

Chapter 10

Information and Communications Technology and Social Media

Accessibility in China: a peep at a leopard through a tube?

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The title of this chapter comes from the Chinese idiom “a peep at a leopard through a tube – see a spot or two” (管中窥豹，可见一斑), which means looking at an issue from a single perspective and conjuring up a bigger picture. The chapter considers the accessibility of Chinese social media platforms through a pilot research project.

Introduction

Weeks before the 2016 Chinese New Year, a heated debate emerged on social media over a lawsuit against the China Railway Corporation. Chen Bin, a blind masseur in Beijing, sued the state-owned corporation after finding it impossible to pass through the CAPTCHA system of their ticket buying website. Bin had to take a day’s leave from work and take a taxi to the railway station to buy the ticket (“Visually impaired man sues,” 2016). Many websites use CAPTCHA to determine whether a user is human by asking them to type the letters of an obscured image. For non-sighted users, websites typically use an audio CAPTCHA, which the train ticketing website failed to offer. Being China’s first case on information accessibility, it drew immediate attention. Days later, an article published in the government official media, the People’s Daily website, defended the China Railway Corporation stating that “blind or visually impaired passengers, without help from other people, can hardly use the internet independently... so as long as help is available, having no speaking Captcha will not stop blind passengers from purchasing tickets online” (“Without speaking Captcha,” 2016). This statement consequently drove thousands of blind people to speak up on social media.

This incident illustrates three overarching themes regarding information and communication technology (ICT) accessibility in China. First, myths and misconceptions about people with disabilities are being circulated in China. For instance, “people with disabilities cannot use technology independently and always need help”, or “if people with disabilities can go to a

physical store/ticketing place, why do they need online access” (“Without speaking Captcha,” 2016). Social media is often used as a means of communication to refute the myths. Second, the fact that blind users are using social media to discuss accessibility issues shows that websites and mobile apps run by private-held companies appear more accessible than those of public services managed by state-owned corporations – this is in spite of the fact that only the latter are obligated to offer full and equal access. Third, people with disabilities are a driving force in demanding accessibility, either by taking legal action against violators or voicing their dissatisfaction on social media.

This chapter explores these accessibility practices in China using qualitative data from a case study of a Chinese social media company. We start by briefly presenting research on ICT and social media accessibility from an international perspective. Next we review Chinese laws and policies on ICT accessibility and analyse the relevant stakeholders involved in social media and accessibility in China. This is supported with the aforementioned case study using policy document analysis and data from semi-structured qualitative interviews with social media developers and users with disabilities. Finally, we discuss potential mechanisms for elevating awareness and promoting ICT accessibility in China.

This chapter draws from international research regarding social media accessibility as a useful basis for examining the implementation of ICT accessibility practices in China (Brown, Jay, Chen, & Harper, 2012; Cooper, 2007; Gibson, 2007; Jaeger & Xie, 2009; Jaeger, Bertot, & Shilton, 2012; Magro, 2012; Rodriguez, 2011). However, limited research exists that specifically examines ICT accessibility in China. In an evaluation of web accessibility from 2009 to 2013, Rau, Zhou, Sun, and Zhong (2016) demonstrate the low levels of accessibility for public and private sector websites in China. However, research has yet to examine ICT accessibility in practice in China from an organisational perspective. It is hoped that the research in this chapter – particularly data from the case study – will start to redress that.

ICT and social media accessibility

Research on social media can be seen to relate to broader investigations of web and ICT accessibility for people with disability (Ellis & Kent, 2011; See Ellis, Kent, Zhang & Zhang, Chapter 9; Chen, Bong & Li, Chapter 11 in this volume). For example, Petrie, Savva, and Power (2015, p. 37) provide a unified definition of web accessibility stating, “all people, particularly disabled and older people, can use websites in a range of contexts of use,

including mainstream and assistive technologies; to achieve this, websites need to be designed and developed to support usability across these contexts”. When applied to social media accessibility, this definition stipulates that accessible social media technologies are usable by everyone, including persons with disabilities. However, research by Goggin and Newell (2003) examines how the lack of participation on social media is a barrier to participation in society. The authors argue that social media developers do not typically consider persons with disabilities in market research when developing new products and services. The authors go on to claim that despite the potential for internet and web technologies to enable persons with disabilities to participate in society, “the Internet has been, and remains, a disabling technology for many people” (p. 122).

