Accessibility in the Digital Age: How well do libraries serve the visually & print impaired?

An Annotated Bibliography

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INFO 522: Information Access & Resources
December 6, 2009
Introduction

This bibliography is intended to address the challenges, successes and shortcomings of the technologies and the usability of services afforded to blind, visually impaired, partially sighted and print impaired library patrons. There is no specific geographic focus, but there has been thoughtful inclusion of resources referencing services in the following countries: the United States, the United Kingdom, Korea, Denmark, and New Zealand. The articles presented were published between 2002 and 2007, and were chosen based on their topic focus and currency with respect to the technologies and services referred to within.

Description

According to the World Health Organization, the estimated number of visually impaired persons has topped 314 million worldwide (2009). Given the magnitude of this population it is surprising that they remain underserved in the global community. There is also still some debate as to what constitutes a visually impaired person which in turn affects who and how information services are made available. In recent years there have been studies testing the usability of new and predominately digital assistive technologies, but there still exists a necessity for further research. Closing the gap between user needs and capabilities and the standardization of services and access equipment will lend itself to real universal access to information for visually impaired people.

Summary

Defining what it means to be visually impaired is necessary to comprehend the scope of challenges that libraries and other information centers face. It goes beyond simply lacking the ability to see. Blindness is a scale of measures from seeing absolutely nothing to having partial sight up to the level that the government sets as the limit to be registered as blind (Tucker, 2007, p. 849). It is important to note that most visually handicapped people lose their sight in middle age or later and few of them learn to read Braille because the tactile sense diminishes with age (Cylke et al., 2007, p. 801). But it is not these individuals who are classically thought of in terms of the blind community. But rather it is the most vocal part of the user community that consists of blind people who have grown up in the visual impairment education system as Braille users that we recognize as needing assistance and it is they who contribute the most to policy
formulation as opposed to adventitiously blind people who are highly resistant to Braille and require large print and/or audio books and documents (Carey, 2007, p. 770).

Because people receive up to 90% of their information through sight, blindness has the potential to cause reduced mobility, diminished employment opportunities, problems performing daily tasks, and a general sense of isolation. But through digital technology the visually impaired can solve these problems through the use of easily accessible talking books (Cylke et al., 2007, p. 796). For blindness agencies digitization brings an even greater advance: the opportunity to structure audio so that the reader can move around the text with the facility of a sighted person holding a book and flicking it through (Morgan, 2003, p. 236).

Other challenges beyond the scope of institutions exist. For instance, current and impending legislation relating to the provision of services to disabled people has forced many organizations to reconsider their strategies and policies for service provision (Brophy & Craven, 2007, p. 952). Mandates and government policies can be the determining factor in how or when an organization addressed the visually impaired users in its community. Barriers can also arise because many disabled people cannot afford, or are not motivated, to upgrade their assistive software to the latest version (Brophy & Craven, 2007, p. 962). And with respect to areas considered poor or developing, education is considered a privilege. Without provisions for visually impaired users any consideration of the supply of books, cost must be weighed against the benefits that can be provided (Tucker, 2009, p. 849). As a consequence the majority of materials and equipment for blind and partially sighted children is funded by charities from developed countries rather than being part of government spending (Tucker, 2007, p. 850).

To the chagrin of visually impaired users time gaps exist between print and alternative format production. During the first quarter century of the digital age during which convergences in production have become more obvious, the impact of computing on Braille, modified print, and synthetic speech production has been surprisingly small (Carey, 2007, p. 769). However in the case of the LG DTB Library, it can provide text voice books in machine-generated voice within two weeks of for the fastest possible availability of new publications. This turnover rate is unmatched by a Braille book or voice book in natural voice that usually requires one to two months to produce and cannot be quickly updated (Kwak & Bae, 2009, p. 633).
There are a few specialized services that have come into existence like InfoEyes, which was created to provide multi state virtual reference and online instruction. According to the founders of InfoEyes, the intention was to provide a virtual reference experience that would be inclusive of blind, visually impaired and print impaired users and would offer the usual components of any mainstream service and enable the user to communicate with a librarian through email, live chat, live session using voice over IP and page pushing capabilities (Rossman & Durivage, 2009, p. 75). Also the LG DTB Library in Seoul, South Korea is claiming to be the world’s first ubiquitous library for the blind and was established on April 17th, 2006 and realizes the new idea of providing voice books to the blind via computers and mobile phones through the state-of-the-art ubiquitous technology (Kwak & Bae, 2009, p. 624).

