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Online Participation and Information Inclusion – a study of Internet Users with Vision Impairments

Abstract: Few empirical studies in LIS have examined the online information practices of people with vision impairments. Our study of the everyday online information practices of sixty adult residents of Ontario with vision impairments revealed barriers not only to their information access but also to their participation in the online culture.

Résumé : Cette communication met en évidence la nécessité d'aller au-delà de l'accessibilité sur le web pour les internautes souffrant de troubles de la vision pour privilégier plutôt l'inclusion par l'information au moyen d'une meilleure participation en ligne et du partage des connaissances. Nos suggestions se basent sur des données empiriques provenant de l'analyse des pratiques quotidiennes de soixante résidents ontariens souffrant de troubles de la vision.

1. Background

According to an estimate by a Canadian Library Association Working Group in 2005, only five percent of the world's publishing output in English is made accessible in alternate formats for people who cannot use print (Epp, 2006). The rapid expansion of Internet usage, on the other hand, has made everyday information more easily available now to people with vision impairments (i.e., low vision or blindness (WHO, 1993)) than the days when they depended upon others to have the daily news read to them. Assistive technologies such as the screen reader enable people who are totally or legally blind[i] to interact with the Internet through a computer or a mobile phone. The screen reader reads out the contents displayed on the screen using synthesized speech; it can also convert them into Braille signals. The screen reader has certain inherent constraints: (1) it reads serially; (2) it can only read text; and (3) it cannot convey non-text information unless accompanied by equivalent text description.

Access and use of online resources for screen reader users depends on Web accessibility[ii] (Petrie & Kheir, 2007). There are several studies in the field of Human-Computer Interaction examining Web accessibility for screen reader users. But, in the few available studies in LIS about people with vision impairments, there is no examination of their use of the Internet from an information practices angle (Beverly, Bath and Barber, 2007; Chandrashekar & Caidi, 2007; Craven, 2003; Samure & Given, 2004; Williamson, Schauder & Bow, 2000). This paper reports our contribution to the LIS literature in this area.

2. Methodology

To guide our study, we used Savolainen's concept of Everyday Information Practices, which encompasses information seeking, use and sharing (2008, p.4), with a focus on online information. We adopted a qualitative inquiry approach, using multiple data collection methods to enhance the trustworthiness of the findings through methodological and data triangulation (Lincoln & Guba, 1985). Quantitative and qualitative data were gathered between April and July 2008 through an electronic questionnaire survey of adult

screen reader users residing in Ontario, Canada (N=60), about their everyday online information practices. Semi-structured interviews were conducted during June 2009 with a subset of the survey participants (N=13) to explore some issues highlighted by the survey findings in greater depth. Participants were observed while performing online activity during the interview session and think-aloud protocols were collected about their website selection and information evaluation decision making processes. Combining insights derived through descriptive statistical analysis of the quantitative data and content analysis of the qualitative data (Berg, 2007), we arrived at findings as described in the next section.

3. Findings
The sample of screen reader users who participated in this study provided the advantages of near-uniformity along the dimensions of vision condition and technology use with diversity along the dimensions of demographics and Web use proficiency. All participants used the speech feature on their screen reader to access the Web (eleven of them also used the Braille output). Over 95% used the JAWS screen reader with the Internet Explorer (browser). Two-thirds of the participants were male. About half of them were between 31 and 50 years, with the remaining distributed almost equally above and below this age range. About 40% of them perceived themselves to be of average or lower technology proficiency while the rest perceived themselves to be advanced or expert.

3.1 Information seeking
Savolainen distinguishes between orienting and problem-specific information seeking in everyday contexts (2008, p.83). For seeking orienting information to monitor everyday events, participants relied a lot on radio and television programs; they also accessed these programs online. They went to websites recommended by others or to websites they were familiar with through experience. Using new websites was challenging for them due to unfamiliarity with the layout. For seeking problem-specific information, they used 'search' as their primary method. Fifty-four (90%) of them used the Google search engine; mostly of them found it simple and ease of use, although the effectiveness of their use depended on their degree of Web use proficiency.

3.2 Information use
The participants expressed a great need for using online information because of the independence and privacy it provides to their information practices. As can be seen from the table below, which summarizes their daily online information activities, reading news online was the most popular online activity, followed by shopping and seeking health information. Less than half used online banking due to concerns they had about security and difficulties they had with using the websites. Very few booked travel tickets online because they found travel websites to be complicated and generally not very accessible.

