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# Closing the 95 Percent Gap: Library Resource Sharing for People with Print Disabilities

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## ABSTRACT

Experts estimate that only 5 percent of the world's publishing output is made accessible in alternate formats for people who cannot use print. While some popular commercial digital audio and textual products are available to people with print disabilities, many people do not have equal access to reading materials and other resources. People who cannot use print due to a visual, physical, neurological, or perceptual disability need libraries to provide the equitable access. Libraries need strategic partnerships, improved public policy, and international agreements to fulfill the promise. Equity laws, union catalogs, new technology, standards for production and resource sharing, postal subsidies, and commercial production of alternate formats have all helped. This article focuses on key elements that affect library resource sharing for people with disabilities in the United States, Canada, and the United Kingdom. Challenges include attitudes, organizational isolation, diversity of alternate formats, nonadherence to standards, inaccessible online services, an uncooperative publishing industry, inconsistent access to equipment, and inadequate training. Recommendations are made to improve the legal framework, develop sharing library communities, and apply universal design principles.

## INTRODUCTION

"Libraries have historically served as our nation's great equalizers of knowledge. In today's increasingly diverse and complex information environment, their services are needed more than ever" (ALA, n.d., p. 3).

Yet, this equity does not extend to those who are print impaired: people who cannot use print due to a visual, physical, neurological, or perceptual disability. Experts estimate that only 5 percent of the world's publishing output in English is ever made accessible in alternate formats for people who cannot use print (Canadian Library Association Working Group, 2005). Some of this reading material can be provided by mainstream popular audio books and accessible e-texts that are available to consumers either online or as digital products, just like a bookstore or online shopping channel. However, for people with print disabilities who cannot afford to pay for the consumer products and do not have computers, this marketplace model bars them from full participation in the information society (Kavanagh, 2002).

Despite decades of promoting equity in human rights through legislation, the 95 percent gap in alternate format accessibility for people who cannot use print is still hard to bridge. Resource sharing among libraries is a logical way to proceed. Although some library networks have developed innovative partnerships with private producers, achieving the "library without borders" to meet the "hidden demand" has had significant challenges. This article focuses on ways in which libraries are working collectively to address this issue. It also considers the issues that need to be dealt with in a more collaborative way. These include both advocacy and service delivery issues at the local, national, and international levels. Examples from the United States, Canada, and the United Kingdom will highlight the successes and the major challenges of the collaborative approach to resource sharing.

The International Federation of Library Associations and Institutions (IFLA) says "as information and documents are located all over the world, good libraries have always functioned as part of national and international networks. All libraries for the blind should be aware of collections held in other libraries and borrow less popular items from these sources" (Kavanagh & Skold, 2005, p. 31). The literature shows that successful libraries are working together to address the obstacles by encouraging interorganizational collaboration, planning for diverse alternate formats, developing standards, encouraging accessible online services, providing access to adaptive technology, and, perhaps most importantly, developing training strategies.

## FOUNDATIONS OF RESOURCE SHARING RELATED TO ALTERNATE FORMATS

To understand the context of resource sharing related to alternate formats, this article will first lay the foundation by identifying factors that affect successful collaborative services: diverse customer needs, information-seeking behaviors, social and professional attitudes, the "digital divide," proliferation of formats, and legal issues.

*Customer Needs and Information-Seeking Behaviors*

A major barrier to resource sharing is lack of information about the clients and their needs. Depending on the definitions, estimates suggest that 10 to 20 percent of the general population have print disabilities (AFB, 2005a; Rubin, 2001). Library users who are print disabled are as diverse as the population (Canadian Library Association Working Group, 2005). Access to services is affected when funding agencies use inconsistent and contradictory definitions of who is eligible. People with learning disabilities, in particular, are often excluded from services or subjected to a lower priority of service (Black, 2004). A collective understanding and acceptance of common definitions will assist the process of resource sharing.