In research by Ellis and Kent (2011), the authors explore new media and the accessibility and usability barriers experienced by persons with disabilities. According to the authors, new media or “web 2.0” accessibility involves “the capacity to access information in the format of choice when working within the largely unstructured environment of user-generated content” (p. 25). Ellis and Kent (2011) characterise web 2.0 as the development of dynamic and user-generated web content especially through social media. Ellis and Kent (2011) further explore recent innovations in web and social media technologies and the role that those technologies have in reproducing social barriers that exclude persons with disabilities from participating in society. The authors argue that while social media platforms provide an opportunity for participation on a broader scale than ever before, the design of new media technologies can have the effect of disabling individuals with impairments. The authors additionally argue that only after new media platforms achieve widespread adoption, do developers begin to consider accessibility. Ellis and Kent (2011) suggest that social and political advocacy efforts may provide a useful mechanism for promoting new media accessibility.

Research has also examined the implementation of web accessibility law and policy (Ellis & Kent, 2011; Giannoumis, 2014a). According to Ellis and Kent (2011), “[b]ecause accessibility is a choice, it is inherently a political decision” (p. 150). The authors argue that the legal requirements for web accessibility in Australia may not act as a panacea for promoting web accessibility outcomes. Research in the UK, Norway, USA and European Union has similarly concluded that complex and contravening factors mediate the implementation of web accessibility law and policy (Giannoumis, 2014a, 2014b, 2015a, 2015c). To date, the myriad national and international law and policy efforts have yet to substantively reduce the “digital

divide” between persons who can use the web and persons who, due to the design of web content, experience barriers in using the web (Blanck, 2014a; Ragnedda & Muschert, 2013). As Blanck (2014a) points out, issues of auto-personalisation, privacy and security have yet to be resolved in ensuring a “right to the web” for persons with disabilities.

However, other research suggests that principles of universal design may provide a useful basis for ensuring web accessibility in practice (Blanck, 2014a; Ellis & Kent, 2011; Giannoumis, 2014c, 2015b). According to the United Nations Convention on the Rights of Persons with Disabilities (CRPD), universal design refers to “the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design”. Research has argued for integrating universal design principles in business processes (Giannoumis, 2015a; Kelly et al., 2007). Ellis and Kent (2011) suggest that a process-based approach may ensure accessibility for everyone. According to the authors (Ellis and Kent, 2011, p. 26) “Toolkits must be better developed in order to anticipate ways to allow for different impairments because there are many web developers and no one single way to ensure accessibility for everyone.” The authors go on to consider the role of universal design as a response to the commercial resistance for adopting practices that ensure web accessibility. According to the authors, “what is considered an accessible retrofit in today’s web environment, will become increasingly important for the average user” (p. 144). In other words, by focusing on universal design, web developers can “develop better, more flexible, and customisable technology which can be mainstreamed to benefit everyone” (Ellis and Kent, 2011, p. 146).

The research reviewed in this section suggests that despite national and international law and policy efforts aimed at ensuring ICT and social media accessibility, persons with disabilities continue to experience barriers in accessing and using web-based services. Research suggests that the implementation of ICT accessibility law and policy has yet to result in the removal of these barriers. However, research also suggests that expanding the scope of accessibility using universal design principles may provide a useful basis for realising accessibility in practice. This research provides a useful basis for examining the accessibility barriers for social media companies in China.

