Faculty Visions for Teaching Web Accessibility within LIS Curricula in the United States: A Qualitative Study

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ABSTRACT

This qualitative study explores the understanding and perspectives of faculty in US library and information science (LIS) programs about teaching web accessibility. "Web accessibility" can be defined simply as making websites accessible for all, including people with disabilities. Eight LIS professors and two graduate LIS students or recent alumni with interests in accessibility were interviewed for the study. Results showed that, although some faculty were novices, most interviewees thought it would be beneficial to teach web accessibility in a variety of LIS courses. However, despite the seeming consensus, discussion of incorporating web accessibility into curricula was rare. This study explores possible reasons for the marginalization of web accessibility in LIS. The authors contend that greater support for initiatives to integrate web accessibility into LIS curricula is essential for enabling LIS practitioners to comply with legal standards and with LIS values of inclusion.

Equal access for all—including people with disabilities—to the web, mobile devices, and other digital technologies is a legal requirement in the United States as well as a matter of social justice. In the past, printed reading materials had to be remediated (reformatted) in order for individuals with certain disabilities to be able to use them. For example, textbooks were read onto cassette tapes for people with dyslexia and vision disabilities. Nonetheless, most of the world's written material has either remained entirely inaccessible to people with disabilities (Kerscher and Fruchterman 2002; Schroeder 2013) or availability has been delayed or compromised in quality (Kerscher and Fruchterman 2002). Today, digital technologies make it possible that materials could widely be made equally accessible to people with disabilities. To realize this possibility, accessibility needs to be built in to technologies at the point of design. Retrofitting takes time, so it delays the person with the disability and causes bureaucratic obstacles. Further, segregated services and technologies get much less attention and are often of inferior quality to those provided to nondisabled users. Librarians have an important role to play in realizing this possibility for equal accessibility, both as creators of digital content and as selectors of electronic resources.

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This study examines US library and information science (LIS) faculty's understanding and perspectives about the importance of teaching web accessibility as well as possible reasons why web accessibility is sometimes marginalized within LIS. Although accessibility applies to a broader range of electronic and digital resources, this study primarily focuses on web accessibility because web resources are widely used, selected, and created by librarians.

Background

Technical Examples

Making websites accessible to individuals with a wide variety of disabilities ensures that the websites meet the needs of all potential users. Web Accessibility in Mind (WebAIM), a leading organization that promotes web accessibility, provides the following categorization of disabilities that affect computer use: visual, hearing, motor, and cognitive (WebAIM 2015a). An accessible website is one that can be used by disabled individuals aided by adaptive technology, including screen readers for blind users and text-to-speech software for people with learning disabilities. A common misconception is that adaptive technology alone is enough to make web or other digital resources accessible to people with disabilities. This is not the case. Websites and other digital resources need to comply with standards in order to be usable with adaptive technology. Examples of common standards include optical character recognition for pdfs, which makes text readable by text-to-speech software for people with vision and learning disabilities who need the text to be read aloud; keyboard accessibility, which allows users with physical or visual disabilities to navigate a page with a keyboard rather than with a mouse; and captioning synced with audio for deaf and hard-of-hearing users. A fuller introduction is available at WebAIM 2014.

Legal Requirements

In the United States, legal requirements under the Americans with Disabilities Act of 1990 (ADA) and the Rehabilitation Act of 1973 were emphasized by the Office for Civil Rights (OCR) and the Department of Justice (DOJ) in 2011 in the "Dear Colleague Letter FAQ," a guidance document for equal accessibility.[1] The FAQ states, in part, that there is an "obligation to provide an equal opportunity to individuals with disabilities to participate in, and receive the benefits of, the educational program, and the obligation to provide accommodations or modifications when necessary to ensure equal treatment" (US Department of Education

1. There are legal policies and requirements regarding web accessibility in many countries, which often incorporate the technical standards from the World Wide Web Consortium's Web Content Accessibility Guidelines 2.0 (WebAIM 2015b). The United Nations Convention on the Rights of People with Disabilities also includes language regarding digital and Internet accessibility (Sloan 2014), but implementation is an ongoing effort (United Nations Human Rights 2015). This international situation provides context for understanding the United States, on which this study focuses.

