

Theme articles

Distance learning: the library's role in ensuring access to everyone

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Abstract

Federal legislation and increasing support for the full inclusion of all students in precollege education have resulted in higher expectations and increased participation of students with disabilities in academic programs that have prepared them for college studies. As a result, greater numbers of people with disabilities are attending postsecondary academic institutions and participating in distance learning offerings. This article focuses on the role that libraries can play in assuring that all distance learning students and instructors have access to the electronic resources they offer. It can be used to help libraries develop policies, guidelines, and procedures for making their electronic resources accessible to people with disabilities.

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Introduction

Federal legislation and increasing support for the full inclusion of all students in precollege education has resulted in higher expectations and increased participation of students with disabilities in academic programs that have prepared them for college studies. As a result, greater numbers of young people with disabilities are attending postsecondary academic institutions (Henderson, 2001; National Council on Disability, 2000). However, these individuals experience far less academic success than their non-disabled peers (Horn and Berktold, 1999) and many people with disabilities who are capable of postsecondary studies have not yet had the opportunity to participate (Gadbow and DuBois, 1998). The poor employment figures for people with disabilities coupled with the positive impact of education on career outcomes, makes increasing the academic success of this group an important goal (Blackorby and Wagner, 1996; Gajar, 1998; National Council on Disability, 2000; Phelps and Hanley-Maxwell, 1997; Stodden and Dowrick, 2001; Yelin and Katz, 1994).

The impact of technology on the delivery of education is clearly demonstrated in the exponential growth of the number of Web-based distance learning course offerings. These programs are hosted by traditional precollege and postsecondary institutions, as well as businesses that offer instruction exclusively in this mode. Internet-based options promise to make courses available to everyone, everywhere. It is assumed by most instructors and administrators that anyone with a computer and Internet connection can access these courses and the supplementary materials that might be offered by libraries, museums, university departments, businesses and other groups. Even for people with disabilities, a wide array of assistive technology interfaces with

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computers to allow full access to the Internet – right? Partially right. Growing numbers of individuals with disabilities have access to computers, assistive technology, and the Internet. However, some of them still do not have access to all of the content delivered via the Internet because of the inaccessible design of electronic resources.

The information resources that distance education students and instructors use include library websites, which typically provide general information, the online catalog of holdings, electronic books and journals, reference tools, indexes to journal literature, as well as full-text journal articles (see the Appendix). Students and instructors also use electronic reserve services to request materials for acquisition on-site or by-mail. This article focuses on the role that libraries can play in assuring that all distance learning students and instructors have access to the electronic resources they offer. It discusses access, legal, and policy issues and presents recommendations to make libraries models of accessibility and leaders in encouraging distance learning course providers to assure that all courses and the supplementary resources they use are accessible to everyone. The field of universal design provides a framework for this discussion. The content of this article can be used to help libraries develop policies, guidelines, and procedures for making their electronic resources accessible to people with disabilities. In this way, they will contribute to the accessibility of distance learning courses as well as enhance their services to on-site patrons.

The digital divides

To understand Internet accessibility issues, it is useful to consider the impact of two “digital divides”. The “digital divide” we most often hear about draws a line between the computer and Internet “haves” and “have-nots”. We know that computers and the Internet are less available to people who are poor, who live in rural areas, who belong to minority racial/ethnic groups, and/or who have disabilities (US Department of Commerce, 1999; Kaye, 2000). Without access to computers and the Internet, the “have-nots” cannot participate in

Web-based learning options. But, even some people who are “haves” with respect to computers and the Internet are still “have-nots” when it comes to making full use of Internet resources. They are on the wrong side of a “second digital divide”. This line separates people who can make full use of the technological tools available through their computer systems and the Internet, from those who cannot (Waddell, 1999). This second digital divide is a result of the inaccessible design of many electronic resources.

Individuals who are on the wrong side of the second digital divide include potential students and instructors in distance learning courses who are blind. They typically use screen reading software and speech and Braille output devices to access Internet content. This technology does not give them access to Web content provided in a graphical format, such as pictures and scanned-in documents saved in an image form. Such content is accessible to them only if text alternatives are provided for their computer system to translate into speech or Braille. Similarly, individuals who are deaf can access the content of materials that use audio output only if transcriptions or captions are provided.