Chinese laws and policies on ICT accessibility

Recognition of the need for accessible ICT in law and policy came later in China than in neighbouring countries such as Japan, Korea and India. In 1990, 1 year following the introduction of the internet to China, the government passed the first Law on the Protection of the Disabled (“Evolution of internet in China,” 2001). However, the Law made no mention of ensuring equal access to ICT.

In 2008, the Chinese government ratified the United Nations CRPD (“United Nations Treaty Collection,” 2016), which obligates the government to raise awareness and foster respect for the rights and dignity of persons with disabilities and to ensure access to ICT. Later in the same year, the Chinese president at the time, Hu Jintao, signed an amendment to the 1990 Law on Protection of the Disabled aimed to promote the “gradual improvement and promotion of accessibility of ICT”. In 2012, the then Chinese Premier Wen Jiabao signed the State Council Decree of Regulations on Building a Barrier-Free Environment (“Regulations on building a barrier-free environment,” 2012). Among the 35 provisions of the Regulations, nine concerned access to ICT. The Regulations require that the government, at various levels, provide accessible formats of, among other things – information, services and statewide exams; accessible reading rooms in libraries; and captioned and sign language on TV programs.

Since 2008, the Ministry of Industry and Information Technology (MIIT) have published or proposed a series of technical requirements, including requirements for website accessibility (YD/T 1761-2012), requirements for accessible call centres (YD/T 2097-2010), and requirements for compatibility between hearing aids and communication devices (YDT 1643-2007) and between hearing aids and telephone headsets (YD/T 1889-2009). However, despite these efforts to promote ICT accessibility through law and policy, research has yet to examine comprehensively the implementation of ICT accessibility in practice.

Relevant stakeholders

The China Disabled Persons’ Federation (CDPF) is the most important governmental organisation for people with disabilities (“Introduction to CDPF,” 2007). The CDPF maintains responsibility for representing the interests and protecting the rights of people with disabilities. In addition, the CDPF is responsible for managing and guiding a variety of organisations for persons with disabilities. In terms of ICT accessibility, the CDPF, in

collaboration with the MIIT, participates in relevant research and in the design and implementation of laws and regulations (“MIIT of PRC,” n.d.). The CDPF also works with the Internet Society of China to promote compliance with accessibility regulations (“ISC website,” n.d.), and, for the first time in 2013, website accessibility was included in the performance metrics of government websites (“2013 China Statistical Communiqué,” 2014). Since 2004, the CDPF has also organised the annual Forum on China Information Accessibility in Beijing (“Forum on China Information Accessibility,” n.d.).

Non-governmental organisations and the IT industry in China are also emerging as strong promoters for information accessibility. In 2013, leading tech companies in China set up the Chinese Accessible Products Association (CAPA) to promote accessibility internally and externally (“About CAPA,” n.d.). Members not only improve accessibility of their own products, but also participate in developing and updating technical requirements. However, despite these efforts, most individuals with disabilities remain invisible on the internet due to the inaccessible design of web content (Lisney, Li, & Liu, 2007; Shi, 2007), and research demonstrates that the situation may be getting worse (Shi, 2006).

Case study: Chinese social media company

Case studies provide useful evidence for elaborating organisational and implementation models – in this case the implementation of ICT accessibility practices (Yin, 2013). This case study of one of the largest Chinese social media companies with over 200 million users provided a useful basis for elaborating on the role of ICT accessibility practices in China as a component of human rights and antidiscrimination law and policy. To preserve the privacy of our respondents, the company and participants will remain anonymous.

