Collection Accessibility

Jennifer Nastasia Tatomir and Joanna Catarina Tatomir

Abstract

The purpose of chapter 5 of Library Technology Reports (vol. 48, no. 7) “Making Libraries Accessible: Adaptive Design and Assistive Technology” is to provide libraries and librarians with best practices for increasing the accessibility of library collections to patrons with print disabilities. The chapter summarizes demographic, legal, and technological information that is relevant when considering how to improve library accessibility; it also discusses the methods for enhancing access to library resources, print and digital.

About the Authors

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Introduction

Over the past decade and a half, the growth of the Internet and the rapid migration of a majority of periodicals, journals, and online library resources and tools into the digital environment have reshaped the meaning of access. This shift brings a responsibility for making collections decisions that encourage accessibility of online resources to users with print and other disabilities. Chapters 1–4 of this issue of Library Technology Reports outline foundational steps in this undertaking, from building awareness about disability among library staff to understanding adaptive technology to accessible Web design and emerging e-text formats. This chapter will suggest approaches to building accessible library digital collections from the perspective of persons with print disabilities.

Summarizing the Accessibility of Library Digital Collections

For users with disabilities, “design in the online world matters as much as it does in the physical world.”

While there is a dearth of research into the accessibility of digital content after 2010, studies by Comeaux and Schmetzke; Byerley, Chambers, and Thohira; and Tatomir and Durrance examine the extent to which federal and international Web accessibility guidelines outlined in chapters 1, 3, and 4 have been incorporated into the products and services that still comprise the open and subscription-based library digital information environment.

In 2007, Comeaux and Schmetzke examined the accessibility of the webpages belonging to American and Canadian library schools and their associated university libraries. Analyzing all American and Canadian library schools based on barriers (such as unreadable icons, images, text, and links) per page and page complexity as measures of accessibility, the researchers found that 47 percent of library school pages and 60
percent of university library websites did not comply with the high-priority components of the WCAG standards and even less in regard to compliance with Section 508 standards. Their data indicate that the “majority of LIS and university library web sites fail to provide adequate skip-navigation links, text descriptions and/or alternative plaintext versions for integral components of web pages.”4

In 2007, Byerley, Chambers, and Thohira conducted a study of twelve online databases commonly subscribed to by libraries. After extensive questioning of each participating company, the researchers found that, due to the lack of comprehensive usability testing with disabled users, persons with disabilities were unable to easily or fully utilize these online products. Of the twelve companies studied, only four—ABC-CLIO, Elsevier, JSTOR, and ProQuest—stated that their products met all of the accessibility guidelines established under Section 508 of the Rehabilitation Act and the WCAG standards. Similarly, researchers found that only seven of the twelve participating companies had incorporated and were continuing to integrate accessibility features into their products, while the remaining five companies indicated that accessibility represented a low priority concern due to the difficulty and expense of complying with federal and international standards.5

A more recent study by Tatamir and Durrance found that twenty-five of thirty-two major database vendor platforms such as ProQuest and JSTOR were “marginally accessible” or “completely inaccessible” to screen readers, a sobering proportion considering the share of annual library budgets these materials consume. Tatamir and Durrance found that reasons for noncompliance given by Web developers in both commercial and library environments for websites and tools include:

- the difficulty and expense of creating accessible sites
- the absence of visually appealing graphics
- the presumed absence of users with disabilities in the target audience
- a misconception that screen reader technology will catch up with mainstream technology due to the rapid innovations occurring in computing technology over the past decade6

**Why Accessible Collections Make Sense**

While becoming familiar with accessibility standards and coding techniques to achieve compliance does take an initial investment of time, designing and purchasing compliant materials and resources ultimately make websites and collections that are easier to migrate; more portable, maintainable, and upgradeable; and more likely to interoperate with other tools. Moreover, in the long run, compliance can actually save time and money, as accessibility lawsuits are costly not only in dollars, but also in terms of customer faith and loyalty, which are much harder to fix than inaccessible webpages and resources. Most importantly, planning with an eye toward universal design—based on the idea that websites and digital resources constructed using accessibility standards provide better experiences for all visitors—ensures that there will be no need to retrofit or redesign existing sites and tools.

**Recommendations for Collections Accessibility Best Practices**

What do the accessibility checkpoints and guidelines outlined in previous chapters mean for library collections accessibility? While a thorough exploration of the standards is beyond the scope of this issue of Library Technology Reports, the remainder of this chapter will highlight core collections accessibility approaches for library professionals.