A "one-size-fits-all" service approach serves no one particularly well (Creaser, Davies, & Wisdom, 2002; Council on Access, 2000). Some public librarians focus on the elderly population, who read popular books, newspapers, and magazines translated into an alternate format such as audiotape (Evans, 2000). Some educational producers of alternate formats concentrate on textbooks, not aware of the need for access to a much broader spectrum of resources (NEADS, 2004). Higher education students with print disabilities need the same resources as their peers in the same courses (NEADS, 2004). The subject matter ranges across the spectrum of all postsecondary vocational, undergraduate, graduate, and professional courses. These students need access to textbooks, research reports, workbooks, online databases, periodical indexes, course packs, reference material, and audio-visual resources (Epp, 2005). They also need training in information literacy.

Some people access their resources through their public libraries by walking in, browsing, and selecting their own resources, perhaps with the assistance of a reader's advisor (Corrigan, 2003). Others require products to be delivered to their homes, assistive living centers, or extended care homes (Ryder, 2004). Those people with computers, technological skills, and adaptive technology want their books delivered directly to them electronically over the Internet. Some academic clients do their own searching in catalogs; others ask librarians for assistance (Saumure & Given, 2004). To meet the diverse needs, libraries need to move beyond their own boundaries to maximize the expertise and services of each and learn from each other.

*Social and Professional Attitudes*

"The single most important aspect of creating an accessible environment is staff attitude" (Wade, 2003, p. 311). "Our professional forefathers institutionalized social exclusion" by creating charity organizations such as the National Library for the Blind, beginning a long period of separation and neglect of blind readers (Owen, 2004, p. 58). In the UK, librarians say they struggle "alone to cope with a sometimes hostile institutional environment

where equality of access for disabled users was seen by management as a nuisance or even a waste of time” (Chapman, McFarlane, & Macwilliam, 2004, p. 40). “Students with learning disabilities are the largest group of students with disabilities on most college campuses . . . little research has been done to determine the nature and extent of barriers . . . to information. The presence of assistive technology in and of itself does not guarantee that these students will have access to information technology” (Wimberley, Reed, & Morris, 2004, para. 1). Many students in higher education do not know what is available to them through their academic libraries. This lack of awareness becomes an enormous barrier to making the information world, whether digital, print-based, or multimedia, accessible to print-disabled persons (Hicken, 2002). Conversely, there is a growing awareness by service providers and consumers that the expectation by some higher education institutions for students to “self-publish” alternate formats may not be the most productive use of the student’s time (NEADS, 2004). Education about the needs of people with print disabilities, for library institutions themselves and for the public, is an important area where collective action is needed.

### *The “Digital Divide”*

The “digital divide” is still a reality for many people who need to access Web sites and do not have access to technology and training (Yu, 2002). Many people—even inadvertently—impede information access by not understanding visually impaired students’ particular needs (Saumure & Given, 2004). Web-based library resources need to be made more accessible: “A library’s digitization project may make thousands of documents easily available to library users even when hundreds of miles away, but if this digitization involves little more than the scanning of printed materials that are posted on the Web in graphical image formats, then the information contained in these documents is rendered inaccessible to someone who must use synthetic speech technology to read the document” (Noble, 2002, p. 400). As a consequence of inaccessible materials, users with print disabilities do not have access to the quality and quantity of resources that have already been produced by various agencies (Blaeser, Creedy, & Epp, 2004).

People with visual impairments are also often unable to participate in activities outside the home because they do not have access to way-finding information (Marston & Golledge, 2003). Physical access to libraries is only one of the issues relating to the “hidden demand,” preventing people with print disabilities from accessing libraries (Ryder, 2004). “The real irony is that in this age when technology can potentially open up the world of information to people with print disabilities, they are being locked out through inaccessible Web design and cheap digitization of text (where text is simply an image rather than marked up text).” (Canadian Library Association, 2000, p. 2).