The data were collected from policy document analysis and semi-structured interviews. As a pilot study aimed at producing exploratory research, the data provided a useful basis to begin analysing ICT accessibility practices in China. Policy document analyses provided useful data on the explicit norms, values and procedures in China and focused on primary source policies including national and international laws and policies, regulations, standards, policy proposals, and government reports. These policy documents were located via web searches, through referrals and through organisational or governmental public websites. Semi-structured interviews with a purposive sample of three participants were also carried out. The interviews were conducted in-person in Mandarin in 2015. The data were transcribed and

analysed by a researcher fluent in Mandarin. These provided useful data on the perspectives involved in implementing ICT accessibility in China. One interview was conducted with a blind user of social media in China and the remaining two were conducted with social media ICT designers including a multimedia content designer and a mobile app designer. Each interview lasted for about 40 minutes. The interviews covered the following topics:

- What accessibility related laws and regulations are you aware of? Are they effective?
- How does the company ensure product accessibility in practice? What should be improved?
- What do you think would help in building a barrier-free environment in general? By whom should they be implemented?

Data from these interviews demonstrated four themes – the role of awareness of ICT accessibility; the perceptions regarding the efficacy of ICT accessibility requirements; the practical considerations for implementing ICT accessibility within an organisation; and the myths and misconceptions concerning the role of ICT in the lives of persons with disabilities.

Awareness of ICT accessibility

Awareness has been found to be low in terms of need for, and policy of, ICT accessibility among Chinese older adults (Yao, Qiu, Huang, Du, & Ma, 2011). The awareness among ICT designers and developers remains underspecified. When asked if they knew about any legal policies or regulations regarding accessibility, both designers interviewed in this study replied “no”. This confirmed our hypothesis that social media designers possessed a low level of awareness about disability and accessibility and that government has yet to enforce legal obligations for ICT accessibility among social media companies. Jia and Wang (2014) contributed part of this low awareness to a rulemaking process that is primarily led by experts without public participation of stakeholders. For example, the aforementioned *Chen v. China Railway* is the first and the only lawsuit of its kind brought to court since the regulations entered into force. The blind social media user interviewed states:

It's not long since "barrier-free" was introduced to China... Now the regulations are rather general and suggestive... I look forward to detailed rules. The government has started to pay attention [to accessibility], but [policies are] still in their infancy.

Even though they were not familiar with accessibility requirements, the designers were aware of, or had done some work for, improving accessibility. One designer said their website design would be tested with popular screen readers and be adjusted accordingly so that it could be read easily. The blind subject, who used their product for an hour on average each day, said, “it [the social media app] is okay in terms of being ‘usable’, but far from ‘accessible’. Most WCAG requirements are not met.” Indeed, while WCAG provides a useful basis for measuring the accessibility of websites, the application of WCAG to mobile apps has yet to be fully examined (Giannoumis, 2015c).

It can therefore be argued that the recognition of accessible design within the company was seen to be sporadic and largely driven from the bottom-up. Both designers confirmed that there were no internal design requirements related to accessibility, nor was any work related to accessibility initiated from an administrative level. On the contrary, accessibility efforts had been propelled by the emerging needs from users with disabilities. One designer stated, “As the user base increases, we are able to analyse, identify, and meet these needs [for accessibility]. It was proposed by the Department of UED [user experience design]”.

The results presented in this section suggest that designers are aware of the concept of “accessibility” or “barrier-free design” but have limited knowledge about and how to meet the legal requirements. End users with disabilities, especially tech-savvy users, are more aware of accessibility than the designers, and are eager for more attention from the government and IT companies on ICT accessibility.

Perceptions on the efficacy of ICT accessibility requirements

The designers expressed concerns about the effectiveness of accessibility requirements. One of them said, “It depends on the cost and the severity of punishment. Small companies, especially start-ups, will not spare the man-hours on meeting accessibility requirements if [the] punishment doesn’t compare to the cost.” This viewpoint stems from a weak enforcement and a lack of clearly defined responsibilities for accessibility requirements in China (Zhang, 2015). The other designer said, “Large companies have the recourse and expertise to do that, and have to consider the company’s positive image.” The blind participant didn’t think highly of the efficacy of the requirements, “the non-governmental power is more valuable compared to the government requirements.” The designers were also concerned about the timeline and scope of the requirements. “It’s almost impossible to do

everything right in the beginning. It's better first [to require to] meet part of the requirements, starting from first-tier cities, then expand to second- and third-tier cities.”

