Social Media's Accessibility to Blind Users

Abstract

Social media has become an increasingly important part of our everyday lives. In this article, I explore the use of social media by blind users, and how they interact and engage with it. I look into their distinctive characteristics and use patterns, and their motivations for using social platforms. I find that blind users participates and engages with social platforms (e.g., posting tweets and images, sharing embedded multimedia, asking questions) likewise to sighted users, but are facing many accessibility challenges such as complicated interface structures, inaccessible features and page elements, and in dealing with the pervasive visual-oriented content. Finally, I propose some recommendations to overcome current accessibility barriers that can promote better access to blind users on social media.

1. Introduction

According to the World Health Organization (WHO), approximately 285 million people are visually impaired, with 39 million completely blind [1]. Blind users generally interact with computers, and social media's in particular, using screen-reader software's that converts displayed on-screen text into synthesized speech [2]. Screen-readers are made for both mobile devices (e.g., VoiceOver for Apple and TalkBack for Android) and desktop platforms (e.g., JAWS) [3]. In particular, digital photos need an alternative text description (called "alt text") to allow screen-reading tools and blind users to understand the visual content. On social platforms, alt text is often absent or non-descriptive [4].

Social media has become an increasingly important part of our everyday lives. For instance, both Twitter and Facebook has more than 2 billion active daily users, uploading more than 800 million tweets and images per day in 2017 [5]. With the growth of the smartphone photography, taking and sharing visual content has become a bigger part of making social media an image-based medium [6]. At the time Twitter first launched in 2006, it was a simple, text-based interface (for this reason making it popular among blind users), but began hosting embedded images in tweets in 2011 [6, 7].

The increasing pervasiveness of imagery lacking alt text has made it difficult for blind users to fully interact and engage with the visual-centric social media (considering the fact that not all platforms support alt text). As stated in Lazar et al.'s [4] research, the lack of alt text is believed to be one of the most common causes of frustration by blind users on social networks, as explained by a blind Facebook user: "[...] A poor alt text is effectively locking the user out" [8].

In this article, I focus on social media use, specifically Twitter and Facebook, and the common accessibility challenges related to blind users, based on prior findings collected by researchers in this certain field [6, 9, 10, 11]. My goal is to get a better understanding of blind people as an essential user group, their unique characteristics, to discuss social media's accessibility and provide recommendations on how blind people can fully interact and engage with it. I address the following research questions: How and why are blind people using Twitter and Facebook? What unique characteristics do they have on social media? What accessibility barriers exists, and how might we overcome them?

2. Related work

Today, more than half of the global population uses social media, with over 5 billion unique users [12]. Kaplan and Haenlien [13] defines social media as:

> *"A group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and allow the creation and exchange of user generated content".*

Recent studies have focused at how different user groups engage with social platforms [9, 14]. Researchers have begun to examine the extent to which social platforms are used and accessible by people with some kind of impairment. Designing and solving accessibility problems for disabled people, in general, has become a growing research field among researchers and developers, for instance frameworks as *DesignABILITY* (an accessible interactive tool to support literacy school teaching to deaf children [15]) and *OER Practices* (learning disabled adults in building equal opportunities within the society [16]), or mobile applications like *TapTapSee* or *Voice4u ACC* (which serves a common interest of optimizing the daily life for disabled users [9]). My focus is on social media use and its accessibility challenges related to blind users. Four studies have researched particularly at how blind people use Twitter and Facebook, and the current accessibility challenges on social media [6, 9, 10, 11].

Morris et al. [6] provided central insights into this field; their multi-method survey explored why and how blind people use Twitter, and the following challenges they came across on the platform, such as imagery lacking alt text, an absence of certain types of popular hashtags, difficulty in completing profile accounts, and in dealing with the visual-oriented content in general. The study also showed that Twitter is becoming more of an image-based medium rather than a text-based. Thus, they looked into blind users' distinctive characteristics and presence on social media, and modeled traits differentiating them from other general sighted users.

Wu and Adamic [11] conducted a large-scale quantitative study based on 50000 thousand blind Facebook users. They presented insights about their distinctive use patterns based on the language and technology use, what content they produced and the type of feedback they received. Thus, they discussed other concerns related to barriers that might prevent blind users from fully

interacting with the social platform, and found that Facebook had a tremendous amount of inaccessible features and highly dynamical page structures, making it harder for screen-readers to capture the information. Considering the fact that Facebook's interface has improved with time, they also found that the mobile interface was more accessible than the desktop version.

