Assistive Technologies for Library Patrons with Disabilities

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Due to advances in technology, and the changing needs of the communities they serve, many public libraries offer their patrons services associated with electronic and information technologies (EIT). Zapata (2004) noted that many libraries have gone through the following stages of development concerning EIT: the conversion of their catalogs from paper based to automated; electronic reference services; the use of the Internet as a supplier of information services (web sites, access to bibliographic databases, catalogs from other libraries, and documents on line); the implementation of technologies that could be operated directly by the user (DVD collections, audio books, CD-ROMS); and the development of virtual or electronic libraries. However, the population who attempts to access a library's computers and software, Web-based information and applications, and multimedia products, may be quite a heterogeneous population. In 2002, 51 million people, or 18 percent of the population, had some level of disability (Steinmetz, 2002). Steinmetz (2002) reported that among the population 15 and older, 2.7 million people used a wheelchair, 1.8 million people were unable to see, and approximately 1 million people were unable to hear. During the 2001 American Library Association (ALA) Midwinter meeting in Washington, D.C., the ALA Council approved the Library Services for People with Disabilities Policy. In response to the question concerning why it was necessary to create an ALA Disability Policy at that particular time, ASCLA stated that:

Ten years after the passage of the Americans with Disabilities Act, we're lagging in the area of library services for people with disabilities. The time for a policy is now. We need to affirm our commitment to library service for all, including people with disabilities, then act accordingly (ASCLA, 2001, ¶ 1).
Most public libraries place tremendous importance on EIT for their delivery of quality services (Jaeger, 2002). To fulfill their responsibilities as sources of information to the entire public, public libraries should provide assistive technologies for their patrons with disabilities.

Assistive, also known as adaptive, technology refers to any device that helps an individual compensate for the effects of a disability. Klauber (1998) wrote that approximately 20% of the people in any given community have a disability; people with disabilities comprise the largest minority in the country, crossing all socioeconomic classes and ethnic groups. The Library Services for People with Disabilities Policy states that libraries should integrate assistive technology into their facilities and services to meet the needs of people with a wide range of disabilities: learning, mobility, sensory, and developmental (American Library Association, 2001). Learning disabilities are neurological disorders that make it difficult for individuals to process and/or interpret sensory information (Rubin, 2002). Rubin (2002) stated that dyslexia and attention deficit disorder are the most common examples of learning disabilities, but over 100 different learning disabilities have been identified. Assistive technology devices for someone with a learning disability normally involves either the use of software programs that supply highlighted text and voice output so the person is able to hear the words they are generating or software that predicts the word or phrase they are trying to spell (Bodine, 2002). People with mobility impairments may use canes, crutches, walkers, motorized scooters, or wheelchairs to get around (Rubin, 2002). Spinal cord injuries, arthritis, and cerebral palsy are common causes of motor impairments (Rubin, 2002). Assistive technology devices for someone with mobility impairment may include an alternative computer keyboard or perhaps a pencil grip to assist with writing tasks (Bodine, 2002). Sensory disabilities would include people who are deaf or hard of
hearing and people who are blind or visually impaired. Whereas people who are deaf are unable to rely on audition alone to understand speech, people who are hard of hearing have difficulty hearing speech without amplification (Rubin, 2002). When someone has a hearing loss, the effects are usually a loss of auditory input and an inability to monitor speech output (Bodine, 2002). Used to facilitate auditory input, a FM Listening system is assistive technology that allows speakers to talk into a hand-held microphone, which then transmits the sound of the speaker's voice directly to a deaf or hard of hearing person's hearing aid (Bodine, 2001). Real-time captioning, a relatively new process where spoken-word English becomes readable English, might also be a viable type of assistive technology for someone with a hearing loss (Bodine, 2002). People who are blind do not see well enough to read, however, depending on the cause and severity of the blindness; they might distinguish shapes or patterns of light and dark (Rubin, 2002). Low technology solutions for people who are blind or visually impaired may include a handheld magnifier, large print, or brailled text (Bodine, 2002). Bodine (2002) suggested that high technology accessibility solutions could be a computer with a speech synthesizer and software that allows the written text to be read aloud. ASCLA (2001) warned that many disabilities are invisible, especially deafness, hearing problems, and learning disabilities. Thus librarians should not suppose that they would be able to identify people with disabilities; it is better for a library to just aim to "serve the largest number of people in the most situations" (ASCLA, 2001, ¶ 6). Klauber (1998) made an important point when she wrote that if most librarians discovered that 20% of the people in their community were Chinese, they would reach out to them; buy Chinese books and magazines, offer Chinese cultural programs, and provide information about learning English. Klauber (1998) suggested that librarians ask themselves
what services their library is providing for the 20% of their community with learning, mobility, sensory, and developmental disabilities.