In summary, the subjects were negative about the efficacy of accessibility requirements. Major concerns centred around the financial burden and required expertise to meet the requirements, as well as the timeline of mandating accessibility for all companies.

Implementing ICT accessibility

Both designers stated that no one in the company was, in particular, responsible for accessibility of products, and no one on the development team would consider accessibility because it was not in the internal requirements or design guidelines:

There is not a uniform standard. If there is anything [related to accessibility] done, it's not standardized. Now we require developers to add text descriptions to every control, button, and label, but there are always omissions in the development process.

With regards to the question about how the company gathers user feedback and identifies access needs by users with disabilities, one of the designers stated:

The User Experience Design Department will consider [accessibility] ... For mobile apps, users can make reviews in app stores. Within the app there is built-in feedback function. ... Also, through customer service hotlines, we can collect user feedback. About biannually, we conduct in-depth interviews with the users... We probably won't [invite disabled users] – we only invite mainstream users, who are not individuals with disabilities.

The designer's response suggested that accessibility had not been part of the standard design and development cycle, and that no one in the company was particularly responsible for product accessibility. That is, instead of considering accessibility upfront, the company only solved access issues after the product had been launched.

Myths and misconceptions regarding ICT accessibility

One of the most prevalent misconceptions about accessibility is that users with disabilities do not need all of the available functions, and should be satisfied as long as the basic functions are accessible. One of the designer subjects remarked, “I think disabled users should be okay with the most basic functions and not able to use ‘deep’ functions... should not expect themselves to use a product as normal users do, not 100%.” This misconception directly

contravenes the CRPD's obligation to ensure access to ICT for persons with disabilities on an equal basis with others. Another misconception is that accessibility is extra responsibility, an expensive add-on that brings no business value but may improve a company's public image. Both designers mentioned positive image as a leading motivation for a company to improve product accessibility.

The interviewees also implied that accessibility was understood as being only about blindness and visual impairments, rather than all types, degrees and combinations of disabilities. One of the designers said, "Users with physical disabilities will figure out a way to use touchscreens – unlike cellphones with buttons where you need to consider button size, etc. ... Looking at the entire [IT] industry, I haven't heard of any company that designs for people with physical disabilities."

In summary, many commonly held myths and misconceptions exist among designers and developers regarding the barriers that people with disabilities experience using ICT and the meaningfulness of accessibility. As awareness of accessibility increases, some may be refuted, but this article recommends that efforts promoting disability rights in China focus on breaking down misconceptions about ICT accessibility in any awareness-raising effort.

Potential mechanisms for evaluating awareness and promoting ICT accessibility

One of the questions that this case study posed was, "what are the effective ways of promoting ICT accessibility in China?" This section draws implications from the interview results and discusses two potential strategies of advancing accessibility in practice – to integrate accessibility into user experience design and to encourage compliance with accessibility requirements.

Integrate accessibility into user experience design

One of the barriers to effectively implementing accessibility in practice is the lack of a systematic approach to ensuring accessibility – only minimal guidelines exist (e.g., add text descriptions to visual elements), and no monitoring or assessment processes occur. This may account for a common access failure that many blind users pointed out – accessibility regression with updates. That is, what used to be accessible in an older version may become inaccessible in a later update. Heavily relying on user feedback, designers and developers can only solve problems that have become sufficiently prominent and that the users report.

Instead, these barriers could have been more easily identified using a set of systematic accessibility guidelines regarding user experiences.

This systematic reporting of user experience could be a possible entry point to improving accessibility in practice. The reason is twofold. First, user experience has been introduced into China for years and has gained great importance in Chinese companies. Both designers thought that user experience was valued in the company:

We emphasize UE [user experience] a lot. Every week we email the product team user feedbacks, in very detailed datasheets including user ID, feedback content, device, network environment... the problems are described very clearly.

