

Digitization of Library Information and Its Accessibility for People with Disabilities

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INTRODUCTION

After 20 years of digitization efforts, hardly a single type of library information resource remains that has not shifted, at least to some extent, to an electronic, Web-based format: information about the library itself, catalogs, indexes, dictionaries and encyclopedias, books and journals, tutorials, reserve materials and reference services. The online migration of these resources has opened unprecedented opportunities to people with “print disabilities”, who cannot independently access printed works because of lack of sight, dyslexia or insufficient motor control (Coombs, 2000), but who are able to access electronic text with the help of assistive input and output technology, such as modified computer keyboards and screen readers with speech or Braille output (Mates, 2000; Lazzaro, 2001).

The extent to which these new opportunities become realized depends on the design of the Web environment. From the perspective of accessibility, design in the online world matters as much as it does in the physical world. This article seeks to determine the extent to which the library profession addresses the need of people with disabilities for accessibly designed online resources—by reviewing the professional library literature for coverage of this issue, by summarizing empirical accessibility studies, and by analyzing pertinent policies adapted by libraries and their professional organizations.

COVERAGE OF ONLINE ACCESSIBILITY IN THE LIBRARY LITERATURE

In 1996, accessible Web design began to emerge as an issue in the professional library literature. Since 1999, there has been a noticeable increase in library-related journal publications that investigate the accessibility of Web-based library information, seek to raise awareness concerning the need for accessible Web design, and provide practical tips (for a detailed overview, see Schmetzke, 2003, pp.153-156). Since 2001, two library journals, *Computers in Libraries*, “Making Sure”, 2001), and *Library Hi Tech* (Schmetzke, 2002a, 2002b) have devoted special-theme issues to online accessibility;

Information Technology and Disability reports regularly on the subject. In 1999, the American Library Association began publishing monographs that addressed accessible Web design (Lazzaro, 2001; Mates, 2000; McNulty, 1999). Gradually, accessibility is acknowledged as an important aspect even in more general works: While some authors, such as Pace (2003) in his book *The Ultimate Digital Library*, continue to ignore the issue, others deal with it, at least briefly, in connection with topics such as Web page design (Garlock & Piontek, 1999), Web site usability testing (Norlin & Winter, 2002), digital resources selection and digital video (Hanson & Lubotsky Levin, 2003), Web-based instruction (Sharpless Smith, 2001) and virtual reference service (Coffman, 2003).

EMPIRICAL RESEARCH FINDINGS

Of the online resources provided by libraries, Web pages have been studied the most. The vast majority of studies employed Bobby, a software-based accessibility checker, to investigate conformance to the 1999 Web Accessibility Guidelines (WCAG), developed by the World Wide Web Consortium’s Web Accessibility Initiative. Recently, researchers also began looking at compliance with the “Access Board” standards, a similar set of accessible design criteria developed under Section 508 of the U.S. Rehabilitation Act Amendments of 1998 (Architectural and Transportation Barriers Compliance Board, 2000).

At the library Web sites evaluated between 1999 and 2002, 19% to 75% of the Web pages were found to be free of major accessibility problems (Blake, 2000; Kester, 1999; Lilly & Van Fleet, 1999, 2000; Schmetzke, 2001a, 2003; Spindler, 2002; Yu, 2002); the average number of errors per page varied between 1.3 and 6.1 (Schmetzke, 2002c). Web accessibility tends to be higher at academic libraries than at public libraries. While Web accessibility has improved in some pockets, such as the libraries within the University of Wisconsin system (Schmetzke, 2004), a comparison of 2000 and 2002 data that were collected from the same nationwide sample consisting of the Web sites of 24 mostly larger academic libraries shows that, on the average, the percentage of barrier-free pages has actually slightly declined—from 59% to 53% (Schmetzke, 2003). A break-down of the Web sites into those that had undergone a major redesign during the period in question, and

those that did not, revealed that accessibility at the former had drastically declined (from 47% to 24%), whereas accessibility at the latter had improved considerably (from 68% to 81%). Apparently, Web designers involved in the complete re-design of their Web sites tended not to pay attention to accessibility. That the occasion of a redesign can be an opportunity for improving accessibility was shown by a British study involving Web accessibility audits at 11 higher-education Web sites, at least some of which included “gateways” to information provided by libraries. Of the six sites that underwent a major redesign, all showed significant improvements with regard to the problems revealed during the audit (Sloan, Gregor, Booth, & Gibson, 2002).