Libraries have been leaders in accommodating individuals with disabilities within their physical facilities. Early on, they recognized their role in providing information resources to everyone in the community. Within the library facility it is often easy to identify individuals with disabilities who might need assistance. They come only when the library is open to the public and therefore staff are available to help. When a person arrives at the library using a wheelchair for mobility, the librarian has a sense of what types of accommodations he/she might need in order to access specific library holdings; when a person makes use of a white cane or service dog as he/she enters the library, the librarian can anticipate the assistance that person will need in order to access the library's resources; when a person who is deaf writes a note to communicate, the librarian has a clue as to how to respond. Even if a person who is blind has access to speech output technology in a library but cannot access certain resources because of their inaccessible design, library staff members can observe that the user is having difficulties

and make themselves available to read the content or assist in other ways.

Libraries, who used primarily to support patrons in a limited geographic region, now support visitors from all over the world via the Internet. Our new "libraries without walls" extend the geographical reach of library resources just as distance learning programs extend the geographic reach of educational options. Developments in how instruction is delivered have in turn contributed to the change in the way libraries locate and provide access to information. Thus, the development and future of libraries and distance learning are forever entwined. As more and more library patrons access resources over the Internet, it is unknown how many of them have disabilities that impact their access to these resources. As far as the networked resource collections are concerned, the library is "open" 24 hours a day, seven days a week. Patrons with disabilities who access electronic resources are largely invisible to the library staff, coming from all over the world, anytime, day or night. Internet patrons do not have the automatic connection to library staff for assistance as they do within a library facility. This new way for librarians, library resources, and library patrons to interact requires a different level of awareness of usability and accessibility issues on the part of library staff. Just as steps without a corresponding ramp or elevator can make a library's physical resources inaccessible to some patrons, poor design of Websites and electronic resources can create barriers to library resources for some visitors.

Access challenges and solutions

Assistive technology products make it possible for individuals with a wide range of disabilities to gain access to computers. However, some Internet resources are still not accessible to individuals with disabilities using this technology. For example, people who are blind often use computers equipped with screen reader software and speech synthesizers. With a synthesized voice, these systems read whatever text appears on the computer screen. To access the World Wide Web, a blind user may use a Web browser that only reads text presented on

the screen or they may use a multi-media browser with the graphics-loading feature turned off. This combination of hardware and software cannot interpret graphics. For example, when an image map appears on the screen, a speech synthesizer may simply say "image". Text alternatives to graphic images need to be provided at a Website in order for blind students and instructors to make sense of the content.

Students whose visual impairment prevents them from seeing small images, may use special software to enlarge screen images. Because they see only small parts of the Website at a time, cluttered Web pages and page layouts that are not consistent from page to page can be difficult for them to navigate. Students with some types of learning disabilities also benefit when pages are simple, orderly, and consistent from page to page. People who are colorblind can become lost when navigation choices and/or content require the ability to distinguish one color from another.

Although most Internet resources do not require the ability to hear, when Websites include audio output without providing captions or transcription, individuals with hearing impairments cannot access the content. Besides sensory impairments, some health impairments can affect Web access. For example, Web pages that include flashes at certain rates (often between 2 to 55Hz) can induce seizures for people who are susceptible to them (Office of the Federal Register, 2000).

Legal issues

Assuring that individuals with disabilities can fully participate in distance learning courses, including accessing library Web-based resources that are used as supplementary material, can be argued on ethical grounds (Woodbury, 1998). To many, providing equal access to resources is simply the right thing to do.

Justification is also available for those who are more responsive to legal mandates (Waddell and Thomason, 1998). Section 504 of the Rehabilitation Act of 1973 (Section 504, 1973), mandated that qualified people with disabilities have access to programs and services that

receive federal funds. The Americans with Disabilities Act (ADA) of 1990 reinforced and extended Section 504, requiring that people with disabilities have access to public programs and services, regardless of whether or not they are federally funded. According to these laws, no otherwise qualified individuals with disabilities shall, solely by reason of their disabilities, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination in these programs and services, unless it would pose an undue burden to do so. Although Section 504 and the ADA do not specifically address access to technology-based educational offerings and resources, the US Department of Justice (Patrick, 1996) clarified that the ADA accessibility requirements apply to programs offered on the Internet. It stated:

Covered entities that use the Internet for communications regarding their programs, goods, or services must be prepared to offer those communications through accessible means as well.

Specifically, if qualified individuals with disabilities enroll in distance learning courses, course content must be made accessible to them.

