Website Accessibility: Stagnation or Reluctance?

Jessica Sams

Professor Lisa Ortiz

COM 4450 Advanced New Media Production

May 4, 2016

Website Accessibility: Stagnation or Reluctance?

Creating websites that work for everyone can be a challenging task. Website audiences may have similar goals yet not have similar abilities. Web developers, writers, and designers may desire to create the best online experience for site audiences, but they may not have been trained how to plan their final web design for people of varying abilities. Legislation and voluntary guidelines seem to have made very little impact in the progress of making the internet an accessible place. This paper will explore accessibility regulation compliance, evaluation tool progress, and web content producer objections to thinking about accessibility.

Steve Krug, author of *Don't Make Me Think, Revisited: A Common Sense Approach to Web and Mobile Usability*, lends a chapter of his book to accessibility concerns, noting that nine years ago he had expected progress in the areas of developer tools, screen readers, browsers, and accessibility evaluation tools. Unfortunately, developers are still confused about site accessibility, and the tools they use have not progressed. Designers and developers fear an added layer of complexity combined with less design choices when they imagine what it would take to make their website accessible. Krug says the first thing to do to improve accessibility, however, is to improve a site's usability; make the site easier for everyone to use by fixing the parts that are confusing to everyone (173-181). The Nielsen Norman Group, a consulting and training group focusing on "evidence-based user experience research" states on page six of their 2001 Usability Guidelines for Accessible Web Design, "obviously, if you cannot access a site, you also cannot use it." In many cases, usability improvements also improve accessibility for users with disabilities.

Terminology

The industry has chosen the term ‘disability’ as a catch-all phrase referring to people with limitations to their vision, hearing, mobility, or cognition. People move through different phases of disability during their lives, so the term does not always imply a person was born disabled or will be disabled for life (Persson 506). For instance, the 2010 U.S. Census reveals there are approximately 56 million persons with disabilities, and 38 million elderly persons (Yi 75). The elderly may or may not experience some or all types of the listed functional difficulties.

Website accessibility is the ability of a website to allow as wide a spectrum of users as possible equal access to the content on the site. Assistive technology is intermediary software or hardware that allows a person with a disability easier access to website content, such as a screen reader, screen magnifier, joystick, head control, mouth stick, or closed captioning. In order for websites to become more accessible, website designers and developers need to know that there are ways to improve their site’s compatibility with assistive technology.

Universal design is a concept born out of the barrier-free building design trend that started in the 1950s when a large number of injured soldiers returned to the U.S. after the Vietnam War and needed wheelchair access to buildings (Persson 507). The term universal design was coined by architect and product designer Ronald L. Mace to mean “a concept of designing products and environments for the needs of people, regardless of their age, ability or status in life” (Persson 508). According to author Hans Persson, the current design thinking trend terms are converging so that ‘accessible design’ and ‘universal design’ both define a similar concept: “to ensure that mainstream

equipment and services can be used by a wide range of users, including older people and those with disabilities" (510).

Legislation and Guidelines

The Rehabilitation Act of 1973 prohibits federal employers from discriminating on the basis of disability. Due to the rapid adoption of technology in the workplace, a subsequent amendment called Section 508 was added in 1986 and updated in 1998 to include technical standards for digital information. Just as a curb or stairs are barriers to physical places for someone in a wheelchair, there are also barriers to equal access to electronic information. Section 508 is about removing technological barriers to electronic information. Federal agencies are required by law to comply with the guidelines set out in Section 508 (Persson 512).

As stated on the United States Department of Labor website, the Americans with Disabilities Act (ADA) was passed in 1990 to prohibit "employment discrimination against employees and applicants with disabilities in organizations that employ 15 or more employees." The ADA website at ada.gov lists their own standards called "2010 ADA Standards for Accessible Design," referring mostly to building design, but there is a callout for "Accessibility of State and Local Government Websites to People with Disabilities." It refers developers to Section 508 and the Web Accessibility Initiative Guidelines (WCAG), explained below.

The sixteen guidelines for Section 508 are lengthy and written in legal jargon. Basically, the guidelines help web content developers avoid the accessibility problems that may come up for people with low vision, blindness, color-blindness, hearing disabilities, mobility limitations, and cognitive limitations. For instance, there is a

guideline to avoid the use of color alone to convey information. This would negatively impact a color-blind individual, so the designer is encouraged to underline a hyperlink as well as change its color, for instance. Some of the other guidelines provide that: users should be able to access information with keyboard only, there should be alternative text set for every graphical element, there should be no blinking or strobing animations with a blink frequency between 2 Hz and 55 Hz, there should be a way to pause or turn off an animation, video presentations should display subtitles synchronized with the audio track, and content on the web site should be able to be adequately read with style sheets turned off.