The value of digital conversion also has the potential for including other types of users outside the acceptable scope of visually impaired such as those with dyslexia, learning disabilities, the inability to hold a book, follow a line of print, or focus or concentrate (Tank & Frederiksen, 2007, p. 934). Even if information access opportunities are equally provided to all, what matters is information literacy. The physically handicapped usually have more limited chances to learn how to use information than the non-handicapped. Moreover, although it is expected that the rapidly growing information technology will solve the problem of information access disparity, more advanced technology is often accompanied by more complicated means of use; thus the handicapped find greater difficulty in using information (Kwak & Bae, 2009, p. 624). As libraries provide more accessible services and information, they will be more likely to attract new users, including those with visual disabilities (Power & LeBeau, 2009, p. 64).
Bibliography


Abstract: The increasing provision of Web-based information resources has moved from a simple text interface to dynamic and interactive designs. While this move has provided people with a more creative and flexible experience, there are dangers that some people will be excluded because they cannot use standard methods of access. Research has shown that people with disabilities are most at risk of being excluded from access, and in particular people who are blind or visually impaired and who use assistive technologies such as screen readers. In a library environment, ensuring access for all is important because the method of delivery is predominantly Web-based and the development of e-book provision will provide increased opportunities to access library services remotely. This article reviews some key issues relating to Web accessibility, identifying methods of access, principles of accessibility and usability, and how Web accessibility can be assessed. Studies show that despite a growing awareness of Web accessibility issues, people are still experiencing barriers to access. Research initiatives identified in this article, and the development of the W3C WAI WCAG version 2.0, show that the research momentum is being maintained, and together with specific library-oriented research this can only be positive for the development of the profession’s practice in this area.

Annotation: Peter Brophy, former director for the Centre for Research and Library Information Management and Jenny Craven, a librarian and research associate for the CERLIM have been involved in a number of research studies concerning accessibility with a focus on those with visual impairments. This joint article on accessibility acts as a summary of significant research studies, surveys, consortiums, and initiatives. It purports that the principle of “design for all” and universality is paramount to achieving accessibility. This is in direct opposition to a specialized service such as InfoEyes as presented in the article by Rossman and Durivage.

Database: Social SciSearch (Dialog)

Method of Searching: Keyword search
Search Strategy: s (library () services)/TI, AB, DE

s (visually () impaired OR blind? OR partially () sighted)/TI, AB, DE

s dt=articles

s s1 and s2 and s3


**Abstract:** This article is a personal account of the challenges faced by a library school lecturer who loses sight later in life. It illustrates the difficulties faced by visually impaired people in the United Kingdom in obtaining access to reading materials for work, educational, and leisure purposes. It also considers their future prospects.

**Annotation:** Gillian Burrington is a member of the board of trustees of the Royal National Institute of the Blind, has written numerous articles on librarianship and equality, and is a visually impaired person. This first person narrative provides unique insight into the behaviors and preferences of assistive technologies of a visually impaired individual and the variety of shortcomings within the system. The most interesting aspect is that the individual in question (and the writer of this article) are information professionals and visually impaired information seekers.

**Database:** Library, Literature & Information Science Full Text

**Method of Searching:** Browsing journal titles

**Search Strategy:** I searched for other articles from *Library Trends* based on previous relevant results originating from the same journal.

**Abstract:** The ADA mandates that library programs and services be accessible to people with disabilities. With the advent of the WWW, the popularity of commercial Web-based resources in academic libraries has soared, but are these resources accessible to people with visual disabilities? This study examines the accessibility of two popular Web-based abstracting and indexing services, Periodical Abstracts, offered by OCLC FirstSearch, and Gale Group’s Expanded Academic ASAP, when accessed by blind users using screen-reading programs. The study measured accessibility based on guidelines from the amended Section 508 of the Rehabilitation Act of 1973 and on the Web Content Accessibility Guidelines issued by the WWW Consortium. The findings indicate that, while each database has a high degree of accessibility, there is a need for Web developers to conduct usability testing of commercial databases with people who rely on screen readers for access to the Web. Librarians must be cognizant of accessibility issues and demand assurance from database vendors that their products are accessible.