Court cases and complaints about the accessibility of courses and resources to the US Department of Education Office of Civil Rights continue to increase (Dona and Edmister, 2001). Dealing with the complaints and litigation that result when programs fail to provide accessible programs and services can be costly.

A framework for access: universal design

Potential students and instructors may have disabilities that could impact their access to Web-based distance learning course materials and supplementary resources. Planning for access as courses are being developed and resources are being posted is easier, and therefore less expensive, than developing accommodation strategies once a student with a disability enrolls in a class or a person with a disability applies to teach a course. Instructors and program administrators should assure that their course offerings are accessible. Libraries can do their part in helping distance learning courses meet their legal and ethical obligations

by assuring that all of their reference materials on the Internet are accessible to individuals with disabilities.

When design decisions are made to assure that electronic resources are accessible to students and instructors with a wide range of abilities, disabilities, and other characteristics, this process is called “universal design”. Universal design is defined by The Center for Universal Design (n.d.), at North Carolina State University as:

... the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.

At this Center, architects, product designers, engineers, and environmental design researchers established a set of principles of universal design, which can be used to design environments, products, and information resources. General principles include: the design accommodates a wide range of individual preferences and abilities; and the design communicates necessary information effectively, regardless of ambient conditions or the user's sensory abilities (Anders and Fechtner, 1992). In other words, instead of just considering the average user, people employing universal design principles consider the wide range of characteristics users might possess. Universal design principles have been applied in architectural fields for many years.

Products developed when designers apply universal design principles can be used by people with a wide variety of characteristics. These characteristics include, but are not limited to: age; race/ethnicity; size; gender; native language; and level of ability to move, hear, or see. When the wide range of characteristics of potential students and instructors is considered in the design of Internet resources, they are accessible to a broad audience; just as when architects consider a wide range of characteristics of potential visitors, they design buildings that can be used by everyone, including guests who have difficulty walking, parents who push baby strollers, and employees who use wheelchairs. Designing inclusive environments that are accessible to everyone, with and without disabilities, minimizes the need for individual accommodations.

People without disabilities can benefit from accessible design considerations. Some have situational limitations that are similar to the limitations imposed by disabilities. For example, the reading challenges faced by a student for whom English is a second language are similar to those experienced by people with specific learning disabilities; a student who participates in a class late at night and prefers to turn off the sound capabilities of her system to avoid waking up sleeping children, has created a situation similar to that experienced by people who are deaf; a student who cannot access graphics because of Internet connection limitations faces challenges similar to those who are blind; a person who works in a noisy environment has limitations similar to someone who is deaf; and a person with a monochrome monitor experiences access challenges similar to a person who is colorblind.

Besides considering the accessibility of information technology, universal design processes consider standard usability issues as well. For example, it is important that a Website is easy to navigate and has been tested with individuals who have a wide variety of interests and computer experiences as well as cognitive, sensory, and physical abilities and disabilities.

Current state of accessible design

Employing the universal design approach to the development of electronic resources in libraries is a critical step towards ensuring that students and instructors with disabilities are provided with full access to distance learning courses. It is likely that Web resources and other information technology will erect barriers to some people unless universal design considerations are made as resources are being developed. Applications of universal design to instruction in general have begun to appear in the literature (e.g. Bar and Galluzzo, 1999; Bowe, 2000; Burgstahler, 2000; Center for Applied Special Technology, n.d.). Most articles and books about distance learning design, however, do not discuss universal design principles or specific access issues for students and instructors with disabilities.

The greatest number of articles that discuss the application of universal design to Web pages thus far have appeared in library publications (Schmetzke, 2001a). Although the total number of publications is not large, this situation (including the publication of the special issue of *Library Hi Tech* in which this article appears) suggests that libraries and their professional organizations are well positioned to be leaders in the development and promotion of policies for the procurement, development, and use of accessible information technology.

The American Library Association's (ALA) most recent *Library Services for People with Disabilities Policy*, passed in 2001 (ALA, 2001), states that:

Libraries must not discriminate against individuals with disabilities and shall ensure that individuals with disabilities have equal access to library resources.

This policy includes "remote electronic access to library resources". Further, it states that:

... all graduate programs in library and information studies should require students to learn about accessibility issues, assistive technology, the needs of people with disabilities both as users and employees, and laws applicable to the rights of people with disabilities as they impact library services (ALA, 2001).