**Vendor Database Accessibility**

In their recent paper discussed above, Tatamir and Durrance “operationalized accessibility into ten component parts as the Tatamir Accessibility Checklist, or TAC,”7 which combines both the “federal web accessibility legislation, international web accessibility standards and the researcher’s personal experiences engaging with online and digital environments to distill the ten features that are key to accessibility for users of adaptive technologies.”8 This list can be used as a cost-effective guideline to reviewing online content for its accessibility performance. The TAC contains the following accessibility best practices:

1. accessible versions of PDF webpages and documents;
2. skip navigation and jump-to links;
3. clearly labeled page elements;
4. text captions for tables, images, graphics, graphs, and charts;
5. limited use of incompatible programming languages and scripts;
6. the absence of identically named page elements;
7. text transcripts of videos, animations, and podcasts;
8. logical and consistent page organization;
9. absence of timed responses; and
10. digital forms and functionalities accessible and usable with adaptive technologies9

Databases and websites such as Google, Google Book Search, Google Scholar, ProQuest, FirstSearch,
JSTOR, and government websites remain some of the most accessible websites and research databases available to adaptive technology users (see table 5.1). For the most part, these websites and databases load quickly, are organized in a logical manner, and return results that are easily read. Interaction with the webpages is relatively smooth, and learning to use the websites requires minimal time and effort. With that being said, many of these websites are still missing one or two TAC features, such as skip-navigation links, which in fact can make using the page more frustrating and time consuming than it has to be for adaptive technology users. Moreover, the accessibility features are not always easily located and activated, which can also lead to increased frustration and difficulties using the databases and webpages.

By contrast, a majority of academic databases and library sites remain only marginally accessible or inaccessible to adaptive technology users (see tables 5.2 and 5.3).

As these tables indicate, as of 2010, popular library databases and websites such as Lexis-Nexis, WilsonWeb, Medline, Elsevier, Sage Journals, and Gale were all missing four or more TAC features, such as easily located search windows, skip-navigation links, logical page organization, compatible programming scripts and languages, and forms and functions accessible to adaptive technology users. In addition to taking a long time to load, usually from five to seven minutes, the databases, if successfully loaded (which is not guaranteed), often read slowly or as blank, communicated things that were not there, did

<table>
<thead>
<tr>
<th>Table 5.1</th>
<th>Moderately accessible databases.</th>
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| ABI-Inform Global | Contains Accessible Version of PDF Documents | Contains Skip-Navigation and Jump-to Links | Contains Clearly Labeled Page Elements | Contains Clearly Labeled Table Captions | Contains Clearly Labeled Graphs, Charts | Contains Limited Use of Inaccessible Programming Language and Scripts | Contains No Identically Named Page Elements | Contains No Identically Named Transcripts of Videos, Animations, and Podcasts | Contains Logical and Consistent Page Organization | Contains Forms and Functionality Accessible to Adaptive Technologies | Load Time (Minutes) and Load Time Rating | Number of Missing Features | Overall Accessibility Rating |
|-------------------|---------------------------------------------|--------------------------------------------|--------------------------------------|----------------------------------------|------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-------------------------------|---------------------------------|-------------------------------|
| Cancer Lit        | Y                                           | Y                                          | Y                                    | Y                                     | Y                                        | Y                                             | Y                                             | Y                                             | Y                                             | Y                                           | Y                                             | 3.0 (Q)                        | 2 MO                           |
| General Science Abstracts | Y                                           | Y                                          | Y                                    | Y                                     | Y                                        | Y                                             | Y                                             | Y                                             | Y                                             | Y                                           | Y                                             | 3.2 (Q)                        | 2 MO                           |
| Google Book       | Y                                           | N                                          | Y                                    | Y                                     | Y                                        | Y                                             | Y                                             | Y                                             | Y                                             | Y                                           | Y                                             | 3.0 (Q)                        | 1 MO                           |
| Google Scholar    | Y                                           | N                                          | Y                                    | Y                                     | Y                                        | Y                                             | Y                                             | Y                                             | Y                                             | Y                                           | Y                                             | 3.0 (Q)                        | 1 MO                           |
| Humanities Abstracts | Y                                           | Y                                          | Y                                    | Y                                     | Y                                        | Y                                             | Y                                             | Y                                             | Y                                             | Y                                           | Y                                             | 3.8 (Q)                        | 2 MO                           |
| JSTOR             | Y                                           | Y                                          | Y                                    | Y                                     | Y                                        | Y                                             | Y                                             | Y                                             | Y                                             | Y                                           | Y                                             | 3.0 (Q)                        | 1 MO                           |
| OCLC World Cat    | Y                                           | Y                                          | N                                    | Y                                     | Y                                        | Y                                             | Y                                             | Y                                             | Y                                             | Y                                           | Y                                             | 4.0 (Q)                        | 2 MO                           |
| ProQuest          | Y                                           | Y                                          | N                                    | Y                                     | Y                                        | Y                                             | Y                                             | Y                                             | Y                                             | Y                                           | Y                                             | 4.0 (Q)                        | 2 MO                           |

