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Tools People with Disabilities Use to Interact with the Web

Robert Neff, U.S. Mint
Washington, DC

A government's, company's or organization's failure to provide universal accessibility on the Web is a serious impediment to its ability to provide information, services or products to over 54 million People With Disabilities (PWDs). For example, if:

- * An e-commerce Web site is not accessible to PWDs, the business has just lost an immediate customer and potential customers.
- * An organization or Federal, State or local Government does not provide access to its information, then they are not providing a public service.
- * A city does not provide bus routes in an accessible format, then PWDs cannot check the schedule, especially if the bus office closes at 5:00 p.m.
- * A library does not have the staff trained to support public computers or Internet terminals, then they cannot effectively serve the local community.

The Web provides information, products and services to people through the Internet, Intranets, or Extranets. Computers have enabled people to function at home or at work, and study, train, or surf the Web for information. Computers have also opened up the world to enable PWDs to be productive at home or work – the office now has no boundaries. The Web and other assistive devices have also enabled PWDs to use computers and to be productive.

More importantly, through the Web, the world has no boundaries. We can now learn about another city, culture, or train schedule from the Web. Whereas the Web has facilitated access to information, e-mail has expanded our exchange of ideas and friendships. We can now communicate to a larger audience, rather than by a single telephone call or a teleconference call.

We no longer need a dedicated office for the Web and e-mail--just a computer and connectivity to the Internet. There are several policies, including Americans with Disabilities Act (1990) and Rehabilitation Act Amendments of 1998, Section 508, that address

accessibility of information for PWDs under Federal, State, and local government. While ADA references State and local governments, Section 508 establishes a requirement that the Federal Government, and by extension, through the Assistive Technology Act of 1998 <www.itpolicy.gsa.gov/cita/AT1998.htm>, state government also, procure information technology that is accessible.

Universal accessibility is not just for PWDs – it is for everyone. Universal accessibility is needed to ensure that PWDs and others can access Web-based information. Even though ADA and Section 508 require Federal, State and local governments to make accommodations for PWDs, there are currently no Federal guidelines for agencies to use. However, some states, colleges, cities, and Federal agencies have implemented accessibility guidelines, for example the City of San Jose, California.

To build a universally accessible Web site, here is an outline of the processes the Web designer, coder, content manager, graphic artist or team can use. The foundation for any universally accessible Web site is the guidelines. The World Wide Web Consortium's Web Accessibility Initiative (WAI) has drafted guidelines, The Web Content Guidelines, for people to use. On this Web site you will also find Techniques for Web Content Accessibility Guidelines and List of Checkpoints for the Web Content Accessibility Guidelines. The Web Accessibility Initiative also provides an Interest Group or forum for discussion on issues relating to Web accessibility, particularly issues related to WAI activities.

Universal accessibility incorporates usability and universal design. So when building a Web page or Web application, accessibility problems or other design errors can be greatly reduced before the Web page or site is released to the public. This is accomplished by applying quality assurance to check the concept, syntax and code; layout, navigation, and graphics; and acceptance testing on multiple browsers and users.

Quality assurance incorporates internal or external reviews or peer reviews, and applying third party tools, for example, CAST's Bobby for an accessibility check, W3C's HTML to validate the code and StarBase's StarSweeper to check for ALT Tags, Titles, Height and Width and other quality assurance functions. Acceptance testing can be accomplished on multiple browsers to ensure the information is conveyed and there are no navigation or site usage problems.

For example, here is a simple process to follow in order to build a universally accessible Web page or Web applications:

Step 1 Define the audience, business requirements and rules, objectives, and timeline with the user.

Step 2 Determine resources, schedule, and sketch the process with a flowchart.

Step 3 Determine the design requirements and universal approach, refer to the Web Content Guidelines and internal design documents.

Step 4 Design and layout the Web site or Web application.

Step 5 Design review with the customer to ensure the design is what they envisioned.

Step 6 Quality Assurance. The Web coder or programmer would then conduct a Quality Assurance review by using Bobby; and a HTML code validator and one or a combination of the following tools or methodologies: content review; preview on Lynx, a text based browser; multiple browsers and versions (Internet Explorer 3 and 4, Netscape Navigator 3, 4.x, and Opera); voice-based Web browser (pwWebSpeak), and screen readers (WIN Vision and Jaws For Windows), Palm devices, StarBase's StarSweeper and Web site Garage. Other items that can be checked are, Does the page print properly in black and white and color? Can all the print and graphics be read?

Step 7 UNIT TEST. This is conducted by the coder or programmer to test compliance to the business requirements. For example, test to ensure the e-mail functions and the message is received by the recipient, forms are tested and data checked, links are tested. Usability testing can be either simple or more formal. This can be conducted by users who are not associated with the design or an independent third party can provide a review of the design concept. If the design uses queries or updates to modify or retrieve information from the database, then this will need to be tested. The coder can develop scenarios using a spreadsheet to document the process, more commonly referred to as a script. There are also automated testing tools that will record your script and play it back anytime or simulate different browsers. These tests serve as a baseline for the design criteria and also can document the expected results.

Step 8 Acceptance Test. This is formal acceptance by the customer of the product you designed as based upon customer requirements and a test plan. This procedure can be either a simple checklist or a more formal document if it is part of a more business critical function.

There are also several efforts underway by university-related, non-profits, consortiums and government agencies to (1) Research new technologies and apply to the home or workplace, and (2) Provide education and outreach. These efforts conduct critical research and provide methodologies, guidelines or tools to support universal accessibility. Therefore, everyone must be cognizant of PWD accessibility needs for the Web to ensure we can provide universally accessible information to everyone.

Referenced Resources

- * Web Accessibility Initiative, www.w3.org/WAI
- * Americans with Disabilities Act (1990) and Rehabilitation Act Amendments of 1998, Section 508, Policy References, www.w3.org/WAI/References/Policy
- * The U.S. Access Board, <www.access-board.gov> and the Electronic and Information Technology Access Advisory Committee (EITAAC)
- * The President's Committee on Employment of People with Disabilities, www50.pcep.gov/pcep/
- * Bobby, www.cast.org/bobby

- * Quick tips to make accessible Web sites, www.w3.org/WAI/References/QuickTips
- * Web Content Guidelines, www.w3.org/TR/WAI-WEBCONTENT/
- * Techniques for Web Content Accessibility Guidelines, www.w3.org/TR/1999/WAI-WEBCONTENT-19990324/wai-pageauth-tech
- * List of Checkpoints for the Web Content Accessibility Guidelines 1.0, www.w3.org/TR/1999/WAI-WEBCONTENT-19990324/full-checklist
- * Web Accessibility Initiative also provides, www.w3.org/WAI/IG/Starbase, www.starbase.com
- * Web site Garage, <http://Websitegarage.com>
- * Miscellaneous Information, www.webspots.net