### *Proliferation of Alternate Formats*

For the resources to be accessible, print materials need to be transcribed into an alternate format or produced in a form that is compatible with adaptive or assistive technology. Multimedia material needs to be provided in an alternate format so that all aspects of information become accessible. Descriptions of some of the formats are provided in the Appendix. The convergence of technology, diversity of alternate format products, and proliferation of new playback and storage devices are simultaneously expanding and decreasing access. No longer are braille, large print, and analog tapes the only possible formats. Increasingly, libraries are adding digital formats for people to read text and listen to audio books. As a consequence of the proliferation of formats and products, libraries are challenged to plan their services with all the formats in mind (Mates, 2004). As a corollary, consumers themselves need to learn to use a number of different formats (Bell, Ruda, & Peters, 2003).

### *Legal Issues*

Many countries have laws governing equity of services for people who have disabilities. In the United Kingdom the Disability Discrimination Act of 1995 makes it “illegal to discriminate against disabled people by refusing to serve, by deliberately not providing a service that is normally offered to other people, by offering a lower standard of service, or by treating the disabled person less favorably” (Ryder, 2004, p. 6). The “elusive visually impaired audience” represents a major dilemma in identifying clients for marketing library services (Kirchner, 2002). Additionally, the Special Educational Need and Disability Act (SENDA) in the UK guarantees equal access to education and resources. In the United States the Americans with Disabilities Act of 1990 (ADA) banned disability discrimination by public or private entities. Sections 504 and 508 of the Rehabilitation Act of 1973 extended rights of reasonable accommodation. In Canada equal access is guaranteed in the Canadian Charter of Rights and Freedoms and in the “duty to accommodate” as an operational requirement in the federal and provincial human rights laws (Council on Access, 2000).

Unfortunately, such equity laws have not eliminated legal barriers to full access, especially where copyright law intervenes (McGreal, 2004). Despite progress in providing exceptions for people with perceptual disabilities, copyright laws represent a confusing mass of limitations that impedes access within a country and internationally. Copyright exceptions for people with print disabilities are often jurisdictional or narrowly defined within national boundaries. While the Chafee Amendment provided an exception for people with disabilities, the United States controls access by requiring the use of equipment and devices specially designed for people with disabilities, restricts production to authorized agencies, and limits the genres that may be transcribed without permission (Lingane & Fruchterman, 2003).

In this respect, Canadian copyright law is more helpful in that it defines exceptions in terms of the print disabled population, rather than formats, and allows people with print disabilities to make alternate formats for themselves or to have others make products for them. However, large print is excluded. In Great Britain the law applies only to visual or physical impairments, not learning disabilities.

Federal and state education laws in the United States have extended access to textbooks in their states. Unfortunately, the federal Individuals with Disabilities Education Act (IDEA) addresses only elementary and secondary schools, not higher education (AFB, 2005b). Many states also have education and braille laws with varying requirements. However, the presence of education laws has not guaranteed timely and equal access (Martinengo, 2005). As a consequence, production centers, such as the Alternate Text Production Center in Ventura College, California, have developed statewide services for the production and distribution of electronic text, braille, and tactile graphics. Because of the legal restrictions, producers of alternate formats outside the state cannot share existing products and often request publishers' electronic files all over again. Copyright laws need to be upgraded and harmonized internationally to permit libraries to produce and share alternate formats. The legal framework will need to be revamped through the World Intellectual Property Organization, so that any library may convert material from one format to another to make it accessible for persons with disabilities (ARL, 2005).

## LIBRARY RESOURCE-SHARING ENVIRONMENTS

To bridge the gap, some libraries and other service providers have successfully collaborated and have moved beyond their traditional organizational isolation to form intersecting networks of complex relationships. There is also some evidence that schools, higher education institutions, and format-specific agencies that previously operated in isolation are beginning to discuss mechanisms for sharing and/or adherence to nationally and internationally accepted standards that will facilitate resource sharing. These organizations include educational institutions (public and private), public libraries, specialized national libraries, private foundation libraries, charitable institutions, format-specific organizations, and commercial sectors.