Voykinska et al. [9] conducted a qualitative study (based on an interview of 11 blind participants and a survey of 60 blind participants) on their general use of Social Networking Services (SNSs). Compared to other SNSs users, they found that blind users faced frustrating accessibility challenges, such as complex interface structures and confusing visual page elements. Thus, blind users found creative ways to overcome such challenges, including accessing SNSs through a variety of interfaces (e.g., opening the mobile interface on desktop version). The study also showed that blind users rely more on trusted, sighted friends, in cases when they faced profound challenges on SNSs.

Brady et al. [10] provided further insights (by a survey, log and experimental data, based on 191 blind participants) into how they experience and react (as asking visual questions) to their SNSs, specifically Facebook and Twitter. They introduced VizWiz Social (an iPhone application which lets blind users ask questions to either a crowd or friends), and studied whether blind users find SNSs a suitable venue for Q&A (questions and answers) using VizWiz Social. In contrast to other general SNSs with higher social cost and significantly lower response rate, blind users perceived the application as more appropriate and highly valuable for their question-asking area. Thus, their research focused on the term *friendsourcing* (in contrast to crowdsourcing), and hypothesized that friendsourced Q&A could be of eloquent benefit, as asking sensitive questions to strangers may often be considered to the extent more inappropriate.

While the study by Wu and Adamic [11] conducted a big data study of blind users' presence on social media, viewed in a larger picture, other studies [6, 9, 10] shed light on their research data through an in-depth, subjective and qualitative view, with less participants. However, these findings [6, 9, 10] are appealing more personal and in closer relation to each blind individual. Wu and Adamic [11] based their research on one particular media; Facebook, while other studies like [6], [9] and [10] primarily focused on Twitter. As a result, they provide a richer picture of how data can differ across media. However, the common theme found in all these studies [6, 9, 10, 11] is that how the blind user group are embracing the challenging part of social media use.

3. Discussion

Blind users are actively interacting and engaging with social media's, likewise to sighted users. However, blind users interact with social media's in various ways compared to sighted users [9] due to personal difficulties, and persistent challenges related to accessibility and dealing with the pervasive visual content. I will reflect on my research questions in light of prior research findings [6, 9, 10, 11], and provide several recommendations for better accessibility on social media (particularly on Twitter and Facebook) for blind people.

3.1. General use

Prior research [10] has shown that 92% of blind users are interacting with social platforms on a daily basis, with Twitter and Facebook as by far the most popular ones, followed by less-frequently-used platforms, such as LinkedIn, Tumblr, Google Plus etc. However, the Facebook adoption rate is higher than Twitter by 30%, specifically for blind users. Interestingly enough, in comparison, Morris et al.'s [6] survey found that Twitter is by far preferred, rather than Facebook due to its simple, text-based interface and accessibility to screen-readers. The differences in the adoption rate from survey to survey may be related to population status and age, and in addition to the participants' own habitus patterns. With the increasing perverseness of rich image-based content (particularly Facebook), it is important to understand how blind users interact with such content on social media's. Different kind of optimization technologies offer blind people tools to understand the visual content, such as screen-readers and image recognition tools [6]. In accordance with blind users, Facebook is harder to use, slower with screen readers and seems to be lacking more imagery text descriptions than other platforms [10]. A descriptive imagery alt text is an essential part of making screen-reader tools functional. Although imagery alt text is often missing, blind users are experiencing various challenges in understanding an image (e.g., what it is, colors, and what is in the background [11]). According to Morris et al.'s [6] findings, only 11% of multimedia on Twitter has useful text descriptions; while 18% on Facebook. These findings reflects upon social medias' imagery lacking alt text, and the significance of implementing accessibility for special user groups. Other research [9] has shown that detailed alt text is considered by far the most informative tool; allowing blind users to fully participate and engage with visual content.

3.2. Use patterns

Although, both blind and sighted users are frequently interacting and engaging with social media, their motivations may differ. As shown in the study by Voykinska et al. [9], blind users, likewise to sighted, uses social media to maintain relationships with friends, family and colleagues, and accessing and sharing information. However, the majority of blind users' motivation on using Twitter and Facebook is related to blindness, particularly to meet new blind people, share news on the topic and read articles related to visual impairment awareness. Nevertheless, they also blend their set of interests (i.e., sports, technology, career building, humor) likewise to sighted users [6, 9].

