

Accessibility of Online Library Information 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 (Lazzaro, 2001; Mates, 2000).

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, p. 153-156; Stewart, Narendra, and Schmetzke, 2005, p. 267-270). Since 2001, two library journals, *Computers in Libraries* (2001), and *Library Hi Tech* (Schmetzke, 2002a, 2002b, 2007a) 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, the need to include people with disabilities is also acknowledged in the broader library literature on electronic resources: Whereas some authors—such as Breivik & Gee (*Higher Education in the Internet Age*, 2006), Gregory (*Selecting and Managing Electronic Resources*, 2006) and the contributors to Lee (*Collection Management and Strategic Access to Digital Resources*, 2005)—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 (Curtis, 2005; Hanson & Lubotsky Levin, 2003; Kovacs & Robinson, 2004; Lilly, 2001), Web-based instruction (Sharpless Smith, 2006), and virtual reference service (Coffman, 2003).

EMPIRICAL RESEARCH FINDINGS

Of the online resources provided by libraries, Web pages have been studied the most. The majority of studies employed Bobby, a software-based accessibility checker, to investigate conformance to the 1999 Web content 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 tended to be higher at academic libraries than at public libraries. More recent data, available only for academic libraries continue to show a mixed picture. On the average, library Web sites have become more accessible. In a national sample of 49 U.S. libraries, pages free of major Bobby-detectable barriers (compliance with

priority-1 WCAG check-points) have increased from 47% in 2002 to 59% in 2006 (Comeaux & Schmetzke, 2006). With 72%, Web site accessibility is higher at University of Wisconsin libraries (Schmetzke, 2005)—in contrast to Kentucky's academic libraries, where, far fewer homepages passed similar accessibility checkpoints; 23% in December 2003 and 37% in March 2007 (Providenti, 2004; Providenti and Zai III, 2007).

Interestingly, Web sites of accredited schools of library and information science (SLIS)—those institutions that train the next generation of librarians—tend to be less accessible than the library Web pages on their campuses (Schmetzke, 2003). In 2002, only 30% of the SLIS pages (at U.S. campuses) were free of barriers. With 36%, accessibility was barely higher in Canadian schools. Although the situation has improved much in Canada (73%), it has done so only mildly in the U.S. (Comeaux & Schmetzke, in press). With only 47% of the pages conforming to the most basic WCAG guidelines, it is reasonable to assume that there is widespread unawareness about the need for accessible design among SLIS Web designers and among those 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).

Although the occasion of a Web-site redesign provides an opportunity for improving accessibility (see Sloan, Gregor, Booth, & Gibson, 2002), it is not always taken advantage of. A comparison of Web accessibility at U.S. libraries between 2000 and 2002, with a break-down of Web sites into those that had undergone a major redesign during the period in question and those that did not, revealed that the percentage of accessible pages in the redesigned set had drastically declined (from 47% to 24%) whereas that in the largely unchanged set had considerably improved (from 68% to 81%) (Schmetzke, 2003). More recent data suggest a reversal of this situation. Redesigned Web sites of both academic libraries and library schools tend to be more accessible than those not having undergone a major overhaul (Comeaux & Schmetzke, in press).

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. Although 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), whose studies comprised 36 databases, arrived at a similar conclusion. He cautioned that the observed improvement in accessibility, defined in terms of conformance to certain accessible-design standards, does not automatically result in usability. In a follow-up study, Stewart et al. (2005) found similar results: Most sites contained some access board standards (Section 508) violations (e.g., 85% of the sites did not include mechanisms permitting users to bypass repeatedly occurring navigation and page elements), but complete inaccessibility was the exception. A usability component of this study, designed to ascertain the ability of screen-reader users to perform basic search tasks, revealed that if the bar for success was set very low—if it did not matter how cumbersome and twisted the search process was—most databases could be searched successfully. Self-critically, the authors suggested that future studies of this sort should set out to assess usability more broadly—in terms of user-friendliness.

Until 2002, 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. In 2003, survey findings published by Byerley and Chambers (2003) revealed that the situation had changed significantly: Vendors have become more aware of accessibility and started to remove access barriers from their products. However, the authors discovered that vendors' efforts are largely focused on conformance to Section 508 standards. As a recent follow-up survey shows, even four years later only five of twelve companies conduct usability tests with people who have disabilities (Byerley, Chambers, & Thohira, 2007). The survey also revealed that only half of the database companies provide accessibility information on their corporate Web sites, which makes it difficult for accessibility-conscious customers to make informed purchasing decisions. Few companies seem to regard accessibility as a selling point in their marketing efforts; only 25% of the responding companies stated that they include accessibility information in their product brochures.

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

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