Office for Civil Rights 2011). These standards apply to entities that receive federal financial assistance, including elementary, secondary, and postsecondary institutions, both public and private (US Department of Education Office for Civil Rights 2011). Web accessibility falls within these legal requirements.

Compliance with web accessibility requirements has been enforced through OCR or DOJ resolution agreements and settlements initiated by individual complaints. An individual can file a complaint with the OCR or DOJ, and if it is determined that an investigation is warranted, the accessibility of the contravening organization's entire technological infrastructure is reviewed (US Department of Justice Civil Rights Division 2010; US Department of Education Office for Civil Rights 2015). This process has resulted in a number of resolution agreements with schools (which include the schools' libraries) and settlements with public libraries that have been consistently decided in favor of the complainants. The November 2012 *Report of the ARL Joint Task Force on Services to Patrons with Print Disabilities* (Association of Research Libraries 2012) summarized recent settlements and resolution agreements regarding a wide range of inaccessible electronic technologies, including web and library resources at Penn State; e-book devices at the Free Library of Philadelphia, Arizona State University, and other universities; and various technologies and library databases at the University of Montana.

Many subsequent decisions (Cummings 2011; US Department of Education Office for Civil Rights 2013; US Department of Justice 2013; US Department of Education Office for Civil Rights 2014a; US Department of Education Office for Civil Rights 2014b; US Department of Education Office for Civil Rights 2014c) pertaining to academic institutions have included agreements, which are emerging as best practices, to develop policies and procedures for web accessibility. The policies and procedures typically include procurement of accessible digital resources; accessible internally created resources; designation of at least one web accessibility coordinator; and routine, automated web accessibility scans (Brusnighan, Ferkis, and Schwarte 2014; Reavis and Netzel 2014; Swenson 2014; California State University 2015; Temple University n.d.).

With regard to K–12 and postsecondary schools, the OCR and the DOJ have asserted that "all school operations and all faculty and staff," not only disability services personnel, are responsible for accessibility (US Department of Education Office for Civil Rights 2011). The two agencies recommend that schools provide professional development to all faculty and staff about their roles in providing accessible technology (US Department of Education Office for Civil Rights 2011). Further, the two agencies indicate that schools should provide "substantially equivalent ease of use" to people with disabilities. Such "equivalent ease" involves all content a library or organization posts online, as soon as the content is published. Equal access is impaired and delayed if it is left to persons with disabilities to discover and report problems. The OCR sets a standard that a technology, or an available alternative resource, should provide "the educational opportunities and benefits . . . to students with disabilities *in as timely a*

manner as those provided to students without disabilities" (US Department of Education Office for Civil Rights 2011; emphasis added).

Neither the ADA nor the Rehabilitation Act currently provide technical specifications for web or digital accessibility other than Section 508 (an amendment in 1998 to the Rehabilitation Act), which applies only to federal government agencies. For most academic and public libraries, the responsibility is left to the library to determine whether a resource is equally accessible. Compliance with the clear-cut parts of technical guidelines, such as the Success Criteria within WCAG 2.0, is a significant step toward accessibility, and schools and libraries already commonly craft policies in line with WCAG 2.0 in order to comply with current legal requirements (Penn State n.d.; Swenson 2014; Temple University n.d.; California State University 2015).

Libraries are responsible for understanding what would provide "equivalent ease of use" for people with disabilities rather than only following rote procedures or criteria. Those responsible for adopting technologies used by libraries need to understand how people with disabilities use digital resources, including understanding the use of adaptive technology. As WebAIM explains, "unless the [technology] developers understand the reasons behind the [WCAG 2.0] guidelines, they might apply the guidelines incorrectly or ineffectively" (2013). One reason library professionals need to understand what actually works for users with disabilities is that guidelines cannot keep up with changes in technology. Web Content Accessibility Guidelines 2.0 partially addresses this challenge by including overarching, or "high-level," principles that emphasize real-life usability for people with disabilities (W3C 2008). This places responsibility on adopters of new technology to evaluate accessibility and on libraries to secure the expertise needed to make such assessments rather than simply following the more clear-cut "Success Criteria" within WCAG 2.0.