### *Networks*

Library services for people with print disabilities can generally be divided into two categories: the focus on primarily popular titles to meet the reading wishes of many, and the "on demand" service for an individual. Successful library networks provide services that cover more than collection building, access, and delivery. They also provide the means and methods to produce and develop standards. They act as advocates for better legal support, cooperation with the publishing industry, and more enlightened

public policy to improve the delivery of products. They collaborate to expand service eligibility, provide access to adaptive equipment, and train staff and users.

Founded in 1931, the National Library Service for the Blind and Physically Handicapped (NLS) in the United States is the most comprehensive resource-sharing network for public library services. Its large central library networks with fifty-seven regional and seventy-nine subregional libraries, including state, public, and private libraries. In 2004 NLS circulated almost 24 million recorded and braille books and magazines to approximately 800,000 people throughout the United States and U.S. territories (NLS, 2005). Since its beginnings, NLS has cooperated with libraries and organizations for the blind outside the United States. NLS was also a founding member of the Library for the Blind Section of the International Federation of Library Associations and Institutions (Cylke, 2002), which encourages international cooperation, standards, and advocacy to improve worldwide access.

Texas was one of the first states to join the NLS Network (Elder, 2002). Promotion of the services is the key to its success. Readers range in age from 6 years to over 100 years of age and have a wide range of visual, physical, and learning disabilities. A key component of the service is home delivery, using Free Matter for the Blind or Handicapped. The Texas State Library and Archives Commission, NLS, and public libraries fund the services jointly.

In collaboration with the NLS, the Oregon State Library offers supportive library services to community, academic, and school libraries that cannot fulfill their mandates on their own (Avery, 2003). The library provides braille; talking books; playback machines; and descriptive videos and includes access to fiction; nonfiction; books in Spanish, Russian, and Japanese; braille; twin-vision; newspapers; magazines on tape; old time radio shows; and contemporary videos and music. The rich network of the NLS extends through interlibrary loan to authorized libraries outside the United States (NLS, 1990). However, further development is needed to expand the delivery of Web-braille and digital formats outside the United States (NLS, 2003).

In Canada the Canadian National Institute for the Blind (CNIB) offers a partnership with a variety of public, academic, and provincial libraries. The Visunet Canada Partners Program is a centralized voluntary program based on a subscription fee to the charity (CNIB, 2005). The program extends local library services to clients who have a learning disability and are unable to access CNIB directly. Clients have access to the online digital audio collection, mail delivery of audio titles, and online access to the most popular books available through NetLibrary. Access is provided to books, newspapers, magazines, and other published works via postal delivery, local library access, and digital delivery. The materials include audio books in analog and digital (Digital Accessible Information System—DAISY) formats, digital electronic texts, access to full-text databases, descriptive videos,

braille music and music instruction, newspapers, magazines, e-braille, and Web sites. Further development is needed to permit intermediaries, such as partner libraries, to also access the digital material for transcription into other alternate formats, such as braille. Direct access for intermediary libraries will also expand the library's capacity to troubleshoot access for their clients at the local service level. While this is a promising program, it is still voluntary, it is not yet nationally funded, and it is not yet fully developed.

The "Share the Vision" program in Great Britain is a growing "mixed library economy" of commercial and voluntary producers of a range of alternate format materials accessible to a range of visually impaired people (Corrigan, 2003). Resources are available in braille, moon, large print, giant print, audio, and electronic formats. Service delivery is provided from both the voluntary and public sector (Owen, 2004). Partners include diverse services such as the Royal National Institute for the Blind Talking Books Service, Calibre Cassette Library, and the National Library for the Blind and Talking Newspapers Association, along with public libraries (Creaser, Davies, & Wisdom, 2002). The concept of "Share the Vision" is "Any visually impaired person should be able to contact any library and information service of their choice and be able to request any item in whatever format they prefer, whether for leisure, educational or other purpose and feel confident that all reasonable and informed steps will be taken to ensure that it is located and retrieved, or possibly reproduced in the requested format and forwarded to them at their preferred location" (Owen, 2004, p. 59). Through the "Branching Out" program, the national library works with public libraries to deliver more services and to extend the training and materials to all library authorities in England.

