

Accessible Web Design: **An Introduction**

Paul C. Focazio

New York Sea Grant, Stony Brook University

E-mail: ***Paul.Focazio@stonybrook.edu***

Graphic Design Consultant, PCFDesigns.com

E-mail: ***pcf@pcfdesigns.com***

Web Accessibility is. . .

- the ability to produce Web sites that are easily accessible by as broad an audience as possible.
- “An accessible Web opens new doors to communication, education, employment, and entrepreneurial opportunities, regardless of ability...

- *Web Accessibility for People with Disabilities*

Web Accessibility is. . .

- “...On the accessible Web, there are people with different abilities, not disabilities.”

- Web Accessibility for People with Disabilities

- As more and more people gain access to the Internet, so will the “wired” disability community continue to grow.
- 1996 stats (from InfoUse.com) estimated nearly 20% of all Americans have some kind of disability: hearing, speech, or sight impairment, deaf, blind, physically, cognitively or neurologically challenged

Accessibility Info:

The Deaf

- Have difficulty w/ the Web's audio content – shift from text-to multimedia-based Internet is troubling.
- Solution? – Rely on captioning to substitute for audio (Closed Captioning Web site: <www.captions.org>)
- May also include those with mild-moderate impairment, who might be able to hear Web-based discussions but require amplification of the audio in place of or in addition to captioning.

Accessibility Info:

The Deaf

- CommWare Technologies <www.commware-tech.com>
- Hearing Aid Centers of America Group
<www.harcmercantile.com/hac01.htm>
- MultiMedia Design's Personal Captioning System
<www.multimediasigns.com/pc.html>
- Nationwide Flashing Signal Systems <www.nfss.com>
- NXi Communications, Inc. <www.nxicom.com>

Accessibility Info:

The Blind

- Substantial, uncorrectable loss of vision in both eyes. May also include those with low vision (i.e., tunnel, clouded)
- Have difficulty w/ the visually-driven Web's: video, tables, frames, forms, color combos, multimedia, complex navigation
- Accessibility assistance for the blind can be found at:
 - AccessAbility <www.customeyes.com>
 - Sytha-Voice <www.sythavoice.on.ca>
 - TeleSensory <www.telesensory.com>
 - VisuAide Products <www.visuaide.com>

Accessibility Info:

The Blind

- Designers need to equip sites to work with access aids:
 - **Screen readers:** Combines with a **speech synthesizer** to reads computer data back to users, including all screen objects (i.e., windows, icons). These include **Job Access for Windows Software (JAWS)**, a screen reader that reformats Web pages. It's compatible w/ I-net Explorer, Netscape Navigator, and the text-based Lynx browsers <www.hj.com/JFW/JFW.html>
 - **Braille:** Some hardware devices read, translate, and render computer's e-info to the user in Braille.
 - **Speech recognition:** Software that combines with a **speech input device** to recognize speech/commands or create/annotate material.

Accessibility Info:

The Physically Challenged

- Includes individuals w/ **motor** and/or **speech** disabilities
- Barriers for **motor disabled** (problems w/ muscles, joints, limbs): browsers and authorizing tools that don't support keyboard alternatives for mouse commands, forms unable to be easily tabbed through, time limited response options. Also problematic- devices such as WebTV and Web kiosks
- Barriers for **speech disabled** (volume/clarity difficulties): Web sites with no alternative input mode for voice-based interactions.

Accessibility Info: The Physically Challenged

- Access Unlimited <www.accessunlimited.com>
- Handicapped, Inc. <www.handicapsinc.com>
- In Touch Systems <www.magicwandkeyboard.com>
- New Mobility Interactive Café <www.newmobility.com>

Section 508 vs. WCAG

- Under **Section 508** of the '73 Workforce Rehabilitation Act, as amended by Congress in '98, federal Web sites were required to make all Inter/Intranet content and programs accessible by June 21, 2001.
- **Section 508**: 16 standards, 28 pages <www.section508.gov>
- **WWW Consortium (W3C)**: 14 Priority One (Single-A) checkpoints under its Web Content Accessibility Guidelines (WCAG) <www.w3.org>

Section 508 vs. WCAG

- Although packaged w/ a bit more federal lingo, **11** of S508's **16** standards are taken directly from W3C's guidelines.
- S508's other **5** standards aren't W3C priorities, requiring a higher level of access/giving more specific requirements.

They include:

- *Paragraph (l)*, re: Special programming “scripts”
- *Paragraph (m)*, re: Content such as audio and PDF files
- *Paragraph (n)*, re: Electronic forms
- *Paragraph (o)*, re: Site navigation
- *Paragraph (p)*, re: Response expiration while completing a form

Section 508 vs. WCAG

- Also, there are **4** WCAG Priority One checkpoints not addressed in S508.