Perhaps most remarkable is the fact that the Web pages of accredited schools of library and information science (SLIS)—those institutions that train the next generation of librarians—tended to be particularly inaccessible. In 2002, only 30% of the SLIS pages (at U.S. campuses) were free of barriers. Accessibility was barely higher, at 36%, at Canadian schools (Schmetzke, 2003). It is reasonable to assume that these figures not only reflect wide-spread unawareness about the need for accessible design among the SLIS Web designers but also among the library school faculty and staff, who hire the designers and give them direction. Similar lack of awareness among the leadership was also reported for the area of distance education (Schmetzke, 2001b) and in connection with several high-profile technology-promoting initiatives in higher education (Blair, Goldmann, & Relton, 2004).

Information about the accessibility of Web-based library resources other than library Web pages is comparatively scarce. Prior to 2002, little had been published in this area. Then, in 2002, *Library Hi Tech* (Schmetzke, 2002a, 2002b) published two special-theme issues that included accessibility studies on selected online catalogs, online indexes and databases, e-journals, online reference works and courseware. While few of the online resources reviewed were found to be absolutely inaccessible, most contained at least some accessibility problems (for an overview, see Schmetzke, 2002c). Several authors pointed out that lack of usability, rather than accessibility, was often the problem (Axtell & Dixon, 2002; Byerley & Chambers, 2002). Stewart (2003), who currently provides the most comprehensive and up-to-date information on the accessibility and usability of selected online indexes, databases and electronic journals, provides a similar picture. Comparing his current findings with unpublished data collected in 1999, Stewart observes a “complete reversal in the inaccessibility of the online library databases from approximately 95% inaccessible to 95% accessible”. However, he cautions that accessibility, defined in terms of conformance to certain accessible design standards, does not automatically result in usability.

As an example, he points to SilverPlatter’s database interface which, for the most part, conforms to the Access Board Standards (Section 508), but which is so poorly designed that it is extremely difficult to use with an audio browser.

Until a few years ago, anecdotal evidence suggested that vendors showed little, if any, concern for the accessibility of their products and that their sales representatives were typically ill prepared to discuss the issue. A recent survey by Byerley and Chambers (2003) reveals that the situation has changed significantly: Vendors have become more aware of accessibility and started to remove access barriers from their products. In line with previous findings that usability is often more a problem than accessibility (see previous paragraph), the authors discovered that vendors’ efforts are largely focused on conformance to Section 508 standards. Only three of the 11 companies that responded to the survey reported that they conduct usability tests involving people with disabilities. The survey also revealed that most database companies do not provide accessibility information on their corporate Web sites, which makes it difficult for accessibility-conscious customers to make informed purchasing decisions.

ACCESSIBILITY POLICIES

Under the pressure of the Americans with Disabilities Act of 1990 (ADA Handbook, 1995) and the widening influence of Section 508, many U.S. colleges and universities have adopted campus-wide accessible Web policies during the past years. Typically, these policies either recommend or require compliance with WCAG, the Access Board Standards issued under Section 508, or some combination or variation thereof (Bohman, 2004).

Some, mostly larger, academic libraries have picked up the campus-wide mandate for accessible Web pages and addressed it in their own policies. Among the first to do so was Yale University Library (2000) which, in its *Library Services for Persons with Disabilities Policy Statement*, requires compliance with WCAG’s priority levels one and two.

Very few libraries have adopted policies that address the issue of accessibility in connection with the selection and procurement of online information products. An extensive Web search conducted by this author in November 2003, along with an inquiry posted to axlib-l, an email-based discussion group dedicated to accessibility issues in libraries, yielded all but a handful of such policies: The University of Washington Libraries’ (2001) *Selection Guidelines for Internet Resources* direct librarians to consider accessibility when selecting online resources and to weigh the “value of the resource ... against

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