In the educational field, a survey of American school agencies for students with print disabilities concluded that a centralized model of production and delivery in each state was the preferred mode, using Instructional Materials Centers or Instructional Resource Centers (Wall & Corn, 2002). The reports of California higher education centers for alternate format production indicate a growing trend toward cooperation and collaboration among postsecondary institutions that have operated in isolation for some time (Martinengo, 2005). In Canada the Canadian Association of Educational Resource Centres for Alternate Format Materials (CAER) formed a consortium of eleven centers of production and delivery, which include provincially mandated libraries, one private library, and two university libraries to deliver resources across Canada to students in the K-12 system and to students in higher educational institutions served by the provincial centers. CAER's main strength is its collaborative and collective approach to serving students with print disabilities in Canadian postsecondary institutions (CAER, 2005). The services include interlibrary loan services, production of alternate formats, reference and information services, partnerships with internal departments and outside agencies, research and development, ad-



vocacy and public policy development, and training and literacy. CAER has developed protocols for borrowing and lending resources within the consortium. This practice has ensured the optimization of existing resources, the efficient sharing of resources, and cost savings in production.

In response to SENDA in Great Britain, academic librarians in southern England established a grassroots, self-help group called CLAUD (Consortium of Librarians in Higher Education Networking to Improve Access for Users with Disabilities in South and South West England) (Harris & Oppenheim, 2003). Eighteen academic library members paid an annual subscription fee to belong. The model was replicated in Wales (with Claud Cymru), the North East, Yorkshire, the Midlands, and around London. The original network participants lobbied to make publishers' files more available. They formed the network to support information exchange and research as well as raising awareness within the profession. They advocated a national standard-setting body to encourage equality in the provision of resources. To spread costs, some librarians suggested that libraries should provide local hubs and borrow items when required. Although initially focused on physical accessibility, the librarians also took on the tasks of making library catalogs more accessible. Some of the libraries offered links to external national resources, such as the Royal National Institute for the Blind.

### *Partnerships*

Partnerships between libraries and commercial providers of audio and e-books show great promise. Publishers of popular books are increasingly offering commercial audio formats for sale. These resources are migrating from cassettes to CD outputs and rapidly on to downloadable formats. Although much of the material is abridged, many public libraries purchase the commercial audiotapes of popular works, decreasing the gap in access. Audible.com, a major online supplier in the United States, offers over 34,000 popular books, newspapers, and television programs in spoken word available for downloading on the computer to CDs or AudibleReady computer-based mobile devices (Audible, Inc., 2005). Downloadable Audiobooks from NetLibrary and Recorded Books, a division of the Online Computer Library Center (OCLC), delivers popular audio books to libraries through the Web (OCLC, 2005). Small and large libraries are using the service with a high level of download traffic. The NetLibrary of electronic texts is also available on subscription to libraries worldwide (OCLC, 2005). The aggregators of these commercial services are working with libraries to provide extended services to clients with disabilities. The commercial development of content frees libraries to concentrate on services and production of lower-volume titles rather than production of many of the popular titles.

Other sources of alternate format materials are electronic texts and online resources. Libraries in the United States and Canada purchase subscription services for electronic text and digital services for journal articles

and encyclopedias. Many of these resources are accessible through screen readers and other adaptive devices. Further collaboration between libraries and commercial suppliers is needed to remove the remaining barriers to make more e-books accessible through adaptive technology. In addition, libraries and commercial producers need to identify and implement the features such as downloadable text, book marking, searching, and other navigational features that will make the resources more usable. Libraries and commercial aggregators need to work collectively to produce a single source list of all of the available e-text and digital online services that may be accessible.