Besides the pace of technological change, another reason library professionals need to understand what actually works for users with disabilities is that some aspects of web accessibility are unique to their context. For example, a web page may comply with the technical guideline to provide a "skip to content" link (sometimes visually hidden) that screen-reader users, who are often blind, can select to skip over repetitive navigation links. Unhelpfully, "skip to content" links sometimes do not skip to the part of the content that users typically want to find on the page. On a page of search results in a catalog or database, for example, the "skip to content" link sometimes jumps not to the results but rather to other extensive preliminary information such as tiny links for log-in, print commands, and so forth. The appropriate landing location for the "skip to content" link is unique to the context of the page. Blind users sometimes spend significant time attempting to locate search results on the results page or the beginning of an article on an article page (Haanperä and Nieminen 2013). It is essential that content providers, such as librarians, understand how accessibility guidelines relate to website content so that they can inform programmers of the appropriate landing location

for the "skip to content" link or else offer alternative ways that screen-reader users could navigate the content logically and efficiently. Programmers may not understand the content or expected user behavior for a website well enough to plan a sensible path for screen readers to navigate, at least not without input from the librarians providing the content.

The "skip to content" example demonstrates that web accessibility involves organization of information; hence the natural relationship of web accessibility to LIS. This example also makes it clear that effective web accessibility partially depends on the education of the LIS practitioners who play key roles in the provision of web-based content. Additional examples of web accessibility guidelines that involve the organization of information include separating design from content and organizing content with a logical heading structure.

Literature Review

Studies of web accessibility on academic library websites as well as library subscription databases demonstrate that web accessibility problems are common (Schmetzke 2001; Byerley and Chambers 2002; Schmetzke 2002; Stewart, Narendra, and Schmetzke 2005; Byerley, Chambers, and Thohira 2007; Comeaux and Schmetzke 2007; Tatomir and Durrance 2010; Comeaux and Schmetzke 2013; Haanperä and Nieminen 2013; Blechner 2015; DeLancey 2015). Studies of school websites and public library websites have also shown accessibility problems (Klein et al. 2003; May and May 2010; Anyomi and Jones 2012; Booth 2013).

A limited number of studies examine whether web accessibility, or even accessibility in general, is included in LIS curricula. Linda Lucas Walling conducted a survey in 2000 that "looked at how LIS programs provide[d] education related to ADA, services for people with disabilities, and adaptive technologies" (Walling 2004, 137–38) in which 68% of respondents (23 schools) "indicated that their programs offer information on all three topics addressed by the survey" (Walling 2004, 141). However, more than half of the schools did not require courses that covered all of these topics; the courses that addressed these issues were electives. The survey did not report how thoroughly topics related to accessibility were covered, nor the types of course assignments and intended learning outcomes. Results pertaining to web accessibility were aggregated with adaptive technology results, thereby limiting our understanding of how web accessibility was specifically addressed.

Deborah J. Carlos examined course catalogs and syllabi of nine library schools for courses, lesson units, or required readings on "adaptive technology or disability services." She found that "instruction in disability-related issues is not yet standard in library schools. . . . For the 2004–2005 school year, there were three schools [and four courses] in the survey which offered disability-related instruction" (Carlos 2005, 34–35).

Ravonne Green and Julia Huprich surveyed curricula of library science schools for "disability instruction." They found that only one of the top-12-ranked schools required a course that included instruction about ADA. One school had a required course about adaptive technolo-

gies, and the others offered electives in this area. Regarding web accessibility specifically, nine schools reported that their master's degree program offered curricula that included "accessible design of online information (Web sites and databases)" (Green and Huprich 2009, 134). However, like Walling's, the study did not discuss specifically what or how much was taught, nor is it clear whether the web accessibility courses were required or elective (Green and Huprich 2009).

Laurie J. Bonnici, Stephanie L. Maatta, Muriel K. Wells, Jackie Brodsky, and Charles W. Meadows III surveyed LIS deans and directors and asked them to rate, on a scale of "highly critical" to "not sure," the importance of universal access; accessibility for special-needs patrons; adaptive technologies; services to people with physical challenges; and W3C and Section 508 compliance to the LIS program (Bonnici et al. 2012, 127). Interestingly, of all the items on the survey, W3C and Section 508 compliance was the only item that received "not sure" responses. Regarding how critical they considered "W3C and Section 508 compliance," 4 of 30 respondents replied "not sure"; 10 replied "highly critical"; 12 replied "critical"; and 4 "moderately critical" (Bonnici et al. 2012, 122). While the word "compliance" suggests that the focus of the question was primarily on measurable standards rather than on a deeper understanding of how the guidelines work for people with disabilities, the survey nonetheless reveals respondents' attitudes, and uncertainty, regarding measurable aspects of web accessibility.