MO = Moderately Accessible, Q = Quicker Loading

not easily allow users to move around the page, and, most commonly, froze or crashed the computer. As a result, a majority of the databases and webpages that individuals need to utilize for academic or work-related research are inaccessible to adaptive technology users.

As this chapter concentrates primarily on the technical aspects of database accessibility, a brief discussion of the authors' personal experiences with adaptive technologies and engaging with websites and databases will hopefully help librarians understand the difficulties and barriers faced by adaptive technology users. The absence of one or more TAC features significantly reduces the user experience of a webpage or a digital resource for a screen reader or other type of adaptive technology user. As a means of highlighting the need for improvement in Web content accessibility in general, it should be noted that none of the databases studied contained all ten TAC features.

Use an Accessibility Checklist

An accessibility checklist can be used during the purchasing process to evaluate the performance of a database, website, or piece of software to determine if it meets accessibility criteria, or to evaluate the performance of your current subscriptions. The Association of Specialized and Cooperative Library Agencies (ASCLA) provides several such checklists at its Think Accessible ALA site, referred to in several places throughout this issue of *Library Technology Reports*.
ASCLA’s “Think Accessible before You Buy” provides evaluation checklists for databases and software as well as Web-based content. The former checklist specifies twelve accessibility points to consider when making database purchases:

**Electronic Database and Computer Software Accessibility Evaluation**

1. Can just a keyboard be used to effectively operate this product?

2. Can you use the product while running adaptive technology or user enabled accessibility options?

3. Does the product have any of its own useful accessibility features to assist users?

4. If using adaptive technology, can users distinguish where they are on the interface?

5. Have controls and functions for operating the software been properly labeled or described?

6. Are images associated with certain user

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<th>Contains Accessible Version of PDF Documents</th>
<th>Contains Skip-Navigation and Jump-to-Links</th>
<th>Contains Clearly Labeled Page Elements</th>
<th>Contains Text Captions of Tables, Graphs, and Charts</th>
<th>Contains No Inaccessible Programming Language and Scripts</th>
<th>Contains No Identically Named Page Elements</th>
<th>Contains Text Transcripts of Videos, Animations, and Podcasts</th>
<th>Contains Logical and Consistent Page Structure</th>
<th>Contains No Timed Responses</th>
<th>Contains Forms and Functionalities Accessible to Adaptive Technologies</th>
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</table>

I = Inaccessible, Q = Quicker Loading, S = Slower Loading


Table 5.3
Inaccessible databases.
actions consistent throughout the program?
7. Can all text be read when using adaptive
technology, especially screen magnifiers
and readers?
8. Can any animations be disabled without
interfering with the product’s performance,
and do they all have a text equivalent?
9. If color is removed, can users still effec-
tively operate and use the product?
10. If users can adjust screen colors, do the color
choices allow for a variety of contrasts?
11. Can any elements on the display that blink
or flash be disabled without affecting use of
the product?
12. Can adaptive technology users effectively
enter information where appropriate?

ASCLA’s Think Accessible Before You Buy
www.ala.org/ascla/asclaprotools/thinkaccessible/default

Money Talks! Require a VPAT

Another straightforward step a public or academic
library can take toward combatting inaccessible col-
lections, both locally and globally, is to state your
commitment to accessible and compliant digital con-
tent in collection development policies, and also back
this up by requiring that e-content vendors submit a
Voluntary Product Accessibility Template (VPAT) as
a standard part of their technical requirements docu-
mentation or licensing agreements.

The VPAT is a form developed by the Information
Technology Industry Council that helps federal
agencies determine the accessibility of their online
and technology contracts and can be used similarly
by libraries to great effect. By requesting that online
content vendors self-disclose their own products’
accessibility performance, a library can use the VPAT
to encourage vendor accountability and transpar-
ency, reduce its own burden of compliance proof, and
become better informed on the positive and negative
accessibility features of specific products, which it
can then pass on as valuable information to its users.
You can learn more and download sample VPATs
from the Information Technology Industry Council
website.