It recommends that libraries provide training opportunities for all library employees and volunteers in order to sensitize them to issues affecting people with disabilities and to effectively provide services to people with disabilities (ALA, 2001). This is a good start; however, focused efforts made by the ALA to promote the purchase, development, and use of accessible information resources to its members directly, as well as through its divisions (e.g. the American Association of School Librarians, the Association of College and Research Libraries, the Library and Information Technology Association and the Public Library Association), has the potential for a significant impact.

The largest division of the ALA, the Association of College and Research Libraries (ACRL), with a membership of approximately 11,000, is particularly well positioned to promote accessible design of information technology to libraries. The ACRL revised its

1990 *Guidelines for Distance Learning Library Services* in 2000. It defines “distance learning library services” to be:

... those library services in support of college, university, or other post-secondary courses and programs offered away from a main campus, or in the absence of a traditional campus, and regardless of where credit is given ... The phrase is inclusive of courses in all post-secondary programs designated as extension, extended, off-campus, extended campus, distance, distributed, open, flexible, franchising, virtual, synchronous, or asynchronous (ACRL, 2000).

Although the “distance learning community” addressed covers:

... all those individuals and agencies, or institutions, directly involved with academic programs or extension services offered away from a traditional academic campus, or in the absence of a traditional academic campus, including students, faculty, researchers, administrators, sponsors, and staff ... (ACRL, 2000).

The current guidelines do not include standards for making electronic resources accessible to individuals with disabilities (ACRL, 2000). The ACRL has clearly to date missed an opportunity to model for its members how a commitment to accessibility can be integrated into distance learning policy.

The most comprehensive policy for designing accessible distance learning courses is for California Community Colleges (California Community Colleges Chancellor's Office, 1999). Few other colleges and universities have policies and guidelines that specifically address the accessibility of distance learning classes. However, small but increasing numbers are developing guidelines for the design of accessible Web pages. It is not surprising, then, that many college, university, library, and distance learning Web pages are not fully accessible to individuals with disabilities (Craven, 2000; Evans, 2000; Guthrie, 2000; Lilly and Van Fleet, 2000; Rowland, 2000; Schmetzke, 2001b). The vast majority of access errors are easy to correct (Flowers *et al.*, 1999; Schmetzke, 2001b). Many simply require that Web page developers provide text alternatives for graphic images and image map hotspots. Simple changes that remove these access barriers can be made without the significant re-design of a Website.

Standards for accessible electronic resources

When developing accessibility guidelines or standards it is wise to build on the expertise and experiences of others. Unfortunately, there are many “standards” to choose from when it comes to accessible design of electronic and information technology. The two most accepted standards have been developed by the World Wide Web Consortium (W3C) and the US Federal government. The W3C is an industry group that develops common protocols that enhance interoperability and guide the evolution of the World Wide Web. Since it began, the W3C has been committed to promoting accessible Web technology. As stated by Tim Berners-Lee, W3C Director and inventor of the World Wide Web:

The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect (World Wide Web Consortium, n.d.).

W3C's Web Accessibility Initiative (WAI) developed Web Content Accessibility Guidelines for designing Web pages that are accessible to people with disabilities (Chisholm *et al.*, 1999; World Wide Web Consortium, 1999). WAI provides three levels of accessibility priorities as well as extensive documentation and tutorials. Its guidelines have been widely accepted.

In 1986, Section 508 was added to the Rehabilitation Act of 1973. Section 508 requires that electronic and information technology that Federal agencies procure, develop, maintain, and use are accessible to people with disabilities, both employees and members of the public, unless it would pose an undue burden to do so. The Rehabilitation Act Amendments of 1998 expanded and strengthened the technology access requirements of Section 508. As a result, the US Architectural and Transportation Barriers Compliance Board (Access Board) developed electronic and information technology accessibility standards to which Federal agencies must comply. The standards apply to computers, Websites, videotapes and multi-media products, software, telecommunications products, and other electronic and information technology (Office of the Federal Register,

2000). A few examples of Section 508 standards for Web accessibility are listed below:

- a text equivalent for every non-text element shall be provided (e.g. via “alt”, “longdesc”, or in element content);
- Web pages shall be designed so that all information conveyed with color is also available without color, for example from context or markup;
- pages shall be designed to avoid causing the screen to flicker with a frequency greater than 2Hz and lower than 55Hz; and
- when electronic forms are designed to be completed on-line, the form shall allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.