Skepticism about the depth of coverage of topics relating to accessibility as perceived by administrators, as in the Walling and Green and Huprich surveys, seems warranted. Carlos notes, "Given the high percentage of school directors who gave positive answers to questions about disability law, services, and adaptive technology in their curriculum in Walling's survey, I expected to find many more courses and individual lesson units concerning these subjects in the syllabi than I did" (Carlos 2005, 34). This discrepancy between administrators' perception of the quantity of accessibility-relevant course content and the results of an objective examination of syllabi suggests that caution is justified when using administrators' perspectives.

Bonnici et al. (2012) did survey faculty in addition to administrators, so their results could potentially have a different level of reliability. However, that study examined faculty attitudes, not what faculty claimed to teach, and so leaves the latter question open.

The texts used in LIS collection development courses suggest that web accessibility may not be adequately covered in collection development courses. Axel Schmetzke, Cheryl Pruitt, and Michelle Bruno reported, "Books on collection development, often used as textbooks to guide practicing librarians and to train the next generation of librarians, do not cover the issue [of accessibility] adequately, if they address it at all" (2014, 174).

In their study of diversity within iSchools' courses, Mega Subramaniam and Paul T. Jaeger included "disability" and "accessibility" within diversity. They categorized "elements of diversity" found in the courses and reported "access to technology" as the third most common element (2011, 10). It is unclear whether a course covering "access to technology" implies that

web accessibility was being taught. However, even if these courses covered web accessibility, the fact that only a small number were required courses means that many students potentially would not receive content about web accessibility. They reported that only three of these courses were available to doctoral students. Further, no courses covering diversity were found in the areas of organization of information, information systems, database design, research methods, or information retrieval (Subramaniam and Jaeger 2011), areas where it is likely essential that web accessibility issues be adequately covered.

These studies suggest that web accessibility is not adequately covered within LIS curricula. However, previous studies do not provide much depth regarding professors' understanding and perspectives about web accessibility. Previous studies also neglect to suggest explanations about why web accessibility is not covered more than it is in LIS. This study begins to fill these gaps.

Methodology

Procedure

The advantages of loosely structured, open-ended interviews in qualitative research include the opportunity to explore topics in depth without preconceived questions limiting the responses. Robert C. Bogdan and Sari Knopp Biklen explain, "Qualitative researcher[s] . . . use the first part of the study to learn what the important questions are. He or she does not assume that enough is known to recognize important concerns before undertaking the research" (2007, 7). Additionally, they state, "Qualitative interviews offer the interviewer considerable latitude to pursue a range of topics and offer the subject a chance to shape the content of the interview. When the interviewer controls the content too rigidly, when the subject cannot tell his or her story personally in his or her own words, the interview falls out of the qualitative range. . . . [In unstructured interviews,] the researcher . . . encourages the subject to talk in the area of interest, then pick[s] up on the topics and issues the respondent initiates" (Bogdan and Biklen 2007, 104). A limitation of qualitative research is that it does not lead to replicable or generalizable data. Loosely structured interviews were chosen for this study in order to allow in-depth discussion of issues raised by faculty and student interviewees. We believed that the study would be richer if faculty and students contributed their understanding of what should be discussed relative to including web accessibility in LIS.

All interviews were conducted by the same researcher. The interviews were held in summer 2014. Most interviews were done via telephone. Two interviewees were interviewed in person, at their request. Interviews were recorded to allow the investigator to participate fully in the conversation.

Interviewees were encouraged to review the list of potential interview questions to obtain a general idea of the interview topic and scope. All participants gave their verbal consent to participate. This study was reviewed and approved by the internal review board for human subjects research at Syracuse University and the University of Illinois at Chicago.

Participants

Researchers used published research, professional contacts, and snowball sampling to identify potential interviewees. Potential interviewees were those who demonstrated interest or involvement in any area of accessibility. Involvement was determined by having published, having taught, or having professional engagement vis-à-vis accessibility in libraries. The rationale for interviewing those with accessibility experience was that such individuals might be able to offer a more in-depth analysis of the pertinent issues than faculty who taught relevant subjects, such as web design or collection development, but who were not known to the investigators to have an interest in accessibility.

