User-centered Web Development for Information Organization

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Abstract

The history of web development for information organization began when leftover World War II information retrieval technologies were researched for practical use. IBM explored the uses of information retrieval systems for indexing and searching that led to the development of webpages. Libraries today must ensure that the website they create are not only well-organized, but also user-centered and accessible. Usability studies are helpful for libraries in identifying any gaps in the usability of the websites from the users' perspective. Section 508 and WCAG standards should be integrated in the website development to assure that all users can access the website. It is also important that websites are interoperable with assistive technologies. W3C also prescribe standards for open source, web authoring tools. Library web developers can maintain attractive, accessible and functional sites using any of the popular web authoring tools. Also, open source software will keep costs low to operate the library website.

Keywords: accessibility guidelines, content management systems, information retrieval, open source software, web development

Introduction

To discuss information organization in the context of web development design and maintenance, it is important to examine the evolution of websites in libraries. The most obvious area where advancements in web technology can be observed is information retrieval approaches in digital libraries. This is because information retrieval technologies left over from World War II inspired computer science research, thereby led to the creation of digital libraries. Lask (2012) offers a summary of the approach computer scientists, inspired by the decoding technology of World War II, took to create information retrieval systems. Further along in the 1960s, IBM led technology corporations in information retrieval exploration by conducting and sponsoring research in information retrieval. IBM's involvement further spawned funding and more information retrieval projects. According to Lask (2012), this was a boon for internet-based searching systems in the libraries: "People now went back, got all the algorithms for indexing and searching, and built improved search systems, which today provide sub-second response time for queries over billions of web-pages. And so, the technology problem seemed solved…" (p. 595).

Today, web authoring technologies are numerous. Because creating websites is easier than back in the 1960s, the challenge libraries face today is to create effective websites that deliver accurate and relevant information to the user. To achieve this goal, libraries benefit most from implementing usability research to analyze user behavior and interactions with library websites. Haggerty & Scott (2019) conducted a usability study to evaluate if any improvements were needed to their academic library website. They found that the less mouse clicks and the more patrons conducted their research using the search box, the faster they were able to obtain successful search results (p. 301). Their findings resulted in removing some unused search

features and emphasizing others so to increase the findability of resources from their webpage. Overduin (2019) conducted a usability study after the redesign of the library website that integrated new web standards. The study found that returning users were the most confused about the features in the redesign. The users' feedback was that although the redesigned website was more streamlined and appealing, they did not feel confident in seeking information from the website. The redesign team used the feedback and implemented four strategies to mitigate the flaws in the redesign: maintain terminology; multiple points of access, access to help, and a FAQ page.

The use of tools such as usability studies can be used to perform ongoing quality checks on the effectiveness of a library's website. Also, the integration of accessibility standards during development can ensure that all users are able to access the content of the website. Librarians responsible for web authoring will find that various open source content management systems will support their development of effective and user-centered websites.

User-centered Web development

In the early days of web development, the focus was to create attractive websites that enticed the user to click and discover the contents of the website. As search engines became faster and more sophisticated, the user became more accustomed to this convenience. Therefore, the focus of website development has shifted to providing both aesthetics and functionality: a more user-centered design. Also, assistive technologies have become more advanced and designed to support users to navigate the internet. So, institutions have consciously used Web Content Accessibility guidelines to build user-friendly websites for all.

Web accessibility.

DeLancey & Ostergaard (2016) define web accessibility as "…websites are designed to ensure that all users, regardless of ability, are able to use, navigate, and perceive web content" (p. 180). The authors further explain is that websites must share interoperable features with assistive technologies such as Job Access with Speech (JAWS), to increase the accessibility of the website to persons with disabilities. Institutions do not ensure their websites are accessible for the sake of humankind, it is the law. Section 508, subpart B of the U.S. Rehabilitation Act of 1973 had Standards for Web design added in 1998. Mchale (2011) explains that "Section 508 seeks to ensure "that Federal agencies' electronic and information technology is accessible to people with disabilities..." (p. 155). In 1994, the World Wide Web Consortium (W3C) established the Web Content Accessibility Guidelines (WCAG). The guidelines although voluntary, are detailed procedures that guide library web developers in meeting the standards in Section 508. And why is this important to libraries? Delancey & Ostergaard (2016) assert that "…we owe it to our patrons with disabilities to educate ourselves, and the vendors who support us, about accessibility issues" (p. 159).

Content Management Systems- Open Source software.

W3C guidelines defines authoring tools as "*any* software is used to write the web, from enterprise content management systems (CMSs) through to microblogging mobile apps, whether web-based, non-web-based or a combination" (www.w3.org/standards/agents/authoring). CMSs offer libraries a low cost solution to building both accessible, attractive and functional websites. Popular open source software tools used in libraries are Drupal, Joomla!, Wordpress. All of the software offer WYSIWYG editing which allows users who have little knowledge of coding to build webpages.

Wordpress and Joomla! are tools normally used for small to mid-sized libraries. Drupal is popular with larger libraries because it offers OPAC and integrations compatible with vendors (https://blog.techsoup.org/posts/content-management-systems-for-library-websites, 2015). Libraries are turning to open source software because it offers a low cost alternative to Service-as-a-Software tools such as BiblioCMS, LibGuides and Omeka.

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