Individuals or libraries may also borrow educational resources through a service such as Recording for the Blind and Dyslexic (RFB&D) in New Jersey. RFB&D is a nonprofit organization producing audiotape books, electronic texts, and digital audio (DAISY) books (RFB&D, 2005). Individuals may subscribe through a membership fee, an annual fee, and a "per transaction" fee for delivery of specific titles. There are also institutional memberships within the United States. Since international loans are restricted to analog audio books, further discussions and agreements are needed to extend the loan of DAISY books from RFB&D outside the United States.

#### *Union Catalogs*

Union catalogs for alternate format materials have been a major cooperative success. In Canada the AMICUS Catalogue of the Library and Archives Canada, including the Canadian Union Catalogue of Alternate Format Materials, or CANUC:H, provides access to the location of existing resources (AMICUS, 2004). CNIB and most CAER members report their holdings to the AMICUS database and to CANWIP (Canadian Works in Progress.) In 2004 the Canadian Association of Educational Resource Centres for Alternate Format Materials and Library and Archives Canada jointly developed cataloging standards for tactile graphics to facilitate resource sharing (Katic & Lowenberg, 2004).

Since 1992 the alternate format holdings of interested CANUC:H contributors have also been sent to the union catalog of the National Library Service for the Blind and Physically Handicapped at the Library of Congress (Lowenberg, 1998). To qualify for participation in the union catalog, libraries and producers outside the United States agreed to allow international interlibrary loan or sale of their alternate format materials (Lowenberg, 1998). Ironically, reciprocal arrangements for digital formats are not available internationally from the United States.

Revealweb is an emerging national database of resources in the United Kingdom in accessible formats using the highest metadata standards (Revealweb, 2005). Supported and managed by RNIB and NLB, Revealweb is a multifunctional, Web-based, fully accessible database of over 100,000 titles from fifty-five organizations (Owen, 2004). It lists resources in braille,

braille music, moon, audio and digital talking books, large print, tactile maps and diagrams, electronic text files, audio described videos, and other formats. The Register of Suppliers also includes private producers who loan and/or sell their products. This database is a one-stop shop for determining whether an item has already been produced, thus fulfilling the requirements of UK copyright law for searching for the existence of alternate formats before beginning a new production (Revealweb, 2005).

In the United States the LOUIS database at American Printing House for the Blind, Inc. lists accessible books in braille, large print, sound recording, and computer files from agencies and publishers across North America (LOUIS Database, 2005). Hopefully more agencies, such as postsecondary institutions that produce alternate format materials, will report their holdings to the national databases to expand the accessibility of materials and reduce the information gap.

### *Standards*

Standards are needed for alternate format production, universal design of information, and resource-sharing services. Alternate format producers want a single electronic file as a master to efficiently create a variety of formats, including e-text, braille, DAISY- and ISO-DAISY-compliant books, and other digital audio MP3 formats (Council on Access, 2003). Major alternate format producers for digital audio, e-text, and braille materials use production standards. Hopefully, more producers of alternate formats, especially in the academic field, will adopt the standards to produce materials that can be effectively shared.

Individuals, particularly in the educational community or those with adaptive technology, want individual access to publishers' electronic files. Currently, access to publishers' files is inconsistent at best. Some publishers are very willing to provide an electronic file to a producer or even directly to a student. Others take a long time to respond. Sometimes the file is provided in a publishing code that requires "deconstruction" and translation into a useable format. Electronic files in "image" PDF formats are not easily transcribed into alternate formats. The most commonly accepted file format for publishers' files is emerging as NIMAS (National Instructional Materials Accessibility Standard), a subset of the DTBook element set of the ANSI/NISO Z39.8 standard; it is used by American Printing House's Accessible Textbook Initiative and Collaboration (ATIC) project (ATIC, 2004). These standards are particularly important in the proposed establishment of publishers' clearinghouses in the United States, Canada, and the UK (Council on Access, 2003). Independent producers, particularly in isolated institutions of higher education, need to consider the minimum standards and also include the descriptions of illustrations, graphs, and charts. The standards will not only promote resource sharing but also provide a more useable product for students (NEADS, 2004).