Once identified, one investigator contacted the initial list of individuals who met the criteria. Participants were contacted by e-mail and asked to refer colleagues and other interested parties to the study by contacting the investigator by e-mail or telephone. Not all interviewees had knowledge of web accessibility, specifically. All except one candidate replied and agreed to be interviewed. Eight professors who teach courses in LIS and two graduate students or recent alumni, all of whom have involvement in accessibility, were interviewed.

Data Analysis

In their discussion of qualitative data analysis, C. E. Hill, S. Knox, B. J. Thompson, E. N. Williams, S. A. Hess, and N. Ladany point out that there are advantages to developing themes or codes, which they call "domains," after collecting the data rather than using researchers' preconceived notions of what would emerge from the research (2005, 196). In keeping with Hill et al.'s recommendations, this research developed themes from the transcripts of the interviews using inductive analysis to sort the data rather than using the preconceived topics in our interview question guide.

All interviews were transcribed by the investigator. As themes emerged from the interviews, preliminary coding categories were considered. Transcripts were read a minimum of three times and recoded several times. Final themes that emerged were faculty involvement in accessibility issues other than web accessibility; faculty understanding of web accessibility technology and policy; web accessibility's integration into curricula; faculty teaching web accessibility in depth; and suggestions that web accessibility did not need to be strengthened in LIS curricula. Additional themes emerged, which we intend to consider in a separate article.

The pronouns "he" and "she" have sometimes been changed in this article to protect the identity of participants.

Findings

Some Faculty Were Novices

While overall the participants were knowledgeable supporters and champions of accessibility, approximately half had limited knowledge about current web accessibility technology, legal re-

quirements, and policy. For example, at least one professor was unsure whether web accessibility was legally required. Several participants acknowledged their lack of knowledge or newness to the topic before or during the interviews. Several professors indicated that they did not have an understanding of web accessibility technology, such as would be needed by any professor to ensure the accessibility of his or her own materials in course management systems. One professor, unprompted, acknowledged that she had not considered accessibility when developing courses but had subsequently become aware of the concern after having a blind student in class.

Another professor was in the process of making a strong effort to educate himself about the technology but was confused about parts of it. He suggested that the purpose of "alt text" was so that screen-reader users could get a description of a picture when they ran their mouse over an image. Generally, screen readers are not used with a mouse. Alt text is intended to allow the screen-reader user to hear a description when she or he reaches the image with a keyboard or alternative input device. Nevertheless, this professor was teaching himself web accessibility, a topic outside his usual area of expertise, and he accurately articulated other standards for accessible websites.

A different professor, who in the past had taught students to make a simple, accessible website and had used a popular 1990s-era automated accessibility checker, suggested that web accessibility was being addressed by school libraries: "So for one thing, I'm *hoping* . . . when they're doing licensing that they're making sure that that company is accessible. . . . Any public website, anything that the public can access has to be web accessible, so . . . K–12 schools are pretty good about that because . . . you've got parents, . . . you know, you have to provide services, . . . and you have to deal with the cost of them, et cetera, so if nothing else they're always going to be pretty much up on [it]." The idea that libraries', including school libraries', licensed resources are consistently accessible is contrary to what research suggests, as discussed in the Literature Review section. This professor later acknowledged that schools were rarely creating transcripts for videos or podcasts they put online or were relying on automated YouTube captioning. Nonprovision of reasonably accurate transcripts, however, would mean that schools were not complying with web accessibility standards; YouTube transcripts are notoriously inaccurate (TheDeafGuy 2014). The professor had some knowledge of web accessibility but expressed unfounded optimism when she said schools are "always going to be pretty much up on [it]."

Attitudes toward Including Material on Web Accessibility

Although about half the interviewees were not knowledgeable about web accessibility, a majority expressed positive attitudes toward teaching it within LIS. Several professors discussed courses in which web accessibility might be relevant, including courses about information architecture or web content management. Two professors suggested that web accessibility

could be covered in many courses, including reference. Both students and recent alumni suggested that it would be ideal for web accessibility to be taught in all LIS courses.

