking facilities,)	X	X	X	X

Note. X = Not Present; √ = Present. ^aCampus C2: colorless TGI; too close to trees/bushes; no warning indicator; no audible pedestrian signal; rough and bumpy road surface. ^bCampus C1: only 1 public toilet for wheelchair users was found; an accessible sign was shown; no automatic door; the width of door entrance less than 0.8 m as required; the total area of interior less than 1.8 m x 1 m as required; no accessible urinal.

Table 2*Accessible Facilities in Cafeteria (C) and Library (L)*

Accessible Facilities	University Campus			
	A C/L	B C/L	C1 C/L	C2 C/L
Accessible Entrance	X/√ ^a	X/X	X/X	X/X
Wheelchair Ramp/Handrail	X/√ ^a	√ ^{b/X}	X/X	X/X
Accessible Route/Door	X/X	X/X	X/X	X/X
Accessible Stair/Step	X/X	X/X	X/X	X/X
Wheelchair-Accessible Elevator	X/√ ^a	X/X	X/X	X/√ ^c
Toilet for Wheelchair Users	X/X	X/X	X/X	X/√ ^c

Note. X = Not Present; √ = Present. ^aCampus A Library: 1 side of the wheelchair ramp had a row of steel shelves for placing umbrellas, limiting space to pass through; only 1 elevator (not designated as wheelchair accessible) found big enough for one wheelchair to use at a time; braille number and alphabet buttons provided. ^bCampus B Cafeteria: the wheelchair ramp with handrails not located at the main entrance but at the side-door; the ramp was in poor condition as tiny loose rock fragments found on the surface; grass grew tall along the handrails. ^cCampus C2 Library: a sign of 'wheelchair accessible' with a phone number posted on the wall at the sub-level of the library building; elevators were available, big enough to accommodate a wheelchair user to enter; no elevator displayed an accessible sign; no voice prompt or handrails inside each elevator; braille number and alphabet buttons provided; all toilets for wheelchair users were locked at the time when the study was conducted.

Table 3*Accessible Facilities in Campus Buildings*

Accessible Facilities	University Campus			
	A (n=18)	B (n=8)	C1 (n=22)	C2 (n=9)
Accessible Entrance	√ ^a	X	√ ^c	√ ^d
Wheelchair Ramp/Handrail	√ ^a	X	√ ^c	√ ^d
Accessible Route/Door	X	X	√ ^c	X
Accessible Stair/Step	X	X	X	X
Wheelchair-Accessible Elevator	X	X	√ ^c	X
Toilet for Wheelchair Users	√ ^a	√ ^b	X	√ ^d
Wheelchair Accessible Seat	X	X	X	X

Note. X = Not Present; √ = Present. ^aCampus A: wheelchair ramp/handrail were found in all buildings; 1 elevator present for 1 building, braille numbers were found; all toilets for wheelchair user were locked/used for storage; 2 elevators in another building but not wheelchair accessible; doors of all toilets for wheelchair user were removed/a water boiler was found inside each one. ^bCampus B: 2 toilets for wheelchair users were found but both doors were locked; no accessible facilities were found in large stadium. ^cCampus C1: a wheelchair ramp with handrail was found in 3 buildings but only 2 had accessible entrances, route and door; wheelchair accessible elevators found in 2 of the buildings; automatic doors at the ground level in the convention center but no accessible stairs, steps and wheelchair-accessible elevators to the 2nd or above floor; an accessible urinal (men) and wash basin were available; no automatic door for each public toilet was found. ^dCampus C2: no physically accessible facilities were found on 4 U-shaped buildings; ramps with handrails were found in 5 M-shaped buildings; no automatic doors connected to the ramp; each door required a key card to open; of the 4 buildings 2 toilets for wheelchair user were found but one was used for storage.

the facility met the required standards, the researchers independently recorded meeting the requirement on their checklists. If the facility did not meet the required standards, the researchers independently recorded not meeting the requirement. When the visit to one building was complete, the researchers compared the information recorded on their checklists to ascertain if there was any discrepancy between the two researchers' recordings (three recordings on Campus C1). Visual inspections were also conducted to examine if an accessible facility lacked maintenance such as loose, broken, or worn-out items and any trip and fall hazards. If any of these items were observed, it was documented as a facility in poor condition. Throughout the data collection process, all the researchers were able to agree whether or not areas of physical accessibility were present or not present on each campus. Researchers also agreed upon whether or not the available physically accessible facilities met or did not meet the required standards set by the Codes.