The vision of the international DAISY Consortium of thirty-one countries is to develop the international standard and implementation strategies for production, exchange, and use of DTBs (digital talking books). The purpose is to maximize accessibility and utility of electronic books and multimedia. The goal is to encourage and foster the establishment of a global talking book library that transcends geographic boundaries and linguistic differences (DAISY Consortium, 2005). To achieve these goals, publishers' collaboration is critical (Kerscher & Sutton, 2004).

In the realm of resource sharing, the NLS has the most comprehensive set of service standards for its network members (ASCLA, 2005). On the other end of the scale are the Proposed Minimum Standards recommended by CAER for academic producers and libraries in higher education in Canada (CAER, 2003).

#### *Postal Subsidies*

The United States, UK, and Canada have postal exemptions from rates for material sent to and from blind persons. The material can be mailed free of charge by individuals, libraries, and other noncommercial organizations serving eligible persons. Printed books, magazines, musical scores, and other reading matter in raised characters, large print, or recorded form are included, along with materials for the production of alternate formats, equipment for writing, sound playback equipment, and mobility equipment. The services are available internationally to authorized institutions. The Canadian Library Book Rate is a subsidy that is also used for mailing books but cannot currently be used for "nonbook" formats (CLA & ASTED, 2004). While these subsidies provide economical delivery and access for people who are blind or visually impaired, the restrictions do not encourage equal access to those people who are learning disabled or physically handicapped. Rural and remote libraries, in particular, may not be able to afford to provide the interlibrary loan services to their clients for alternate formats without postal subsidies.

#### *Access to Equipment*

Transitioning to new digital formats is a challenge for any library system (Mates, 2004). While the NLS lends equipment free of charge to their constituents, the CNIB requires patrons to buy their own DAISY players. In public libraries not everyone has access to the new digital formats because they lack the equipment to play them on. According to a study of higher education students, access to equipment is problematic (Fichten et al., 2003). Equipment loan banks mandated by local governments are a great help for people who qualify, but some of the services preclude many students with learning disabilities from accessing the equipment. As a result, access to equipment for the diversity of formats—such as DAISY books, digital audio, downloadable text and audio, electronic braille, and electronic texts—is unequal (Mates, 2004).

One solution researched by the Mid-Illinois Talking Book Center, one of four subregional libraries of the Illinois State Library Talking Book and Braille service, in conjunction with the NLS and a number of midwestern states, involved creation of a self-service digital library where readers with computers can download their own content (Bell, Ruda, & Peters, 2003). With no additional funds, the eAudio Pilot Project introduced readers to audio books in digital formats with a variety of devices: PC, laptop, Tablet PC, PDA, MP3, or other devices such as Victor Vibe and Telex Scholar. Libraries can be effective venues for leveling the playing field to access by pooling their technological resources and sharing them in a collaborative manner.

### *Training*

Research reports, surveys, and studies emphasize the importance of training for both consumers and librarians (Evans, 2000; Fichten et al., 2003; Hannah, 2003; Mates, 2004). Many librarians lack training in the use of the technology, tools, and sources of alternate formats and adaptive or assistive technology. Users need expert trainers with pedagogical backgrounds who not only utilize the technology but also know how to assess learning styles and how to teach and overcome barriers to effective use of the new technology. They need to be able to identify and locate materials that are available at their own libraries, online, or through interlibrary loan. They need to develop more accessible library Web sites, library catalogs, and online databases (Schmetzke, 2001).

As an example of cooperative training, the British Columbia College and Institute Library Services (CILS) in British Columbia, Canada, delivers regional workshops for academic librarians, disability service providers at higher education institutions, and public librarians in the province to learn about the information environment for people with disabilities (CILS, 2005). The participants learn about public policies regarding access to information, including copyright law. They discover emerging alternate formats and accessibility issues relating to library catalogs, online reference databases, and library literacy programs. In each session a blind user demonstrates the JAWS screen reader to access library catalogs and online databases. In the workshop, options for sharing resources are discussed. Participants identify the gaps in providing services to their clients and plan how they will work on solutions in their own institutions and elsewhere. An outcome of the workshops has been the development of tutorials and demonstrations of alternate formats. These resources are posted on the CILS Web site for other libraries to use (CILS, 2005).