Information Technology Industry Council: VPAT
www.itic.org/index.php?src=gendocs&ref=vpat

As an example of this strategy in action, in
2011, the University of California system’s Califor-
nia Digital Library adopted a groundbreaking VPAT
requirement in its Technical Requirements for Vendors
specifications:

5.11 COMPLIANCE WITH THE AMERICANS
WITH DISABILITIES ACT (ADA)

The CDL is committed to providing resource
access to members of the UC community with
disabilities. Preferred vendors will comply with
World Wide Web Consortium (W3C) “Web Con-
tent Accessibility Guidelines” and Section 508 of
the Rehabilitation Act of 1973, as amended (29
U.S.C. 794d). As part of the Selection/Evaluation
document submitted to the vendor, vendors
should submit proposals that include a reason-
able response to applicable sections of the Vol-
untary Product Accessibility Template (VPAT),
particularly sections 1194.21 - Software Appli-
cations and Operating Systems; 1194.22 - Web-
based Internet Information and Applications;
1194.31 - Functional Performance Criteria; and
1194.41 - Information, Documentation and Sup-
port, in order to describe product accessibility
compliance. Disclosure of noncompliance as
well as a clear timeframe for compliance should
be included in the Remarks and Explanations
column.

The CDL reserves the right to conduct real-
world testing of a vendor’s product or ser-
vices to validate claims regarding Section 508
compliance.

Library Websites

Beyond the accessibility performance of the database
itself, library websites often have extensive navigation
within guides, maps, service or department informa-
tion, forms, and other resources that make e-research
difficult for users with disabilities. This can result in a
webpage or digital resource featuring e-content that is
packed with more than fifty links organized into five
or six main headings. To simplify the database access
process, some skip-navigation method should be used
to prevent a user with a screen reader from having to
endure hearing this entire list of links read every time
a page containing such organization is loaded. Refer to
chapter 4 by Debra Riley-Huff for a list of additional
methods your institution can employ to make Web
content more accessible.

Metasearch and E-learning Tools

Many libraries employ metasearch tools such as federa-
ted searching, next-generation catalogs, and discov-
ery layer products. These metasearch tools should be
vetted to ensure that any code used for a single-search
experience, whether developed in-house or provided by
a vendor, follows best practices for coding forms. For example, broken search forms on library home pages render the most important parts of the site useless for users with disabilities. Tutorials, podcasts, videos, and other audiovisual content have also become popular mainstays of instruction and engagement in libraries. Transcripts or captions that convey the content as accurately as possible for disabled users should be provided.

Mobile = Accessible

One of the things the authors of this article have discovered as librarians and frequent Internet users is that the mobile websites created for smartphones and other portable computing devices are more accessible, due to their reduced complexity and decreased number of features, than the regular webpages created for laptop users. Consequently, a real and viable solution may be to create mobile apps that are designed specifically to be accessible, in order to promote the same ease and depth of access that mainstream users enjoy, in an application that has been designed and tested to meet the needs of adaptive technology users. These features often reflect the fundamentals of good usability and design, so a mobile app designed for accessibility can provide a great user experience for all. With the baby boomer generation and adaptive technology users needing and demanding equal access to information and webpages for all aspects of work, academics, and personal life, creating accessible apps may be a way of providing the best quality services and access to all library patrons.

Conclusion

While becoming acquainted with the nuances of Section 508 and the WCAG requires some initial time and effort, we owe it to our patrons with disabilities to educate ourselves, and the vendors who support us, about accessibility issues. If libraries and librarians choose to champion accessibility as an important social issue, many of the obstacles impeding progress towards accessible libraries would be more easily and swiftly overcome with the backing of these influential institutions. We can use our considerable advocacy and purchasing power to select those digital resources, databases, and tools that are the most standards-compliant as a means of encouraging product vendors to become more compliant with accessibility and make accessibility a higher priority. As libraries and librarians are their primary customers, we can create change by emphasizing the importance of all of our user groups.

Recommended Resources


Notes

4. Ibid., 470.
5. Byerley, Chambers, and Thohira, “Accessibility of Web-Based Library Databases.”
7. Ibid., 577.
8. Ibid., 577.
9. Ibid., 583.