**Annotation:** Suzanne Byerley is the Library Instruction Coordinator and an Associate Professor at the Kraemer Family Library at the University of Colorado at Colorado Springs. Mary Beth Chambers is an Associate Professor and Archives/Catalog Librarian at the same institution. Their study involving students at the University of Colorado is similar to that of Power and LeBeau’s. However there is an inclusion of how closely the databases in question adhere to the mandates set forth by the amended section of the Rehabilitation Act of 1973 in America.

**Database:**
- ERIC (Dialog)

**Method of Searching:**
- Keyword search

**Search Strategy:**
- s (library () services)/TI, AB, DE
- s (visually () impaired OR blind? OR partially () sighted)/TI, AB, DE
- s dt=journal articles

**Abstract:** Library services for blind and visually impaired people (VIPs) have been inextricably tied up with alternative format production, which has never risen above 4 percent of standard-text publishing. The impact of digital publishing has been modest on Braille, modified print and audio; this partly results from production methods but also from defensive copyright in which the rights of authors outweigh consumer access rights. In this instance librarians should: assert customer rights against author rights; require piracy evidence; work towards a global digital accessibility library; and advocate a generic right to information. In a global digitally converged environment VIPs will need help with navigation, data evaluation and file migration; these needs will alter the traditional, neutral, role of librarians, transforming them into facilitators, covering what were traditionally described as broadcasting and telecommunications. The biggest single problem for VIPs will be the explosion of digital static and moving pictures.

**Annotation:** Kevin Carey, born blind is chairman of the Royal National Institute of the Blind. Carey presents an interesting perspective on the role of visually impaired persons and their responsibility to recognize their limitations. He claims that it is the opposing sides of information seekers and information providers that create the greatest barrier in terms of information access and even goes so far as to speculate that is the visually impaired population that are “the greatest obstacle to progress” (783).

**Database:** Social SciSearch (Dialog)

**Method of Searching:** Keyword search

**Search Strategy:**

s (library () services)/TI, AB, DE

s (visually () impaired OR blind? OR partially () sighted)/TI, AB, DE

s dt=articles

**Abstract:** Since the early 1930s federal legislation has enabled the Library of Congress to offer free library service to blind and physically handicapped individuals resident in the United States as well as to U.S. citizens overseas. Technological changes in the program have mirrored and sometimes anticipated transformations and developments in the world of consumer electronics. Braille is now accessible over the Internet by means of specialized keyboards; audiobooks, originally cut onto rigid shellac 78-rpm disks, have progressed to flexible discs and a refined analog cassette technology that will in turn soon be replaced by digital flash-memory cartridges playable on efficient, reliable, lightweight, and portable machines. The National Library Service for the Blind and Physically Handicapped looks forward to the inauguration of its new digital system in 2008.

**Annotation:** Frank Kurt Cylke, Michael Moodie and Robert Fistick are, respectively, director, former deputy director and special assistant to the director of the National Library Service for the Blind and Physically Handicapped. The history portion of the article creates a backdrop for where and how the technology and equipment of accessibility has progressed to the current offerings. Digital talking books and Web-Braille are just the latest technologies endorsed by the NLS and made freely available to the large population of Americans who are visually and print impaired.

**Database:** Library, Literature & Information Science Full Text

**Method of Searching:** Browsing journal titles

**Search Strategy:** I searched for other articles from *Library Trends* based on previous relevant results originating from the same journal.

**Abstract:** Purpose - Usability tests to improve information accessibility for the blind have rarely been carried out. Recently, the LG Digital Talking Book (LG DTB) Library has developed a ubiquitous service, which provides the blind with library service anytime, anywhere, using mobile phones with the automated library access procedure. The main purpose of this paper is to draw up a better plan to improve information accessibility for the blind through the usability test of the service being made by the LG DTB Library.

Design/methodology/approach - An online survey and in-depth interviews are conducted among the blind, and usage statistics analysis of the Digital Talking Book Library services and web server log analysis are carried out together for the usability test.

Findings - The blind respondents answer that late updates of new publications, unbalanced subject areas, and lack of educational contents are the most serious problems in reality. The paper also showed that handy-to-carry information terminals like mobile phones are very much favored by the blind.