Although Section 508 directly applies to Federal agencies, the agencies of states that receive funding under the Technology-Related Assistance for Individuals with Disabilities Act of 1988 were asked to assure their compliance with Section 508 (Waddell and Urban, 2001; US Department of Education, 2000). Some public postsecondary institutions and libraries consider themselves covered entities under Section 508 (e.g. California Community Colleges Chancellor's Office, 2001); others do not (e.g. California State University Office of General Counsel, 2001). The Section 508 standards, as a whole or in part, have been voluntarily adopted by many entities as well.

Even for libraries that are not strictly covered by entities under Section 508, the accessibility standards developed for the Federal government can serve as a model, as they develop their own guidelines for the design of accessible Websites and other information resources. Unlike the WAI guidelines that apply only to Websites, Section 508 standards cover all electronic and information technology. As the largest purchaser of electronic and information technology in the world, hopefully, the government's commitment to accessible electronic and information technology will result in the development of more products, including Websites, that are accessible to everyone.

Web pages should be tested for accessibility with a variety of monitors, computer platforms, and Web browsers, including text-only browsers and multi-media browsers with graphics- and audio-loading features turned off; if the Web pages still make sense, then most people with sensory impairments can read them, too. Test to make sure that sound is not required to access content as well. Another good accessibility test is to determine if all content of a Website can be accessed using a keyboard alone. Special programs (e.g. A-Prompt, Bobby, WAVE) can also be used to test the accessibility of Web pages and receive guidance on what changes should be made.

In the procurement of videotapes and other information products, libraries can also use the Section 508 standards adopted by the Federal government as a model. Libraries that purchase videotapes or other multi-media for their holdings should encourage producers to provide products that are accessible to those with sensory impairments. Captions should be provided for those who have hearing impairments. Likewise, audio description (that describes aurally the visual content) should be available for those who are blind.

Steps towards accessible library resources

To assure that distance learning courses are accessible to students and instructors with disabilities requires the involvement of all stakeholders. These include people with disabilities, professional organizations, libraries, distance learning programs, colleges and universities, funding agencies, and state government, as well as libraries themselves.

It is unlikely that electronic resources in libraries will be accessible to patrons with disabilities without the establishment of specific policies and procedures. Libraries should follow the leadership of the Federal government in being proactive in making their electronic and information technology accessible to people with disabilities:

Use of an “*ad hoc*” or “as needed” approach to IT accessibility will result in barriers for persons with disabilities. A much better approach is to integrate accessibility reviews into the earliest stages of

design, development, and procurement of IT (US Department of Justice, 2000).

Although it is difficult to develop policies and procedures in an area where changes occur constantly, the commitment to provide accessible resources and respond to the needs of patrons with disabilities both on-site and via the Internet should be made explicit, if it is to become part of the library culture. To begin the process of developing library policies, procedures and guidelines, librarians should consider the following recommendations.

Involve stakeholders

Make sure that all stakeholders are represented as accessibility policies, procedures, and guidelines are being developed. Include distance learning instructors, librarians, technical support staff, Webmasters, and people with disabilities.

Assign responsibility and leadership and establish basic processes

Assign a person or a department within the library to coordinate the development of plans, the process for updating policies and guidelines, the promotion of accessibility, and the evaluation of progress. Put in place a system that assures regular input from stakeholders and adjusts to technology developments. Seek high-level support within the library organization.

Research the current situation

Like any good librarian, do your homework. Research, both within your library and outside of your organization. Consult with legal experts to understand fully the requirements for program, information, and service accessibility mandated by the ADA and other legislation relevant to your library.

Evaluate the accessibility of current electronic resources in the library, beginning with the library's Web pages. If you do not have the expertise or time to do so, at least ask producers of the library's holdings of electronic resources about the accessibility of their products, especially to individuals who are blind and using speech output systems that can only access text.

Immediately notify producers of purchased resources of accessibility barriers as they are

identified by library patrons; inquire about their plans to correct these problems; and make it clear that you expect these barriers to be removed in future versions of the products, and that you are willing to provide further input regarding accessibility barriers reported by your patrons.

Review policies and guidelines that are used by other organizations, including those created for the California Community Colleges and those used by agencies of the Federal government in response to Section 508.

Consult professional organizations regarding their own policies as well as recommendations. If they do not have accessibility policies, encourage these organizations to assign a task group to take on this project.

