White Paper: Web Accessibility

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Introduction

What I have to communicate about accessibility is not related to a single project, or a single way of doing things. Many of the projects I have worked on are proprietary and confidential, and there is no single sample project that can define my entire philosophy about making the World Wide Web accessible all by itself. But, after a long career in user interface design, I have many ideas, and examples, and suggestions that can help User Experience practitioners begin to think about how they can incorporate accessibility into their electronic delivery projects. The white paper below includes a high-level view of some of my philosophies.

Who Does Web Accessibility Benefit?

Practitioners who are not educated about Web Accessibility often assume that accessibility means making the World Wide Web accessible for people who are blind and use screen readers to listen to web content. But there are many other human needs that must be addressed when making the internet accessible for the widest possible audience. We need to provide accommodations for people with low vision, color blindness, aging eyes, hearing impairments, inability to use a mouse or keyboard, cognitive difficulties, language barriers, and on and on. Sooner or later, everyone who studies accessibility comes to realize that no one is excluded from needing accommodations in some way—that we are all on some kind of spectrum when it comes to internet access.

Stages in the History of Web Accessibility

Section 508, one of the first sets of accessibility guidelines—adopted by the U.S. government to ensure that software acquired by U.S. government agencies was accessible—went into effect in 1997. Since then, I see two distinct periods in the short history of making the internet accessible for people with disabilities and people across the entire spectrum of human abilities and needs who use the internet.

Stage 1: Static Web Sites & GUI User Interfaces

The first stage was the era of static web sites, the age of the HTML writer and the webmaster. In those days, web sites were often laid out with tables and miss-used HTML elements. The person who could make the biggest impact on a website for accessibility was the front-end web developer, because there was not usually a back-end to consider at all. Graphical User Interface (GUI) applications, rather than web browsers, took care of products that required interaction with the user. The technologies that supported GUI user interfaces included Application Programming Interfaces (APIs), which, if they were incorporated properly, provided all the information that assistive technologies (such as screen readers and voice-activation software) needed to interact with them.

The front-end web coder could make a website accessible by using HTML tags as they were intended, by adding alt tags to images, and by avoiding certain bad habits and incorporating certain good habits, as spelled out in the U.S. Government's Section 508 standards.

The next phase in this same era was the advent of Cascading Style Sheets (CSS) and the XHTML specification, which provided stricter web coding standards for web developers. The job in this era was making web sites cross-browser compatible, because browsers varied even more widely in their capabilities than they do today, and assistive technology manufacturers could barely keep up with the changes.

During this time, the World Wide Web Consortium (W3C) delivered the Web Content Accessibility Guidelines 1.0, which gave web authors specific guidelines to follow to make web sites accessible. I developed my organization, Boston-IA (www.Boston-IA.org), during this period and began spreading the word to other web developers and accessibility advocates about how to make essentially static websites accessible. We held meetings, and gathered accessibility experts to talk about Web Accessibility, and people with disabilities to demonstrate their needs for Web Accessibility. Things were looking hopeful for constant improvement in making the Web more usable for people with the wide range of human abilities.

Stage 2: Dynamic Web Site & Interactive Rich Internet Applications

But today, we live in a different world. Today, in addition to static websites, we have web applications (now called Rich Internet Applications) running in browsers on the internet. The complication now, instead of great browser discrepancies, is the much wider variation in screen resolutions and operating platforms, from desktops to tablets to a wide variety of handheld devices.

Teams of people are working on these applications together, and the job of making the internet accessible falls to entire cross-disciplinary teams rather than small groups and individuals. Now the job of developing accessible web applications requires cooperation among people with all kinds of job descriptions—including user experience professionals of all types who work on what is displayed in internet browsers, and experts in other disciplines who are working behind the scenes to make user interactivity happen. Everyone—including information architects, usability professionals, web designers, visual/graphic designers, front-end web developers, back-end web developers, database and security experts, content managers, and many others—not to mention the stakeholders and managers who have to keep these projects on track—needs to be involved.

Lack of Corporate Commitment Web Accessibility

In my job as a front-end web developer and Web Accessibility consultant, I have contributed to a wide range of web development projects, from very small projects to projects for enterprise-sized organizations and governmental agencies, and I have seen a wide range of levels of commitment to Web accessibility. The unfortunate fact is that only about one-third of the contracts I have been hired for, despite my resume emphasizing my Web Accessibility expertise, have been on projects where my accessibility focus has been valued. In fact, I have been asked on more than one job interview to put my accessibility knowledge aside, because "accessibility is not one of our requirements."

Dynamic Web Applications Not Inherently Accessible

Now that the job of the front-end web developer has moved to HTML5, CSS3, and Javascript, and many other people—besides just the front-end web developer—are participating in developing what shows up in the browser window, a shift has taken place in the level of difficulty that needs to be addressed to make web applications more accessible for people with disabilities. Javascript allows developers to create their own components, and the accessibility hooks that the old GUI interfaces used to provide do not happen without conscious effort. The Web, now with all its dynamic applications, is probably more inaccessible for people with disabilities than it was a decade ago. At the moment, I think we have actually lost ground. But we can turn things around.