Limitations

There are two limitations in this study. First, only three universities in one province were included, although they largely represent three common types of universities in China. Our findings on three universities' campuses cannot be overly generalized to other university campuses in other provinces of China, as this study is the first and only research study in China examining and reporting physical accessibility on university campuses for students with disabilities. Second, to investigate if a physically accessible facility meets the required standard(s) set by the Codes, the researchers used measurement tapes to measure the height, width and breadth of and plastic protractors to measure the angles of an available physically accessible facility. Therefore, the researchers could not confidently report that all the measurements recorded were the exact measurements of the facilities, as only low-tech measurement tools were used.

Results

Tables 1, 2, and 3 present the results of the investigation. The accessibility of campus public areas is summarized in Table 1. Three out of four campuses had no tactile ground indicators or curb ramps. No accessible public toilets for persons with disabilities were found on three out of four campuses. Four out of four campuses had no accessible vehicle parking lots. Likewise, no accessible signs reminder or low-height service facilities were found on any of the four campuses.

Table 2 (cafeteria and library accessibility) indicates that none of the cafeterias on campuses provided accessible entrances, accessible routes and doors, accessible stairs and steps, wheel-chair accessible elevators, and accessible toilets for people who use wheelchairs. Only one of the four campus cafeterias provided a wheelchair ramp with handrails. Three out of the four campuses had no accessible entrances or wheelchair ramps to the library and no accessible toilets in the library. None of the four campuses had libraries with accessible routes/doors or stairs/steps, but two of the four campuses provided wheelchair-accessible elevators in the libraries.

The results of campus buildings accessibility are shown in Table 3. Three out of the four campuses had at least one building with an accessible entrance, wheelchair ramp, or accessible toilet for a person using a wheelchair. One campus out of four had a building that provided an accessible route/door, and one campus out of four had accessible elevators in two different buildings. None of the four campuses had buildings that provided accessible stairs/steps, or wheelchair accessible seats.

Discussion

The present study investigated the physical accessibility on campuses of three universities in China. Findings show a lack of physically accessible facilities on the four university campuses. Similar to the findings of some U.S. studies (Aamlid & Brownfield, 2019; Fleming et al., 2017; Stumbo et al., 2010/2011), a number of accessible facilities found on campus were in poor condition and lacked regular maintenance (e.g., spalling and cracking on the curb ramp; weeds and other vegetation growing in curb sections). Some had not been used or used for other purposes (e.g., wheelchair accessible toilets were locked or used as storage rooms). None of the four campuses meet all the standards set by the Codes (e.g., no elevator displaying an accessible sign; no voice prompt or handrails inside each elevator). These findings corroborate the concerns raised by a number of Chinese academics who reported the non-existence or a lack of physically accessible facilities on university campuses in mainland China (Fang et al., 2005; Li, 2013; Ma, 2012; Wang, 2013; Yu et al., 2010; Zhang, 2014; Zhao, 2007).

Also, our findings are similar to the results of some studies that were conducted in the United States and Canada in the 1990s which reported that accessibility was a serious problem at both small and large universities and at both public and private universities (Hill, 1992; Low, 1996; Singh, 2003). It

should be noted that these U.S. and Canadian studies were conducted over 20 years ago. Today's accessible campus development in China is similar to the then accessible campus development in the United States and Canada in the 1990s. The U.S. studies presented in this paper were conducted at least 30 years after the passage of two major pieces of legislation, Public Law 93-112, Section 504 of the Rehabilitation Act of 1973 and Public Law 94-142, The Education of all Handicapped Children Act of 1975, mandating the integration of both children and adults into the "mainstream" of society. That is, preceding the passage of legislation protecting the rights of individuals with disabilities, HEIs in the United States were not friendly toward individuals with disabilities.