Second, it is natural for most designers to think of accessibility as an extension of user experience – that of people with more diverse needs – so accessibility will not impose undue burden on the expertise of designers. Specifically, it is worth considering whether to integrate accessibility into ICT company design guidelines. As one of the designers said “We have design guidelines for height of lines, indents and spacing, and many others, but not for accessibility.” Integrating accessibility into user experience design may ensure that designers consider accessibility early in the development process – this may also lead to a decrease in development costs which occur when accessibility is retrofitted. It is widely accepted best practice to consider accessibility early and throughout the design and development process (BSI, 2010). Even though additional steps are required, most activities of planning, designing, implementing and checking for accessibility can be fit into a pre-existing process (Thatcher, 2006).

A potential barrier to this user experience design integration approach may be the mentality that characterises user experience as being about average users or representative users, rather than all users and users with a diverse spectrum of physical and cognitive abilities. Users with disabilities are considered to be a totally different group, rather than users with different needs. Universal design may provide a useful basis for countering the “average user” approach as universal design is typically considered a “one-size-fits-one” approach (Blanck, 2014b).

In summary, integrating accessibility into user experience design will be a natural way of introducing accessibility to routine practice. It does not require a radical change to design processes and may also be valued in a user-centred culture in Chinese companies.

Encourage compliance with accessibility requirements

Government policies play an important role in the design and operation of China's social media. As one of the designers pointed out:

Policies influence our operational strategies... For example, the user comment feature. The original design was that users could see their own or others' comments instantly as posted. But the [State Council] Information Office requires comments be reviewed and moderated prior to being posted, so user comments may take two to three minutes to appear.

Given the strong governmental control, one may wonder if a top-down, steadfast push would advance ICT accessibility effectively in China. Both designers argued that mandatory compliance would not work in China. One designer said, "Top priority is to survive, to maximise profits. Accessibility doesn't bring any business value." This reflected the hidden assumption that accessibility would not receive as great an emphasis as content moderation, which may lead to a shut-down of the entire platform if not done properly. In addition, accessibility is still deemed to be an "add-on" project for large companies that can afford it, both financially and technically. According to one of the designers, "If very complex, the requirements will be resented. If [financial] punishment is used, small companies may have to consider [compliance to accessibility regulations]."

Given the subjects' negativity toward mandating compliance, another way of enforcing accessibility requirements may be worth considering. There are basically two types of accessibility regulations adopted internationally – "push" regulations that are mandatory to all and whoever fails to comply will be punished; and "pull" regulations that are optional and only those who comply will be rewarded. Examples of "pull" regulations are Section 508 of the USA Rehabilitation Act, which uses the purchasing power of the USA government to financially persuade businesses to ensure accessibility by requiring ICT accessibility in all government procurement. Products conforming to these accessibility requirements may gain a competitive edge, and small companies not intending to compete in the government procurement market may choose not to conform to the requirements.

For IT companies that are mostly profit-driven, mandating accessibility for all may impose an undue burden, both financially and technically, and thus may fail. It is worth considering whether to maintain largely voluntary accessibility requirements as currently is the case, but take measures to incentivise companies and organisations to meet additional requirements.

Conclusion

This chapter investigated the ICT accessibility status quo in China through a policy analysis and a pilot interview study. The chapter suggested possible mechanisms for promoting ICT accessibility in China. The Chinese government has passed laws and regulations in recent years to require information accessibility in both public services and products of IT companies. However, the awareness of accessibility remains low and few governmental organisations or companies have fully implemented practices to ensure ICT accessibility. Myths and misconceptions still exist regarding the needs of people with disabilities and the implementation of accessibility.

This chapter therefore provides two recommendations for advancing the implementation of ICT accessibility in practice. First, IT companies should aim to integrate accessibility into the user experience design processes. The integration of accessibility will not require radical changes to routine practice, but will gain importance as user experience becomes increasingly valued. Second, government and market actors should incentivise compliance with accessibility regulations by requiring accessibility in public and business-to-business procurement.

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