Four prior studies [6, 9, 10, 11] have discussed whether blind users' behavior, account characteristics, response rate and network size somewhat differs from sighted users on Twitter and Facebook. On Facebook, for instance, a majority of blind users do openly talk and discuss challenges related to blindness and accessibility, whereas a small percentage are having privacy concerns related to sharing about their condition due to high social cost of exposing one's problems on social media's. However, engaging with social platforms has also been shown to be both positive and encouraging for disabled users. Taken together, they

gather in minor groups to share thoughts about their conditions to gain social support [9, 11]. As stated in Morris et al.'s [6] study, blind users experience various challenges related to customizing their profile accounts in general, especially on Twitter due to poorly labeled input boxes and intricate setup features [9]. For example, 22.3% reported that they experienced difficulties in setup their profile image and left it as default. For the most part (51.1%), blind users rely more on sighted friends and family for help in such cases [6, 11]. Despite the fact that blind users actively engage with social platforms likewise to sighted users (i.e., posting tweets and embedded multimedia, sharing concerns and images, and asking questions), they receive more feedback on their posts [9]. However, according to Brady et al.'s [10] study, only 33% reported to receive some sort of feedback to their posts on Twitter; while 34% for users on Facebook. This response rate is quite low compared to, for example Morris et al.'s [6] study, where 90% of those who posts to Twitter and Facebook received feedback. Such variety in the response rate may have relation to the participants' network size. An another impact factor may be what time of the day the post was posted [10]. Prior research [9, 10] has also stated that blind users have a denser network size than average users, with an average size of 245 on Twitter, and 176 on Facebook. The variety in network size may be related to the length of time the user have been on the social platform (so-called "user age") rather than having anything to do with the users' visual impairment condition [10]. Overall, despite the differences, blind users have large presence on social media.

3.3. Existing accessibility challenges

Accessibility challenges are causing frustrations and limitations, and are leaving special user groups excluded of participating with the content on social platforms. For blind users, in particular, a screen-reader needs a descriptive alt text to be functional and understandable. Despite that many social platforms have unstructured visual page elements (e.g., boxes, buttons, navigation) and complex organized content such as graphics and infinitely scrolling feeds, in addition to imagery lacking alt-text, screen-readers may have trouble providing useful information to the user [6, 10]. Voykinska et al. [9] looked at blind users' strategies to overcome such challenges on social platforms, and found that although blind users may tolerate some structural complexity, the most difficult part were dealing with frequently changed interfaces (such as new features in a new update). In worst case scenario, blind user's simply ignored features and social platforms they perceived too inaccessible.

3.4. Overcoming accessibility challenges

Despite the large-scale of research efforts on accessibility, we are yet far away before accessibility is implemented as a universal value [9]. As a supplement to the fact, Flórez-Aristizábal et al. [15] stated that, from a human-computer interaction (HCI) view, it is essential to develop (in their case a framework) by a modular approach rather than a general-purposed approach, that can later be customized to the final users' needs. In other words, it is important to

develop (e.g., interfaces, tools, platforms) through a user-centered design (UCD) perspective, where there is room for improving accessibility, and end-users like disabled people are not overlooked.

Several prior research [9, 11] found that blind users develop strategies to overcome accessibility barriers, such as accessing to social platforms through different interfaces (i.e., mobile and desktop). Another study by Wentz et al. [14] compliments to this, and found that Facebook's mobile interface is by far more accessible than the desktop version — a fact that a majority of blind users can agree on [9]. For instance, allowing blind users to open the mobile interface on the desktop version without reorienting them to full desktop version might mitigate some accessibility barriers, and open up new experiences for blind users.

Other solutions to overcome some accessibility barriers might be to make the text description field principal to remind users to describe an image they are about to post. Not only would this assist blind users to fully engage with visual content, but also be a valuable platform-level enrichment for social networks [6, 9]. In addition, social platforms could recruit employees to add in any missing or non-descriptive alt text to images, or provide other engaging sighted users to add descriptions to existing imagery. However, there should also be an option (in particular for all social platforms) for blind users to request a description of an existing image.

4. Conclusion

In this article, I looked into how and why blind people use social media's (particularly Twitter and Facebook), and explored their unique characteristics, challenges, strategies and experiences through their interactions and engagement with social networks. Their motivations for using social media were likewise to general users, such as maintaining relationships with friends and family, sharing images and asking questions, but also for reasons related to meeting other blind people and expressing their identity. However, blind users experience various accessibility challenges from fully interacting with social platforms due to pervasive image-based contents, inaccessible features and interfaces, imagery lacking text descriptions and complex organized page structures that are irreconcilable with screen-reader tools. Thus, despite the large body of research on social media usage and its challenging area for special user groups, development of future technologies should continue to strive to archive accessibility as a design value, that might be a step forward of overcoming current barriers and ensure that social media becomes a universal platform.

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