The investigator asked several professors whether they thought web accessibility would fit in collection development courses for the purpose of teaching librarians about evaluating e-resources. One professor said, "It's certainly something that should be a part of those courses because . . . so many of the databases that are available from vendors—you really don't have a choice in whether or not you use them—aren't accessible or . . . have limited accessibility. . . . People need to be aware of those realities. So it . . . should be a very natural part of a lot of things, but collection development is one of them." Another professor responded, "The [collection development] course I will teach . . . [for] general LIS students . . . will . . . have a unit [that] will have to do with how to select materials with the needs of people with all kinds of abilities and disabilities in mind." Most, though not all, interviewees conveyed similarly positive attitudes about teaching web accessibility.

The supportive professors' reasoning for integrating web accessibility into the curriculum often involved the importance of including accessibility at the outset when creating a website. Accessibility at the outset may be contrasted with relying on segregated services, such as disability offices or special educators who make accommodations, retrofit, or find other workarounds for problematic web or digital resources. These steps are often taken after an inaccessible version has been made available to people without disabilities, meaning the person with the disability is delayed in receiving the content, as mentioned in the introduction to this article. Although disability offices and special educators are needed to remediate nondigital materials and for many other reasons, they are not always equipped to repair websites, nor would such repairs provide "equally timely" access. In keeping with this point, one professor said that librarians "may have . . . an IT department. But really I'm trying to [teach] them—there are web accessibility guidelines, and understand what they say, to be able to communicate with IT. . . . When you don't begin with accessibility in mind . . . problems become cumbersome, but if accessibility is built in from the beginning, it's not going to be a problem."

Teaching in Depth

Two professors were teaching web accessibility in depth. One was teaching it in an elective web-design course. He argued that students need to learn accessibility from the beginning so that he will not have to reteach them after they have learned inaccessible coding techniques.

In another school, web accessibility was taught in depth as part of a specialization in diversity, and the courses that covered web accessibility were not a required part of the curriculum. However, students who had learned about web accessibility in these electives had then begun conversations about it with professors in other technology courses. These discussions were a fairly recent development at the time of the interview. Professors and a recent graduate de-

scribed students' efforts to begin integrating web accessibility into the core curriculum in a systematic way. A professor described efforts of a student diversity group to create "diversification guides" for LIS faculty that would provide suggested topics and readings that they could integrate into their existing courses. The professors teaching the core courses were reported to be closely involved and were receptive to including diversity in their courses.

One of the professors related that he had discussed his efforts at a symposium with faculty from other LIS schools and had gotten positive feedback: "The attendees thought this was a fantastic idea, and several of them said to me in the closing session, 'I'm going to try to get this going at my school too.'"

Inclusion in Curriculum

Most of the schools represented by interviewees did not seem to be discussing systematic inclusion of web accessibility in the curriculum. This was apparent in that many professors were unsure whether web accessibility was being taught in courses besides those they taught themselves. For example, during the interview, one professor consulted the course catalog and suggested several courses where she felt web accessibility could—ideally and potentially—be covered, but she repeatedly emphasized that she was unsure whether or not it was being covered.

A student at the same institution who had taken the core LIS courses and some electives said, "I don't think my courses did address web accessibility for people with disabilities. That was not addressed at all." The student was aware and supportive of several aspects of access for people with disabilities, suggesting that she has an interest in this area. However, she seemed to be unaware of the existence of web accessibility standards.

When asked whether web accessibility was taught in collection development, another professor likewise was unsure whether the curriculum included accessibility. She said, "We do have courses . . . specific to school libraries and . . . general collection development for public librarians. . . . I don't really know if they . . . actually talk about . . . web accessibility."

A new professor's knowledge of where web accessibility was covered within the curriculum at his school was unclear. He related that his school was moving from "specialized courses" to a curriculum that integrated accessibility, and he indicated that he intended to include a "broad overview" about web accessibility in a new course he would teach, which was required for most students. He stated that students in the course would learn to build a website and would become familiar with the necessary guidelines for making a website accessible. It seemed that he himself was not very familiar with web accessibility, as he did not immediately recall the name of the web accessibility guidelines. He did, however, consider it essential that web accessibility be taught. It was unclear whether the faculty as a whole had discussed the inclusion of web accessibility in the curriculum.