Develop a policy statement

Develop an overall library policy statement that commits the library to making programs, services, and resources accessible to people with disabilities. In addition, include accessibility considerations in departmental library policies and procedures, such as those for collection development, reference materials, Website management, and electronic reserve. Each of these departmental policies should explicitly commit to procuring, developing, and using accessible products and providing accommodations whenever products are inaccessible to patrons with disabilities. Prominently post an accessibility policy statement on the library Website that documents its commitment to accessibility as well as its interest in receiving feedback from site visitors about inaccessible materials. Offer assistance to anyone who cannot access the materials as they are presented, along with toll-free phone and fax numbers and an email address.

Adopt guidelines for accessible electronic and information technology

Develop your own guidelines for the procurement and use of accessible electronic and information technology in the library. Consider adopting Section 508 standards, the W3C standards, or unique standards that suit your needs.

Fix simple errors immediately

The vast majority of accessibility mistakes in Web pages can be corrected by including

alternative text for graphics and image map hotspots. Correct these errors on your Website immediately. Focus immediate attention on the Web pages that provide the navigational links to the library's resources. It does not matter how accessible library information resources are if you can not get to them. Develop a plan to phase in compliance with accessibility guidelines for legacy resources and establish a target date at which time all materials will be compliant.

Evaluate progress

Establish evaluation criteria and an evaluation process and then regularly evaluate your progress towards accessibility goals. Develop plans for removing access barriers as they are discovered.

Disseminate information

Disseminate accessibility policy, guidelines, and procedures throughout the library. When possible, show through dissemination efforts and printed materials that there is high-level support for accessibility policies and enforcement. Make sure that library staff receive the initial training and ongoing support they need to follow the guidelines.

Provide training and support

Few individuals who maintain library Websites have access to training and support in the area of accessible and usable design (Craven, 2000). There are many useful resources available on the Internet, however. Collect a set of accessibility on-line tutorials, standards, and other resources for appropriate staff. Create an area on staff Web pages where training and resources can be easily accessed. Providing regular training and support to library staff can promote an interest in accessibility. Integrate accessibility training into existing Web development classes as well as offer specialized presentations and workshops on the topic. Notify staff of distance learning and other outside training options on the design and procurement of accessible electronic and information technology.

Respond to specific needs

Besides taking proactive steps to assure accessibility, develop procedures for responding

quickly to requests for disability-related accommodations. Don't expect students in distance learning courses today to wait for you to solve your library's accessibility problems tomorrow; do whatever is necessary to give them access to the content they need now. Library staff who provide such accommodations at a distance will quickly become tireless advocates for the accessible design of electronic resources.

Procure accessible products

Libraries can take advantage of a tremendous opportunity to promote the development of accessible products by demanding that vendors provide accessible electronic content. Consider accessibility issues in the procurement of all electronic and information technology purchased by the library. Demand that accessible products be created in any technology development contracts, such as those for the development of Web pages. When the library purchases videotapes and other multi-media products, inquire about captioning and alternate format. If you cannot locate an accessible product, ask the vendor of an inaccessible product about what steps they have taken to make their products accessible and what plans they have for making future versions of their products accessible. Make it clear that you will consider accessibility in all purchase decisions and that you expect them to solve their accessibility problems in a reasonable length of time.

Progress towards making distance learning programs accessible will be maximized if the efforts of libraries are complemented with those by people with disabilities, professional organizations, distance learning programs, colleges and universities, state governments, and funding agencies. Suggestions for promoting their involvement follow.

People with disabilities

Encourage students and instructors in distance learning courses to inform libraries and other content-providers when their resources are not accessible and demand access to the content. Too often, libraries are unaware of the barriers that their resources are creating for visitors with disabilities. Instructors should refuse to refer students to Websites that are inaccessible, and

inform the Webmaster of inaccessible sites about this decision.

Professional organizations

Encourage the professional organizations of librarians, distance learning programs, postsecondary disabled student services, Webmasters, and educational technology support staff to take a leadership role in promoting the development of accessible libraries and distance learning programs. These organizations include the ALA and its divisions (e.g. the American Association of School Librarians, the ACRL, the Library and Information Technology Association and the Public Library Association), the US Distance Learning Association, EDUCAUSE, and the Association for Higher Education and Disability (AHEAD). Members should put pressure on these organizations to promote the procurement, development, and use of accessible electronic and information technology. Professional organizations should develop accessibility policies for their organizations, draft policy statement models to share with their members, identify and promote best practices, and pressure vendors to develop accessible products. They should make explicit on their Websites that they are committed to accessibility and encourage feedback from visitors. They should develop accessibility subcommittees to address access issues and make sure that their conferences include content on legal issues, policy guidelines, and design regarding accessible electronic products. For example, the ACRL can set a positive example by assigning a committee to revise its *Guidelines for Distance Learning Library Services* to include a commitment to accessibility; to adopt standards for accessibility and for the procurement, development and use of accessible electronic and information technology; to review its Web pages to make sure they are models of accessibility; include disability-related content in their conferences; and to develop sample accessibility policies, standards and procedures for its members.