Originality/value - This paper has a unique value in that the real effect and usability of the ubiquitous library service for the blind is investigated for the first time.

**Annotation:** Seung-Jin Kwak is the Professor at the Department of Library & Information Science, Chungnam National University, Daejeon, Korea and former librarian at the LG Sangnam Library. Kyung-Jae Bae is the Manager of the LG Sangnam Library in Seoul, Korea. The findings of their survey shows how the LG DTB Library in Seoul has managed to create a user centric system that enables its visually impaired patrons to access digital talking books via mobile phones and other web related access points. Statistical information tables are included.

**Database:** Social SciSearch (Dialog)

**Method of Searching:** Keyword search

**Search Strategy:** s (library () services)/TI, AB, DE

**Abstract:** The Royal New Zealand Foundation for the Blind (RNZFB) currently lends talking books on audio cassette to blind and vision impaired New Zealanders. RNZFB belongs to the international consortium which has developed the DAISY digital talking book standard. Whereas analogue talking books are linear, DAISY books are structured so that the reader can navigate around the text with the facility of a sighted person looking through a printed document. DAISY books can also be multimedia productions that support more than one format. In progressing its use of digital reading technology, RNZFB will enhance the reading experience, decide how best to deliver book files, and form local and international partnerships to increase the range of reading material available to its members. The reading solutions adopted by RNZFB could become a model for the wider community of print disabled people.

**Annotation:** Dr. Greg Morgan is manager of Library and Information Services at the Royal New Zealand Foundation for the Blind. As the primary provider of habilitation services to the population of New Zealand, digitization is integral in its ability to distribute materials effectively to its membership. However, the RNZFB is not a government funded institution and therefore must restrict access to individuals who are considered print impaired. Exclusion of particular impaired groups is in direct opposition to the theory of universal design.

**Database:** Social SciSearch (Dialog)

**Method of Searching:** Keyword search

**Search Strategy:** s (library () services)/TI, AB, DE

**Abstract:** Many libraries striving to provide accessible resources to people with visual disabilities stop at the door of the omnipresent database. Given the extent of database use today, the article questions whether we shortchange our visually impaired users we do not examine the accessibility of these electronic resources and encourage database vendors to improve their products. Libraries have moved at varying speeds in servicing the needs of the visually impaired, both in providing helpful web site service pages and in providing the extra measure of reference assistance necessary for database access and use. This article examines a sampling of academic library web sites to determine how libraries might improve service and access for this specially challenged population.

**Annotation:** Rebecca Power, a science librarian and Chris LeBeau, a business librarian at the Miller Nichols Library at the University of Missouri-Kansas City have produced a study that tests the usability and service of academic libraries’ and database vendors’ web sites. Power and LeBeau use screen reading programs (Jaws and Window Eyes) to evaluate the ease of access of these sites and rate the quality of information regarding existing disability services web pages based on a predetermined rating scale. Their findings are not statistical in nature but they conclude that database accessibility remains generally inadequate and screen reader software continues to be a concern.

**Database:** Library & Information Science Abstracts

**Method of Searching:** Controlled vocabulary

**Search Strategy:** DE=(“blind and partially sighted” and “libraries”)

**Abstract:** This article discusses the InfoEyes Information Service, an innovative virtual reference service for individuals who are print-impaired, which began as a pilot project in 2004 and continues to serve this historically underserved population. The context for this discussion is framed by a brief historical summary of the provision of library services for people who are blind or visually impaired in the United States. Challenges facing this service such as accessibility of virtual reference chat products, reference staffing issues in talking book libraries, and the relationship to public library virtual reference services are also presented.

**Annotation:** Linda Rossman who is the reference services librarian at the Perkins Braille and Talking Book Library along with Catherine Durivage, the library program director of the Minnesota Braille and Talking Book Library have composed a summary of events concerning the progress of InfoEyes, predominately during its original test phase. It is clear that the implementation of such a service is not shared by all institutions whose goal is to serve the population in question. After the initial trial period a number of libraries that participated in the six month trial dropped out citing that a separate service beyond the public library system was not the solution.