Moreover, some recent studies reported that ADA compliant implementations are uneven across individual campuses (Simonson et al., 2013; Stumbo et al., 2010/2011). There are still places, especially older buildings, where physical accessibility is limited for students with disabilities. The Canadian studies (Hill, 1992; Low, 1996) were conducted 10 years after the proclamation of Ontario's Bill 82, An Act to Amend the Education Act of 1980 (Ontario Ministry of Education, 1980), and 1985 enactment of Section 15 of the Canadian Charter of Rights and Freedoms in The Constitution Act of 1982. Even with the legislation mandate, it has taken years for IHEs in the United States and Canada to provide an accessible campus for students with disabilities. Therefore, it is no surprise to observe that, at present time, most universities in China lack an accessible or a barrier-free campus, and that it will take an unforeseeable amount of time for universities in China to comply fully with the 2012 Regulations.

It appears that administrators at the three universities in our study are aware of the issues related to students with disabilities, as there is the existence of a small number of accessible facilities on campus. Also, a few major universities in China have begun to conduct research on barrier-free facilities (e.g., a Barrier-free Construction Projects Joint Research Center was established in Tongji University in May 2011). Our findings, nonetheless, suggest that an accessible or a barrier-free campus environment has not been considered as an important, urgent matter by the university administrators as compared to other campus issues, such as energy efficiency and conservation, green campus, and the use of ecological materials. We speculate that the lack of accessible facilities for students with disabilities across all four university campuses may be attributed to three reasons: poor government oversight, lack of university commitment, and invisibility of students with disabilities on

university campuses. However, future research must ascertain why the universities in this study are not in compliance with China's legislation on disability regarding accessible campuses.

Poor Government Oversight

The municipal government of the city where the three universities in our study are located is responsible for enforcing the 2012 Regulations. However, it is unclear how the municipal government enforces the 2012 Regulations. Our findings show that as of 2016, the number of accessible facilities on all four campuses is still small. There have been new constructions, alterations, and additions on all campuses in our study, in particular, on University Campus A and C1. Yet, no accessible facilities were found in these new constructions, alterations, and additions which raises an important question as to whether the government agency has done an adequate job to enforce the 2012 Regulations.

Lack of University Commitment

Each universities' buildings and grounds department's web page in our study contained no information on physical accessibility. There was no disability office for students at any of the universities. The three universities' websites do not contain any information on disability policies, services available for students with disabilities, or accessible facilities on campus. Also, no information on the designated person(s) overseeing disability services was provided. We assume that the department of student services of each university is responsible for the welfare of students with disabilities on campus. However, when we reviewed the department's web pages of each university, no information on services for students with disabilities was found. This discovery leads us to question whether the department's student counselors in each university have received proper training in special education, including knowledge of current legislation, direct counseling services, facilitation of communication, awareness of community resources, among others - an important topic for future research.

Invisibility of Students with Disability on Campus

One reason why universities in China lack commitment to providing accessible facilities may be attributed to the very small number of students with disabilities on campus. It is rare to see students with mobility impairments at any of the three universities' campuses. These students remain somewhat invisible on campus (Zhang, 2020). Although the Law of People's Republic of China on Higher Education (National People's Congress, 1999) protects the rights

of students with disabilities to enroll in regular universities, it has been reported that some universities have imposed restrictions to deny the admissions of students with disabilities (e.g., Huang, 2011; Wang, 2013; Wang, 2016; Yu et al., 2010), as the Chinese government has given individual universities the authority to make their own rules and decisions on admission to candidates with disabilities. Moreover, most colleges and universities in China do not have the proper teaching conditions and living facilities available for students with disabilities. Lack of specialized, trained staff further discourages students with disabilities from applying to regular universities (Yu et al., 2010).