They include:

- *Checkpoint 4.1*, re: Clearly identify changes in text, captions, etc.
- *Checkpoint 14.1*, re: Use of simple clear language
- *Checkpoint 1.3*, re: Auditory description of visual portion of multimedia presentations
- *Checkpoint 6.2*, re:equivalents for dynamic content

Section 508 vs. WCAG:

WCAG Priorities: One, Two , Three

- WCAG **Priority One's** include:
 - Text equivalents for non-text elements
 - Auditory/text descriptions of visually-driven multimedia
 - Labeling **tables** and **frames** (WCAG discourages using latter)
- WCAG **Priority Two's** include:
 - Fonts, tables, frames, style sheets- use **% values** vs. absolute pixels
 - Avoid behaviors (i.e. **mouse-overs**) w/ no keyboard equivalent
- WCAG **Priority Three's** include:
 - Identify doc's **LANG** + version @ start of each page's source code
 - Provide **SUMMARY** for table structure and purpose

Accessibility Assistance:

Removing Barriers

- Make periodic accessibility checks w/ WCAG priority 1-3 verification tools such as Bobby <www.cast.org/bobby>
 - **Pro:** Will tell you if a Web image has an ALT tag
 - **Con:** Won't tell users who rely on ALT tags if their info. is adequate enough to explain their corresponding images
 - **Other Pros:** Good indicator of browser compatibility, where HTML coding errors lie, download speed of Web pages.
 - **Other Cons:** Finds it difficult to evaluate frame-based Web pages, and examines one page at a time via its Web site. For multiple page analysis, download program and run locally.

Accessibility Assistance:

Removing Barriers

- To meet minimum accessibility design standards, Bobby only requires WCAG Priority One checkpoint compliance
- Designers are encouraged, though, to be aware of/attempt to address Priority 2 (Double-A) and 3 (Triple-A) issues.
- A thorough accessibility review includes analysis of:
 - Images and image maps, Cascading Style Sheets (CSS), Multimedia (audio, video)
 - Links, text, lists and outlining
 - Color usage and coordination
 - Forms, frames, tables, scripts and other dynamic design elements

Accessibility Assistance: Removing Barriers

- Other Web validation services include:
 - LIFT: A form-based service that e-mails report results to you on what, why, and how to fix code problems. <www.usablenet.com>
 - WebSAT: Analyzes for barriers to all user communities- Accessibility, usability, form use, performance, and maintainability
 - W3C's HTML Validation Service: Flexible and allows for HTML conforming verification to W3C's standards <validator.w3.org>
 - Doctor HTML: A fee-based Web page and site validation service <ww2.imagiware.com/RxHTML>

Accessibility Assistance: “Friendly” Software

- **Problem:** Most publishing tools aren't only inaccessible, but also don't include accessibility prompting/validation. They may remove already existing accessibility attributes or prevent them from being added.
- **Solution:** Design software programs such as Macromedia's Dreamweaver V4.0 have new accessibility-friendly features <www.macromedia.com/macromedia/accessibility>
- Like other WYSIWYG (What You See Is What You Get) editing tools, Dreamweaver allows an author to manipulate computer-based text and graphics and have the screen mirror the finished page.

Accessibility Assistance: “Friendly” Software

- In addition to creating tables, editing frames, and switching easily from page to HTML views, **Dreamweaver**:
 - Can create Dynamic HTML (DHTML) gadgets (i.e., timelines) and pages
 - Fully supports CSS-1, layers, and Java script behaviors
 - Has a full-fledged FTP client
 - Allows designers to set absolute sized fonts (‘relative’ preferred, though)
 - Supports Web safe colors
 - Exports template content as Extensible Markup Language (XML), which is used for such things as hand-held device Web support
 - Helps designers, through Macromedia’s “Accessibility Starter Kit,” to ensure their existing and future Web content is both usable and accessible for all users, including those with disabilities.

Accessibility Assistance:

Web Browsers

- What's a **Graphical User Interface (GUI) Web browser**? – Microsoft Internet Explorer, Netscape Navigator, Opera
- Some core accessibility features built into GUI's include:
 - **Style sheets** – 'Customizable' ones allow users to adjust font properties (color, size, style, etc.) as desired
 - **ALT text display** – Gives images contextual meaning, which blind/low-vision users need while surfing I-net w/ a screen reader
 - **Keyboard access and navigation** – Vital for users who require using shortcuts to active browser or accessibility software/device commands. Also, navigation bars, site maps, and tables of contents are vital mechanisms

In Closing. . .

- The goal in all this should be to raise sites online to higher standards of web accessibility.
- We need, as an industry, to heighten our ability to produce Web sites that are easily accessible by as broad an audience as possible, including people with disabilities.
- Remember: “An accessible Web opens new doors . . . On the accessible Web, there are people with different abilities, not disabilities.”

For More Info. . .

- Catch up on the latest Web guidelines:
 - Federal Government's S508 <www.section508.gov>
 - WC3's WCAGuidelines <www.w3.org>
- Download 6-page Web accessibility overview at:
<www.pcfdesigns.com/D201 >
- Read up on what's out there- such as *Web Accessibility for People with Disabilities* by Michael G. Paciello.
- Check out Dreamweaver's new accessibility features:
<www.macromedia.com/macromedia/accessibility>
- Remove accessibility barriers w/ WCAG Priority One-Three check tools such as Bobby <www.cast.org/bobby>