One professor who teaches web accessibility commented on inclusion of web accessibility in LIS curricula, overall:

> Section 508 of the Rehabilitation Act was passed in the late '90s and was supposed to have been widely implemented in 2001. . . . It is hardly unusual to say our field doesn't teach people about that. . . . But, considering that we're fields based on connecting people to information, as . . . the reason we exist, it seems like . . . that would be more common a long time ago. . . . We're not unique in that. If you look at computer science curriculums, they don't teach that at all. It's just mind boggling that . . . people don't get exposed to [web accessibility] . . . in fields where this is a really key thing if you want to provide equitable services.

This professor's knowledgeable perspective highlights the urgent need to incorporate web accessibility into LIS curricula.

Possible Reasons for Marginalization

We are focusing on two possible misunderstandings on the part of faculty that may lead them to marginalize the importance of web accessibility within LIS: the mistaken belief that accommodations and retrofitting of websites or documents are enough and a misunderstanding of web accessibility as a mechanical process rather than an important aspect of the organization of information.

When asked a question about including web accessibility in ALA Standards for Accreditation, one professor suggested that because the standards are broadly written, they might imply that accommodations and retrofitting of resources are enough. While a discussion of accreditation standards is beyond the scope of this article, the potential interpretation described by the professor suggests the first possible reason that web accessibility is marginalized within LIS education:

> [The Standards are] not like a checklist kind of thing, so they can't be that granular. . . . Like could you get to every single site and every single reading is . . . ADA compliant? . . . That would be a hard case to make. I mean, I think most of them probably do a blanket, ah, you know, we try to be ADA compliant . . . students with a disability, you know, we make accommodations accordingly. . . . Theoretically, it could be that you have Kurzweil . . . it might . . . be [that] the university . . . someplace has . . . a scanner. And then [students with print disabilities] can read [documents], then you're okay. [The] university has a means to provide services for the students. Now if the student chooses not to go to that site, you know, that center, and not scan, then that's up to the students.

Regardless of accreditation standards, neither inaccessible websites nor using a university's services or scanners to remedy inaccessible technologies or electronic documents after they

are deployed would meet legal standards. It seems very unlikely that the professor meant that she, or other professors, would think the Standards should lead to an interpretation of accessibility that requires less than the law requires. The potential interpretation that accreditation standards mandate something less than what is legally required likely points to a misunderstanding about the legal standards. The misunderstanding is that using accommodations to retrofit resources is enough rather than incorporating accessibility for electronic resources in an equally timely way, meaning at the same time as the resources are accessible to people without disabilities, which is the standard set by the enforcement agencies.

The second possible reason that web accessibility is sometimes marginalized in LIS may have been intimated when a professor suggested that web accessibility should be taught as a separate workshop, saying,

> Is that interest [web accessibility] really a graduate-level class? I think if we really thought about it, I'm sure we would struggle with [that]. So, for example, not thinking about the web but thinking about . . . sign language. That would be wonderful if we could all take sign language. [Emphatically] *It's not a graduate-level class.* So, how do you get that extra training? For web accessibility, you might, say, you need to have all your pictures tagged, you need to have alt tags . . . all these different things, but again, that might not be fodder for a graduate-level class. It sounds a bit more like it might be a workshop that would get you to think about how do you make your web document, your digital documents easier for someone with print disabilities. . . . And those might just be tips and techniques and not something that really goes into a graduate-level class.

These comments suggest that web accessibility is being understood as a set of mechanical processes rather than as a concept integral to organization of information. This issue is discussed further below.

Discussion and Conclusions

It may be surprising to some that several faculty with an interest in accessibility in general were novices with web accessibility. Web accessibility has been discussed in the LIS literature for nearly two decades, as is evidenced by several online bibliographies of the topic by Schmetzke (Schmetzke 2013a; Schmetzke 2013b). However, the knowledge does not yet seem to have become widely disseminated among LIS faculty. Given the wide variety of accessibility topics relevant in librarianship, it is unreasonable to expect any professor to have deep expertise in them all; however, lack of awareness of web accessibility basics within the information field is problematic. Similarly, the notion that libraries are already taking care of web accessibility, as expressed by one interviewee in regard to school libraries, is a matter of concern.

Basic web accessibility would need to become common knowledge among LIS faculty and librarians if librarians were to provide equal access.