Unlike the United States and Canada, there are 18 universities in China that have a special education college for students with disabilities which have a total annual student enrollment of about 2,000. These universities have their own entrance examinations and admissions requirements. The campuses of these universities have installed accessible facilities for students, including accessible classrooms, accessible housings and telecommunication devices. In addition, the administrative and teaching staff have credentials and experiences in special education to provide assistance for students with disabilities. Students with disabilities may, therefore, opt to go to universities with a special education college, although they are qualified to attend regular universities. As only a very small number of students with physical disabilities attend regular universities, the management of these universities may be led to believe that accessible facilities on campus are not necessary. This oversight by the university management may also explain why some of the accessible facilities on campus have not been well maintained or been used for other purposes.

Recommendations

Advocate to Make Amendments to Current Legislation

The 2008 revision of the Law on the Protection of Disabled Persons has been the legal mandate protecting the rights of people with disabilities in China for over a decade, yet there are still no liability issues for non-compliance in serving the needs of people with disabilities. Therefore, consequences for non-compliance or government actions for non-compliance must be included in the future amendments of the legislation. Compliance with the legislation can be costly to universities in China, government at various levels can provide funding to support the effort of constructing the necessary accessible facilities on university campuses.

Address the Importance of Government Enforcement and Communication

In China, government at various levels is the primary enforcer of the laws and regulations. University management is not going to fulfill its responsibilities if there are no penalties for failing to comply with the 2012 Regulations. Government must actively promote accessible university campuses via mass communication to gain support from the public and the whole university community. Government should also encourage students with disabilities to let their voices be heard by reporting universities that fail to comply with the 2012 Regulations. Government must meet with the university administration to provide specific suggestions, with specific timelines, as to what should be done to comply with the 2012 Regulations.

Commit to Supporting an Inclusive Environment on Campus

As more and more students with disabilities are admitted to mainstream universities in China, it is imperative for universities to establish an office of disability services on campus with trained staff members who have a working knowledge of students with disabilities. Disability service providers must ensure that institutions meet their obligation to provide students with disabilities with greater opportunities for increased social support, integration into campus life, and more access to available resources. A university's office of disability services should provide training/workshops for its student counselors and university instructors to better understand the various types of issues students may encounter due to their impairment(s) and to provide support. Furthermore, disability service providers must work in collaboration with other university departments (e.g., Facilities Management, Office of Student Affairs, etc.) to create a holistic, inclusive environment for students with disabilities. Funds should be appropriated to provide appropriate services for students with disabilities and to lawfully comply with the building regulations.

Conclusion

Universities in China might argue that providing an accessible campus for students with disabilities is not necessary as it is not worth spending so much money for so few students (or no students). They might further argue that the money should be spent on the priorities that are important to the welfare and needs of the majority of students on campus. Although students with disabilities have been and will likely be the "invisible" group on college campuses in China for some years to come, they are nonethe-

less entitled to the same services as their non-disabled peers. Most importantly, various laws in education in China have clearly stated that students with disabilities should be provided with the opportunities to participate fully in all activities in society. China today has the will, money, and resources to care for individuals with disabilities, as is evident by the establishment and enactment of legislations and regulations, and as demonstrated by its willingness to be the host country of the Paralympic Games in 2008. University students with disabilities are a minority group on campus across the globe. The presence of students with disabilities on campus, human rights legislation, and local building codes are the forces for the universities to modify existing buildings (Hill, 1992). These forces exist today in China. It entirely depends on whether the government and the university community have the commitment to enforce the laws to provide accessible facilities for university students with disabilities. It is our sincere hope that there will be more accessible campuses for students with disabilities in China. We also hope that our findings will open the door for more detailed research on the areas of accessibility for university students with disabilities in China as well as in other developing countries.

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