Online Information Activities	N (%)
Reading news	43 (72%)
Shopping	38 (63%)
Seeking health information	35 (58%)
Performing banking	29 (48%)
Booking travel tickets	16 (27%)

Table 1. Online Information Activities

The accessibility barriers they experienced made navigation of websites, interpretation of web content and evaluation of the quality and credibility of information difficult, leaving them uncertain and frustrated at times.

3.3 Information sharing

To corroborate their judgment, participants often shared with others their views about the trustworthiness of websites and the quality and credibility of the information they found. They also shared information regarding usage and troubleshooting of technology. They primarily used emails and mailing lists for online sharing, with 42 (70%) being members of 88 mailing lists. Their usage of the more recent online collaboration technologies, which they experienced as rather inaccessible, was low, as can be seen from the table below:

Participation in	Yes N (%)	No N (%)	Not heard N (%)
Mailing lists	**42** (70%)	**16** (27%)	**2** (3%)
Online chat	**28** (47%)	**32** (42%)	**0** (0%)
Social networking sites	**22** (37%)	**35** (58%)	**3** (5%)
Blogs (write/comment)	**10** (17%)	**45** (75%)	**5** (8%)
RSS feeds	**10** (17%)	**39** (65%)	**11** (18%)
Wikis (contribute to)	**2** (3%)	**46** (77%)	**12** (20%)
Tags	**3** (5%)	**39** (65%)	**18** (30%)
Tag clouds	**0** (0%)	**23** (38%)	**37** (62%)

Table 2. Usage of online collaboration technologies

Surprisingly, although 50 (83%) were members of either mailing lists or social networking sites or both, only 11 (20%) said they participated in online communities. Many remarked that although they are members of Facebook©, LinkedIn, Twitter, etc. they are not active because of poor accessibility of the interactive features. Participants P04, P18 and P34 were unable to join some online communities due to the entry barrier posed by visual CAPTCHAs[iii]. Participant P30 was unable to contribute her comments on blogs due to visual CAPTCHAs. Participant P17 remarked that although a lot of blind people use Facebook©, very few of them are satisfied because "*it is syntactically accessible, but not meaningfully accessible since the users don't become enculturated[iv] into the community due to the barriers that are there*". Hence they don't "*feel like full participants*" and are "*unable to get the most information they can, or contribute in ways that they would like to be able to.*"

4. Discussion

Our study shows that community support helps screen reader users in their information seeking/use and technology management, and that poor accessibility of online participatory technologies makes participation in and enculturation into online social communities difficult for them. There is thus a need for promoting inclusion in the online participatory culture for supporting, among other things, the online information practices of people with vision impairments.

The Web today hyperlinks not just web pages containing information but also the people who produce them. It is a social space marked by a participatory culture that provides opportunities for peer-to-peer learning, development of skills useful in the modern

workplace, and a more empowered conception of citizenship (Jenkins, 2009). It is essential for a multitude of voices and participants, including persons with disabilities, to be present in this participatory culture that marks the emerging social Web (Treviranus & Hockema, 2009). Making information accessible is important, and yet as important, and potentially even more important, is making social technologies accessible to facilitate peer support in information practices (Chandrashekar & Hockema, 2009).

5. Conclusion

Our findings suggest that screen reader users with vision impairments derive support from their community in information seeking and use as well as in keeping up with technology skills. The recent online collaboration technologies are not accessible enough to help them share such information within and across the communities. They are also unable to contribute to the Web to their potential, due to technological and enculturation barriers. Greater online participation will expand the opportunities for this group to contribute their unique perspectives to knowledge construction online. The term 'information inclusion', coined by Hendry (2000) in the context of the role of libraries in the alleviation of information poverty, aptly expresses the need of the day to include everyone in every phase of information activity. We believe that supporting diversity is important for promoting synergistic online information practices, and possible too.

> *"… in this digitally transformed reality that we live and work in - where consumption does not consume and space has no limits - there is no downside to inclusion and it is possible to make room for us all."*
>
> *- Jutta Treviranus[v]*

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[i] Definition of 'legal blindness' exists "for the purpose of determining eligibility for services to the blind" (Scott, 1999, p. 40).

[ii] Web accessibility is the degree to which users with disabilities are able to interact with the Web and make use of the information and services provided online.

[iii] CAPTCHA stands for Completely Automated Turing Test To Tell Computers and Humans Apart; it is a technique of access control where the user has to type in the characters provided as a sqiggly image into a text box to gain access to protected resources.

[iv] Enculturation: Process through which individuals learn their group's culture, through experience, observation, and instruction.

[v] http://atrc.utoronto.ca/index.php?option=com_content&task=view&id=1&Itemid=245, para 3, last accessed on April 7, 2010.