**Database:** Library, Information Science & Technology Abstracts

**Method of Searching:** Controlled vocabulary

**Search Strategy:** (DE “Libraries & people with visual disabilities”) OR (DE “Libraries & the blind”)

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**Abstract:** The emergence of the modern information society and the rapid development of Information and Communications Technology (ICT) has spurred libraries serving visually
impaired people to cooperate globally in order to manage the transition from analog to digital services. The formation of the DAISY Consortium in 1996 led to the concept and fundamental ideas of the digital talking book. The result is an international standard for digital talking books, which is now becoming a multimedia standard. DAISY has developed new partnerships, new working methods, and new ways of thinking. The digital vision has improved library services to print-impaired people and changed the participating libraries themselves. Today some DAISY libraries are close to becoming fully digitized, and DAISY technology is heading into mainstream use. Users may soon be entering a global virtual library, and the DAISY experience may in many aspects serve as a model for future library developments.

**Annotation:** Elsebeth Tank is the former director of the Danish National Library for the Blind and president of the Daisy Consortium and is currently chief librarian of Malmo City Library in Sweden. Carsten Frederiksen is the former International Executive Assistant to the DAISY Consortium and a freelance journalist and publishing editor. Tank and Frederiksen outline the formation of the DAISY standard and the creation of the DAISY digital talking book. The goal of making DAISY a mainstream format as a means of social inclusion that includes a case study for the Danish National Library for the Blind regarding their full transition from analog to digital DAISY technology.

**Database:** Library & Information Science Abstracts

**Method of Searching:** Controlled vocabulary

**Search Strategy:** DE= (“blind and partially sighted” and “libraries”)

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**Abstract:** The notion of developing countries needs definition, as do the concepts of visual and print impairment. The article looks at the situation of print impaired people in various countries and proposes possible activities to meet their needs based on existing projects and experience.
Annotation: Richard Tucker, now retired from the FORCE foundation which is devoted to supporting the development of library services for print impaired readers in developing countries, has written a myriad of books, conference and journal papers on the topic of libraries and education. Much of the article illustrates the library services the FORCE foundation has created for visually impaired individuals within Latin America, Southeast Asia and Africa. Although cutting edge assistive technologies and web access are not addressed, it is important to include the information and statistics presented by Tucker in order to ensure developing nations are not disregarded in the move toward standardization of accessibility.

Database: Library, Information Science & Technology Abstracts

Method of Searching: Controlled vocabulary

Search Strategy: (DE “Libraries & people with visual disabilities”) OR (DE “Libraries & the blind”)


Abstract: Providing service to visually impaired persons can provide a special challenge to librarians. This article provides suggestions on making libraries more accessible. Both technological solutions and staff training are addressed.

Annotation: Gretchen Wade is the Reference and Collection Development Librarian at the Harvard University Botany Libraries. Wade addresses the physical, environmental and economic limitations of creating comprehensive accessibility for disabled patrons. She also raises the importance of commitment by library staff and their willingness to accommodate the visually impaired through training of assistive technologies and the ability to respect the rights of the user and his or her choices about what and how they access information within the library.

Database: Library & Information Science Abstracts
Method of Searching: Controlled vocabulary

Search Strategy: DE=（“blind and partially sighted” and “libraries”）

Conclusion and Personal Statement

I’ve come to understand that the current technologies available for disabled library users, particularly those that are blind, partially sighted, or print impaired are a disjointed amalgam of services that may or may not be readily available. Although there are some cutting edge alternate formats being produced, the visually impaired community at large is not benefitting from them. It is clear that the visually impaired, at least for the time being are not provided the same level of access to information that the sighted are afforded. A lack of standardization among the types of services offered and the lack of awareness only contribute to the problem. However there are interesting programs that are pushing forward in this area such as the creation of DAISY format and most notably, the Ubiquitous Library in Seoul.

During my search process for materials for this assignment, I realized that any alteration of terms would yield very different results. It was the creation of my search strategy and my evaluation of the information I retrieved that determined how positive my results were. I came to the conclusion after all of the Dialog and database searching that finding an answer to your query is not the end game, but rather finding relevant, accurate information and analyzing it critically is. I can’t help but be reminded of something I read during our second week of class in chapter 5 of Walker and Janes about database searching. It has stuck with me throughout the term and that is “We want to look for concepts, but are forced to search for words” (1999, p. 63). I tell myself that every time I sit down to search, because if I forget it, I tend to fall into the traps of assuming that whatever information structure I’m searching within already understands what I’m looking for.

Reference List