Various "library mission statements contain language regarding equal access and services to all patrons…however, accessibility in libraries, especially to EIT, is often sadly lacking" (Jaeger, 2002, p.3). The reasons for making information accessible to individuals with disabilities are both legal and ethical. Three essential pieces of legislature shaped "the foundation from which we interpret the law and identify standards designed to protect" people with disabilities (Guenther, 2002, p.73). This legislature includes the Americans with Disabilities (ADA) Act of 1990, Section 504 and 508 of the Rehabilitation Act of 1973, and the Assistive Technology (AT) Act of 1998 (Guenther, 2002). The ADA is a civil rights law that requires reasonable accommodations be provided for individuals with disabilities (Guenther, 2002). A large number of public libraries are covered by the ADA’s Title I, Employment; Title II, Government Programs and Services; and Title III, Public Accommodations (American Library Association, 2001). The ADA mandates that public facilities and public services be accessible; this includes libraries (ASCLA, 2001). ASCLA (2001) noted that equity of access to information should be as important as ramps, entry doors and bathrooms. The Rehabilitation Act of 1973 was the first major Federal law establishing legal rights to persons with disabilities (Jaeger, 2002). ASCLA noted that libraries must obey Section 504 of the Rehabilitation Act of 1973 since it states that no person with a disability shall be excluded from participation in any program or activity of a public entity, denied the benefits of any program or activity of a public entity, or be subjected to discrimination under any program or activity of a public entity (2001). The act essentially required that federal agencies make adjustments for individuals with visual, audio, mobility, and cognitive impairments (Hudson, 2002). Boyer and Johnson (2000) stated that
although the Rehabilitation Act was originally enacted in 1973, Section 508 was first added along with other Rehabilitation Act amendments in 1986. Section 508 involves electronic and information technologies, which is the technology that includes computer systems, web sites, information kiosks, and telecommunication devices (Jaeger, 2002). President Clinton added additional amendments to this act in 1998. The amendments became effective June 21, 2001. Boyer and Johnson (2000) explained that the 1998 amendments required the establishment of consistent government-wide standards to make it easier for federal agencies to meet their accessibility obligations. It should be noted that Section 508 applies to Federal government agencies and vendors who serve the Federal government (Boyer & Johnson, 2000). This begs the question, why then should a public library have to follow the standards of Section 508? Boyer and Johnson (2000) explained that all fifty states are bound to Section 508 because they are recipients of federal funds under the Assistive Technology (AT) Act. Funds from the AT Act are dispersed to state governments and then passed on by the state government to various publicly supported organizations, including libraries (Jaeger, 2002). Thus, as Jaeger (2002) points out, any library that receives such funds from its state government could be required to comply with the accessibility standards of the law. However, legal arguments are not the only reasons libraries should provide assistive technologies for their patrons with disabilities. There are also ethical reasons why libraries should provide comparable access to their services. Guenther (2002) made a strong point when she wrote that one very important reason libraries should offer assistive technologies is because "it's the right thing to do. This outweighs issues of cost, nationality, and adoption time" (Guenther, 2002, p. 75). Jaeger (2002) wrote that unequal access is a violation of the ideas of equality and justice, ideas that are very much a part of the concept of public libraries.
Indeed, the fundamental reason libraries exist is to make information accessible to as many people in their communities as possible (Jaeger, 2002).