Excellent resources for training are also offered by organizations such as EASI (Equal Access to Software and Information) at the Rochester Institute of Technology (Burgstahler, 2004), DO-IT (Disabilities, Opportunities, Internetworking, and Technology) at the University of Washington

(DO-IT, 2005), and SNOW (Special Needs Opportunity Windows) at the University of Toronto (SNOW, 2005). Many libraries have supported their staff in enrolling in these training opportunities to share experiences and expertise with each other.

## RECOMMENDATIONS AND POTENTIAL SOLUTIONS

In Stan Skrzyszewski's vision of "smart communities," he recommends that the blind community partner with the visually impaired, learning disabled, and physically disabled community to initiate a successful smart community. He says that smart communities give away and share information and are cross-sectoral—that is, they are not restricted by functional, organizational, or jurisdictional borders (Skrzyszewski, 2000).

Effective resource sharing will require a concerted effort on many fronts. Several immediate steps are recommended. Librarians need to

- collaborate on research to determine user requirements;
- reach out and publicize their resources;
- implement logistical arrangements for borrowing and lending resources;
- update their international agreements for resource sharing on a technology-neutral basis;
- make training in alternate formats and adaptive technology a priority.

Producers of alternate formats need to

- standardize production formats;
- apply universal design principles to development of online resources (databases, library catalogs, Web sites);
- connect to libraries for resource sharing;
- contribute to national and international databases.

In the educational and human rights fields,

- educators and human rights specialists need to harmonize the definitions of print disability;
- students in higher education need to communicate their requirements in a timely and responsible manner so that resources can be provided equitably.

In the publishing industry, publishers need to

- deliver electronic files expeditiously;
- develop and adopt a standard file format.

In the political realm,

- public policy advocates need to harmonize copyright exceptions internationally;

- politicians need to support content production of alternate formats, including braille, at all levels.

Hopefully, access will expand beyond the transcription of books to extend access to all forms of information such as commercial and publicly produced audio, lectures, radio shows, accessible multimedia, and whatever new formats are developed. If these steps are taken in all sectors, the information requirements of all persons will be met by public, school, academic, and not-for-profit organizations; commercial enterprises; associations; and other types of libraries, community organizations, or clubs working in concert with each other for equal access for all (Abram, 2005).

## CONCLUSION

The 95 percent gap is a challenge that no one institution or library can overcome on its own. It will take a community of librarians, advocacy groups, and consumers working with publishers and producers to build the national and international connections to equalize access for those who cannot use print due to a disability. They need to collaborate with other suppliers in all sectors, public and private, to optimize resource sharing for full access to a marginalized population.

## APPENDIX: EXAMPLES OF ALTERNATE FORMATS

Regardless of how they are accessed, the range of alternate formats includes the following:

- Electronic text (word processing files) with screen voice readers, such as JAWS, to read print materials using a computer
- Electronic text (image files) for people with visual impairments that can use PDF documents to enlarge the print or manipulate the image on a computer screen
- Large print (print and digital)
- Digital audio, CD MP3 format, with human voice, with or without navigational features
- Digital audio, CD MP3 format, with synthesized voice, transcribed from electronic text, with file names
- Digital audio, CD MP3 format, with human voice and navigational features (DAISY format); this format includes the ability to find specific pages, chapters, sections, and, in some cases, indexes entries. DAISY formats vary from simple to complex mark-up features
- Tactile graphics produced through various means, including microcapsule paper, thermoform paper, press braille, polymer and powder deposit methods, sculpture, and 3D models
- Braille in various formats including paper braille, electronic braille files, and refreshable braille devices

- VHS videotape or DVD of motion pictures with descriptive audible narrative or captioning for people with hearing impairments
- Accessible Web pages accessed with screen reading software that adds a synthesized voice to Web pages

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