In 1997, Tim Berners-Lee began the Web Accessibility Initiative (WAI) of the World Wide Web Consortium (W3C). While not government-mandated, the WAI established guidelines for web content developers titled the Web Accessibility Initiative Guidelines and referred to as WCAG. Accessibility expert Jim Thatcher outlines that there are many similarities between the guidelines of Section 508 and WCAG, yet there are some WCAG recommendations not present in Section 508. One Section 508 guideline is not present in WCAG, and two guidelines more specific in Section 508 than in WCAG.

Due to the rapid advances in e-commerce, social networks, and e-learning web sites, the WAI released a set of candidate recommendations on January 18, 2011, called accessible rich internet applications (WAI-ARIA). Websites are now taking advantage of rich Internet applications (RIAs), which have caused a host of accessibility problems. The WAI home page explains that the guidelines help “with dynamic content

and advanced user interface controls developed with Ajax, HTML, JavaScript, and related technologies."

Developers: To Comply with Guidelines or Not?

Web content developers are confused about accessibility guidelines. Some are ignorant of the presence of guidelines, and some are overwhelmed by them. The variety and overlap of government mandated versus voluntary guidelines is enough to give any web content developer pause. Before accessibility guidelines were established, the problems with creating accessible content included lack of budget, lack of skills, lack of knowledge, and lack of authoritative guidelines (Yi 75). Yong Jeong Yi published a study of public library system websites with a critical eye for accessibility in 2014. Yi found that even though there are now well established accessibility guidelines, there is an alarming lack of compliance throughout the nation's library sites. Is the culprit lack of budget or simple ignorance of the law?

In the same vein, a study published by the Universal Access in the Information Society notes that web designers feel discouraged by the overwhelming amount of information present in today's guidelines. Today's evaluation tools are "usually adopted to judge a design solution a posteriori, but [the guidelines] do not suggest how to face a design problem constructively" (Fogli 205). The evolution of web site technology has progressed more rapidly than the developer guidelines, creating a "state of uncertainty, which has been often considered by developers as a good reason to go around the accessibility problem" (Fogli 206). There is the possibility that developers side-step learning about accessibility because they would need to study and memorize "long lists of accessibility criteria whose consultation is very time-consuming" (Fogli 206).

In a 2015 conference proceeding from the 17th International Conference on Information Integration and Web-based Applications and Services, Ibtehal Baazeem noted that "…despite the large number of international web accessibility standards and a variety of evaluation methods, delivering accessible web content is still considered as a huge challenge for web developers and designers, especially with increasingly dynamic web content…" (Baazeem 1). Of special note is that even as rich internet technologies are evolving rapidly, the subsequent guidelines and specifications are also trying to keep up as well, compounding the confusion developers experience when trying to maintain accessibility compliance. Do their evaluation tools keep up the same pace?

Compliance Evaluation

The W3C WAI website endorses 75 third-party tools for accessibility evaluation. Ideally, web developers would use a handful of these tools to generate automated reports about different facets of their site's compliance with Section 508 and WCAG and then adjust the coding of the site until it tests compliant. Some web content producers also employ user testing, expert consultations, and/or surveys as their evaluation methods. Usually the first step to usability and accessibility is to run the web site through an HTML validator. Baazeem's study notes that only a small percentage of web developers use an HTML validator like the one freely offered at validator.w3.org. He notes that using a validator "is critical because invalid webpages prevent assistive technologies from accessing and interacting efficiently with them," (Baazeem 3) thus increasing the chances that subsequent evaluation tools will fail the site for WCAG's most urgent conformance level. Baazeem's study set out to observe the advancements

in tools used for accessibility evaluation from 2011 to 2015. The results show a stagnation in evaluation method development. “There has not yet been a noticeable effort in introducing new accessibility evaluation methods” in the last five years (Baazeem 4).

Despite an abundance of guidelines available, most of the web remains inaccessible. Baazeem considers that because there is no consensus on evaluation tools, and the guideline authors are not providing the automated testing tools, perhaps that is why most of the web scores low on accessibility.

Compliance Results

The Neilsen Norman Group estimates that navigating the web is three times harder for users with visual impairments than for sighted users. If state-funded library web sites can serve as a benchmark for the rest of the web, we will discover in this next article that compliance results are extremely poor.

Yong Jeong Yi’s 2013 study, “Compliance of Section 508 in Public Library Systems with the Largest Percentage of Underserved Populations,” isolated public library websites in 20 cities with the highest percentages of older adults and people with disabilities. Then he compared the IT budgets with the accessibility compliance results of each library system. Surprisingly, the size of the budget had no impact on the accessibility of the site. And furthermore, most of the sites tested did not comply with the sixteen guidelines of Section 508. Yi’s conclusion is that the “overall low accessibility of the sample suggests that state requirement for accessibility compliance has no effect on enforcing their libraries’ Web accessibility” (Yi 79).