Selecting technology that accommodates patron needs is a huge part of making a library accessible. However, the fundamental library policy that steers the decision to offer assistive technology is equally important (Nelson, 2002). Nelson (2002) advised that the guiding force for designing services that meet the needs of library patrons must be the library's vision of accessibility, or their ADA policy. The American Library Association's ADA policy provides an overview of the areas that libraries should consider as they comply with ADA laws: library services, facilities, collections, assistive technology, employment, and library education training and development (ASCLA, 2001). When writing the policy that defines a library's accessibility, the library's service goals and how assistive technology can be used to broaden services to all patrons should be considered; computer staff can implement the technology, but deciding what services to make accessible is a policy issue (Nelson, 2002). Library staff professional development, focusing on people with disabilities and the use of assistive technology, should also be an intricate part of a library's ADA policy. The American Library Association feels that library and information graduate programs should require students to learn about accessibility issues, assistive technology, the needs of people with disabilities, and laws applicable to the rights of people with disabilities as they impact library services (2001). Similarly, a library should provide training to library employees and volunteers in order to sensitize them to issues affecting people with disabilities and to teach effective techniques for providing services for users with disabilities (American Library Association, 2001). For example, Rubin (2002) suggested that library staff should know that when addressing a person with a hearing disability, they should approach the patron so they can be seen, get their attention before they start
speaking, and ask the patron how they prefer to communicate; do not assume a knowledge of
sign language. Klauber warned that without proper training "stereotypes, assumptions,
ignorance, and poor disability etiquette can create ill will, and can turn people with disabilities
away from libraries" (1998, p.1). Stereotypes, assumptions, ignorance, and poor disability
etiquette can also cause " misunderstandings that might result in grievances, legal actions, and
negative publicity" (Klauber, 1998, p.1).

Nelson (2002) noted that after discussing accessibility with different type of libraries, the
biggest challenge that libraries identified was use of equipment. Many libraries polled by Nelson
did not feel they could justify spending $10,000 on a workstation and software that was only
used once or twice a year (Nelson, 2002). However, tools and solutions for people with
disabilities can also help others (ASCLA, 2001). ASCLA cited the example that everyone uses
street curb cuts, including mothers with strollers and kids on skateboards, "imagine what
"electronic curb cuts" can do for everyone" (2001, ¶ 6). There are over 28,000 commercially
available assistive technology devices for individuals with disabilities (Bodine, 2002). When
designing an accessibility policy, before purchasing any equipment, the library should consider
what items can be easily adapted to accommodate disabled patrons (Nelson, 2002). Libraries
should begin " by identifying the low hanging fruit" (Nelson, 2002, p.14). There is no cost
involved in changing a monitor's screen resolution to make the windows program icons appear
larger. However, there will be cost involved with other types of adaptions such as screen reading
software, workstation accommodations, or a Braille embosser. The adaptive technology
committee at the public library in Westminster, Colorado, contacted a local adaptive technology
vendor, Beyond Sight, to construct a workstation for their library that would fit the needs of
patrons with vision, reading, and mobility impairments (Smith, 2002). The hardware included a
21-inch monitor, a scanner, a printer, and a DEC-Talk speech synthesizer installed on an adjustable-height table (Smith, 2002). The committees also purchased five software programs: JAWS for Windows, Zoomtext Extra, Dragon NaturallySpeaking, WYNN, and Ruby Openbook (Smith, 2002). Purchasing these five software programs would be a good beginning for any library attempting to offer adaptive technology to their patrons. The JAWS software reads aloud what is on a PC screen. It was developed for computer users whose vision loss prevents them from seeing screen content (http://www.freedomscientific.com/products/fs/jaws-product-page.asp). The JAWS product web sites notes that JAWS enables a library patron to work with Microsoft Office Suite, MSN Messenger, Corel Word Perfect, Adobe Acrobat Reader, Internet Explorer 7, and Firefox. The cost of JAWS is approximately $1,095. Zoomtext Extra is a package that potentially can deal with all of the accessibility issues that a library faces (Sauers, 2002). This software offers magnification and reading features that allow low-vision computers users to see, hear and use their computer with greater comfort and productivity (http://www.aisquared.com/Products/ZoomTextMRD/NewInZT91.cfm). The cost of Zoomtext Extra is approximately $595. Dragon NaturallySpeaking is a speech-to-text program. According to the product website (http://www.nuance.com/naturallyspeaking/products/standard.asp), with Dragon NaturallySpeaking a library patron can talk into the computer and watch their spoken words instantly appear in documents, email and instant messages. They can also surf the Web just by speaking. The cost of Dragon NaturallySpeaking is approximately $99. WYNN is a scanning program for people with reading challenges and writing difficulties (http://www.freedomscientific.com/LSG/products/WYNN.asp). According to the product web site, by using the approach of highlighting the text as it is spoken, WYNN transforms printed text into understandable information that benefits readers of all ages including English language
learners, and people with attention deficit disorder. The cost of WYNN is approximately $399. The last recommended software is Ruby Openbook, a scanning program that may be helpful to persons who are blind or visually impaired. Ruby Openbook converts printed documents into electronic text format (http://www.nuance.com/naturallyspeaking/products/standard.asp). The cost of Ruby Openbook is approximately $995.