Positive Trends in Achieving Web Accessibility

The hopeful news is that platform developers like Microsoft and Apple and Android are paying attention to making their platforms accessibility-capable. Browser manufacturers participate in developing web standards, and the makers of assistive technologies are invited to the table. Some development tool products, JavaScript software libraries, and framework technologies have begun incorporating accessibility support, as well as accessibility themes and skins, into their products. New versions of the web standards for accessibility, such as the Web Content Accessibility Guidelines 2.0 and the Section 508 refresh (which is waiting for final approval by the U.S. Access Board), have been upgraded to cover a wider range of technologies. Other standards, such as the User Agent Accessibility Guidelines (UAAG) and Authoring Tool Accessibility Guidelines (ATAG), that guide browsers and assistive technologies in supporting accessibility capabilities, are also being updated to version 2.0, and are already widely adopted by the major players.

The Challenges of Modern Web Accessibility

The less hopeful news is that nothing is accessible out of the box, and developers have to pay attention to make even the products that they procure with an accessibility label on them accessible. The unfortunate fact is that most web practitioners do not receive more than a single course about accessibility during their education (if that), and they learn everything they need to know on the job by doing quick internet searches. Without a holistic view, accessibility seems extremely difficult and expensive to integrate, and so it gets lost in the shuffle.

The Legal Aspects of Web Accessibility

Once it was established that web applications are legally subject to the same Americans with Disability Act (ADA) regulations as brick and mortar stores to provide full public access, legal firms, teaming up with organizations that represent large blocks of disabled users, are systematically bringing lawsuits against the largest organizations using the Internet to deliver their products. Although there have been several high-profile cases that have appeared in the media, there are untold numbers of cases, many with extremely large corporations, that have been quietly settled out of court. These companies have had to go to great expense to make their web applications accessible, hiring accessibility consulting firms to help them retrofit their products to meet the requirements after the fact, which is far more difficult than incorporating it in the first place.

Web Accessibility as a Commitment

The most successful organizations making their web sites accessible, whether spurred by lawsuits or not, have discovered one of the major keys to successful accessible development projects: everyone in the organization has to be involved in the commitment to accessibility, and every piece of code must be created with accessibility in mind at all times. In a way, it is like committing to agile programming as part of the company's development process. Once everyone is on board with the idea of a commitment to accessibility, the entire organization can proceed with finding out what needs to be done to make it happen.

Practical Information for Implementing Web Accessibility

The key resource for incorporating accessibility is the Web Accessibility Initiative (WAI) at the W3C (http://www.w3.org/WAI/). The information on the site can be somewhat overwhelming at first, so a phased approach is necessary, taking it one step at a time. In fact, the best guideline is following the WAI's very own Implementation Plan for Web Accessibility (http://www.w3.org/WAI/impl/).

Depending on the size of the organization, the most important stages for user experience professionals to become involved in, as I see it, include:

1. Helping with efforts to gain commitment and buy-in for accessibility from everyone in the company.
2. Helping to promote accessibility awareness throughout the organization.
3. Helping to select the standards and guidelines most appropriate to the organization.
4. Learning how to conduct initial accessibility evaluations.
5. Helping to evaluate and select software products and tools that support accessible development.
6. Learning as much as possible about what makes applications accessible.
7. Becoming thoroughly familiar with the W3C and WAI standards, especially those related to Accessible Rich Internet Applications 1.0 (ARIA)—a specification that became a Proposed Recommendation at the W3C as of February 6, 2014.
8. Setting up usability studies with people with various disabilities and making sure as many people as possible see at least one such session.
9. Helping to create accessibility personas (knowing that there are too many types of disabilities to represent all of them).
10. Creating and providing training sessions about individual WCAG techniques specific to each discipline.
11. Developing accessible prototypes for the application or applications being developed.
12. Ongoing testing of interfaces for accessibility compliance as development progresses.
13. Breathing in the topic of Web Accessibility by joining local Web accessibility professional groups, subscribing Web accessibility mailing lists, combing the internet for Web accessibility resources, and inviting Web accessibility experts as speakers.

If budgets permit, hiring Web accessibility experts for guiding the development process in the first place is more cost-effective and makes much more sense than hiring them to help the organization fix things

later. It is much more expensive and difficult to hire experts after a law suit, or when a company decides it wants to market software to the government or an organization that requires accessibility from its vendors.

Conclusion

User Experience professionals have a role in helping steer their companies in the right direction, especially for new or redesign projects, when it is much cheaper to build in accessibility, the entire organization working together from the ground up. There is much to learn, but there are resources available and people who can guide organizations in making themselves more capable of achieving accessibility as part of the everyday process.