Distance learning programs

To meet their legal and ethical obligations, encourage distance learning programs to provide access to programs and resources to

qualified students with disabilities. The success of these individuals depends not only on their own efforts, but also on those of support services and instructors (NCSPEs, 2000). In traditional on-site courses, faculty members have been found to be generally willing to provide appropriate accommodations to students with disabilities. However, many postsecondary instructors have little or no training or experience in teaching students with disabilities and are not aware of their legal obligation to provide access. They are also unaware of best practices for teaching students with disabilities, and of resources (Dona and Edmister, 2001; Leyser *et al.*, 1998; NCSPEs, 2000; Nelson *et al.*, 1990; Thompson *et al.*, 1997). We cannot count on postsecondary faculty members, and others who are developing distance learning content, to be aware of the access barriers they may be creating in the design of their courses.

Distance learning programs should be encouraged to develop accessibility policies and procedures similar to those outlined above for librarians (Burgstahler, 2002) and Webmasters, curriculum designers and instructors need to receive training and support regarding the implementation of accessibility guidelines.

Colleges and universities

Colleges and universities should develop their own accessibility policies and procedures similar to those outlined above for libraries. In addition, they should integrate accessibility issues into the standard curriculum within academic degree programs for librarians and educators.

State governments

State government information technology departments should develop policies and procedures similar to those outlined above for libraries. Promoting these policies will encourage state-affiliated libraries and distance learning programs to develop similar policies and procedures.

Funding agencies

Government agencies, foundations, and corporations who fund projects directed by libraries should demand that accessibility issues be addressed as these projects are implemented. In their requests for proposals,

they should require that those who propose projects describe how they will make project activities and resources accessible to individuals who have disabilities. Funding agencies should support research in the area of accessible product evaluation and design. They should support projects that evaluate and disseminate information about the accessibility of electronic and information technology for libraries and that propose resource centers that coordinate evaluation efforts and maximize the dissemination of results. Systems supported should provide a continuous flow of information about the accessibility of specific electronic resources to libraries nationwide.

Conclusion

Distance learning options create learning opportunities for many, but erect access barriers for some individuals with disabilities. Making a distance learning course accessible to everyone minimizes the number of legal challenges and complaints, supports a diverse student body, creates a better learning environment for everyone, and is the right thing to do. Libraries can play a major role in making distance learning accessible to everyone. They can assume a leadership position and provide a model of accessibility that can be adopted by distance learning programs and others. They can encourage professional organizations to promote accessibility. They can pressure producers of electronic products to provide them in accessible format by integrating consideration of access issues in their electronic and information technology procurement policies and procedures. Providing access to distance learning and Web resources extends beyond legal rationale to concerns of equity versus marginalization. Efforts like this can serve to eliminate the second digital divide.

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Further reading

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Technology-Related Assistance of Individuals with Disabilities Act of 1988 (1988), 29 USC 2201 *et seq.*

Appendix. Resources

To learn more about creating accessible Internet resources, the following Websites provide a good place to start:

- Americans with Disabilities Act ADA home page <http://www.usdoj.gov/crt/ada/adahom1.htm>
- Captioned Media Program www.cfv.org
- Center for Applied Special Technology (CAST) <http://www.cast.org/>
- The Center for Universal Design <http://www.design.ncsu.edu/cud/index.html>
- Closing the Gap <http://www.closingthegap.com>
- DO-IT <http://www.washington.edu/doi>
- EASI (equal access to software and information) <http://www.rit.edu/~easi>
- International Center for Disability Resources on the Internet <http://www.icdri.org>
- National Center for Accessible Media (NCAM) <http://main.wgbh.org/wgbh/pages/ncam/>
- Trace Research and Development Center <http://www.trace.wisc.edu/world/>
- Web Accessibility Initiative of the World Wide Web Consortium <http://www.w3.org/WAI/>
- Section 508 Standards of the Access Board <http://www.access-board.gov/sec508/508standards.htm>