With so many options available for accessible technology, any library struggling to choose the way and means to offer accessible technology to their patrons with disabilities might certainly feel overwhelmed. However, there are numerous resources available to assist in easing a library's transition to serving people with disabilities. The United States Access Board is a Federal agency committed to accessible design (http://www.access-board.gov). During 1999, the Access Board created the necessary technical and functional performance criteria to implement the requirements of Section 508 (Boyer& Johnson, 2000). Another helpful resource is the Trace Research and Development Center located at the University of Wisconsin-Madison. As stated at their web site, http://www.trace.wisc.edu, Trace's mission statement is, "to prevent the barriers and capitalize on the opportunities presented by current and emerging information and telecommunication technologies, in order to create a world that is as accessible and usable as possible for as many people as possible." Perhaps one of the best technical assistive resources available for libraries is the Association of Specialized and Cooperative Library Agencies (ASCLA). ASCLA is a division of the American Library Association (ALA) and addresses library services to people with visual or physical disabilities, deafness, and developmental disabilities (Boyer& Johnson, 2000). ASCLA "enhances the effectiveness of library service by providing networking, enrichment and educational opportunities for its diverse members, who represent state library agencies, libraries serving special populations, multitype library
organizations and independent librarians" (http://www.ala.org/ala/mgrps/divs/ascla/ascla.cfm). ALA also has a Library Information Technology Access (LITA) division as well as a Web Accessibility Task Force (Boyer & Johnson, 2000).

In their *Library Services for People with Disabilities Policy*, the American Library Association (2001) made a very valid point when writing that people with disabilities face a broad range of problems: economic inequity, illiteracy, cultural isolation, and discrimination in education, employment and societal activities. When integrating assistive technology into their facilities and services, the American Library Association strongly suggested that libraries include the input of people with disabilities, as well as the local agencies and organizations who are involved with people who have disabilities (American Library Association, 2001). While there are no easy solutions to the challenges a library faces when trying to offer assistive technology, there are some ways to make the process run smoother. The library should first and foremost identify the needs of the population with disabilities in the community. Once the library knows what assistive technology will be needed, easy adaptations to the existing library environment should be the next step in the process. Creating staff awareness concerning different disabilities, as well as training in the use of the assistive technology, will also assist with the transition.

Hudson (2002) noted that the standards of Section 508 not only offer a blueprint for adding assistive technologies, but they can also be used to argue for resources, create new policy, and set guiding principles as the library moves forward with new technologies. As Nelson (2002) pointed out, the value of providing access to resources cannot always be measured in dollars and cents; a better measurement might be to look at the library's mission of serving the information needs of its community.
References


http://www.census.gov/hhes/www/disability/sipp/disab02/awd02.html