Video Accessibility

Libraries often create video tutorials for their audiences, in order to screencast answers to database questions, or teach how to accomplish some research task. Learning design librarian Amanda Clossen provides a review of accessibility barriers inherent in library video tutorials in her article “Beyond the Letter of the Law.” Clossen asks readers to assume a Universal Design perspective and take another look at video creation from the point of view of users who may not be fluent in English, who may not be able to use a mouse, who are recently disabled, or who have a hearing impairment. YouTube, she explains, offers disabled users support for screen readers as well as support documentation for keyboard shortcuts. Vimeo, however, does not. Some libraries build their own video hosting frameworks, but when doing so they sometimes forget to plan for keyboard-only access. Open and closed captioning are two options often ignored by content creators, in favor of simply offering a transcript in a separate PDF or Word Doc, which is a flawed solution at best. Clossen explains that the user cannot control open captioning, but the user can toggle closed captioning on or off. Both offer synchronized captioning with the multimedia presentation, thus fulfilling one of Section 508’s guidelines.

Worldviews, Perspectives, and Ethics

Trends in the rationalizations developers assume for neglecting accessibility seem to be that *it’s hard - I may have to study*, *I don’t have time*, and *I’m confused*. Diving deeper into the objections, *why should I* ranks high. *Why should I re-code my entire web site for just a few users?* Clossen advises she only found two articles about video tutorial creation that discuss accessibility at all. She infers this dearth is “indicating

that the concerns of people with physical needs diverging from the ‘norm’ are tangential to the design process” (29). What an “ableist perspective,” she bemoans. Some developer/designers object: *how do we design for the minority, for the ‘other’ when ‘normal’ users are in the majority?* She warns, “as long as ‘other-ing’ of disabled individuals is perpetuated, making their concerns only minor design considerations, real accessibility becomes a pipe dream” (29).

Persson’s research points to philosophical underpinnings of the structure of society as possible impediments to accessibility thinking. Persson offers examples from the post-structuralism philosophical tradition showing how identity is formed based on a concept of normal. Society as a whole has tended to define minority groups as entities separate from the rest of society, and therefore not normal. This leads to his conclusion that there is a “need to join forces to arrive at a common conceptual framework” around the concept of accessibility (524).

Conclusion

Whether developers plan for the most basic of accommodations to adhere only to the letter of the law, or whether they abide by a lifelong credo to build websites that are as inclusive as possible to fulfil the spirit of the law, it seems evident that once the developer community learns that there are guidelines to follow, each one’s personal worldview determines whether they dig further into the guidelines (Clossen 29). As a closing thought in favor of inclusivity, consider these words from the Nielsen Norman Group: “To truly achieve equal opportunity and broad benefits from the Internet, we must consider all users when we design, and stop treating one group three times better than others.”

Works Cited

Baazeem, Ibtehal S., Hend S Al-Khalifa. *Proceedings of the 17th International Conference on Information Integration and Web-based Applications and Services: Advancements in Web Accessibility Evaluation Methods: How Far Are We?* 11-13 December 2015, Brussels, Belgium. *Association for Computing Machinery*. Web. 29 Apr. 2016.

Clossen, Amanda. "Beyond the Letter of the Law: Accessibility, Universal Design, and Human-Centered Design in Video Tutorials." *Pennsylvania Libraries* 2.1 (2014): 27-37. Library, Information Science & Technology Abstracts. Web. 28 Apr. 2016.

Fogli, Daniela, Loredana Parasiliti Provenza, and Cristian Bernareggi. "A Universal Design Resource for Rich Internet Applications Based on Design Patterns." *Universal Access in the Information Society* 13.2 (2014): 205-26. *Springer Link.* Web. 28 Apr. 2016.

Krug, Steve. *Don't Make Me Think Revisited: A Common Sense Approach to Web and Mobile Usability*. Berkeley, Calif: New Riders Pub, 2006. Print.

Persson, Hans, et al. "Universal Design, Inclusive Design, Accessible Design, Design for all: Different concepts—one Goal? on the Concept of accessibility—historical, Methodological and Philosophical Aspects." *Universal Access in the Information Society* 14.4 (2015; 2014;): 505-26. *Springer Link*. Web. 28 Apr. 2016.

Thatcher, Jim. "Side by Side WCAG vs. 508." *JimThatcher.com*. James Thatcher. Web. 2 May 2016.

Yi, Yong Jeong. "Compliance of Section 508 in Public Library Systems with the Largest Percentage of Underserved Populations." *Government Information Quarterly* 32.1 (2015): 75-81. *ScienceDirect*. Web. 28 Apr. 2016.