Professors who teach web coding might be more knowledgeable about web accessibility than are faculty who teach less technical aspects of accessibility. Additionally, if such knowledge is not common even among faculty who champion accessibility, such as the faculty interviewed for this study, it could be even less so among other faculty. Further study could systematically examine these possibilities. Either way, it is a matter of concern that basic web accessibility does not yet appear to be common knowledge among LIS professors.

More encouraging findings are that most of the interviewees held positive attitudes toward including web accessibility in LIS and that many underscored the importance of considering accessibility from the outset of design. Moreover, two professors were teaching web accessibility in depth. These two professors made important points about the need to more thoroughly incorporate web accessibility into LIS. One emphasized the need to teach web accessibility before coding with inaccessible techniques becomes a habit for students. The other pointed out that LIS is a field intended to connect people with information and that the incorporation of practices to do so for people with disabilities—just as the field does for people without disabilities—is long overdue.

In spite of most interviewees' positive attitudes, discussion did not seem to be happening about systematically including web accessibility in the curriculum except at one of the interviewees' schools. Most interviewees said they did not know whether web accessibility was taught. One student said that it was not taught in the core courses at his school. A new professor said that he would be taking on responsibility for teaching web accessibility, although it was apparent that he was not yet deeply familiar with it himself. Although this professor was optimistic about the curriculum moving toward inclusion of accessibility, it was not clear whether other faculty at the school were aware of the need to incorporate web accessibility, specifically, throughout the curriculum.

The findings in this study suggested two possible factors that could contribute to marginalization of web accessibility. First, one professor's possible misunderstanding of the need to make all online materials accessible in the first place could lead to the misconception that it is not necessary to educate all future librarians. As discussed in the Findings section, when asked whether ALA Standards for Accreditation might be able to cover web accessibility, one professor responded by saying, "Like could you get to every single site and every single reading is . . . ADA compliant? . . . That would be a hard case to make." On one hand, her use of the phrase "ADA compliant" may show that she was aware that web accessibility is legally required; on the other hand, the implication that the ALA Standards for Accreditation would not be able to make a case to require as much as the law requires suggests a possible confusion about whether web accessibility is a legal obligation. It seems unlikely that she meant the standards could not impose as much responsibility for web accessibility as the law requires. Fur-

thermore, when the professor said "the university . . . someplace has . . . a scanner. And then [students with print disabilities] can read [documents], then you're okay," she might have thought these other services were equivalent substitutes for electronic document accessibility at the outset.

Actually, accessibility involves all content a library or organization posts online at the time that it is posted. Once a person with a disability enrolls in a course or finds time to make a complaint about a web page, it is often too late to provide equal access. As mentioned in the Background section, the OCR requires access for students with disabilities *"in as timely a manner* as those provided to students without disabilities" (US Department of Education Office for Civil Rights 2011; emphasis added). Misunderstanding this issue may lead some faculty to think web accessibility only needs to be understood by specialized librarians, rather than by every librarian involved with providing website content or organizing and presenting online information to users.

A second possible factor contributing to marginalization of web accessibility was exemplified when one professor conceptualized web accessibility narrowly as "tips and techniques." A better understanding of web accessibility could have allowed the professor to perceive ways in which web accessibility is intertwined with organizing information, a central aspect of librarianship. Examples of why web accessibility is integral to the organization of information, rather than simply being a set of mechanical procedures, are explained in some detail in the Background section of this article. The professor's narrow conceptualization of web accessibility may be part of the reason she suggested that it is inappropriate for a graduate-level LIS course.

For those working toward equal web accessibility, it may be helpful to consider whether promulgating information to correct these two possible misunderstandings would increase progress on incorporating web accessibility into LIS.

Despite the two possible misunderstandings discussed, at least one school was clearly beginning to discuss integrating web accessibility into core courses, and a professor from that school reported that, during a conference, faculty from other schools had expressed interest in following this lead. Greater support for professors' initiatives in this regard is essential. Such leadership could improve awareness among other faculty of the deeper issues of information organization involved in web accessibility. This could, in turn, help more schools to act on faculty's generally positive attitudes about integration of web accessibility into the curriculum. A thorough incorporation of web accessibility into LIS curricula is critical both for enabling LIS practitioners to comply with increasingly enforced legal standards and to uphold LIS values of inclusion.

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