

Web Accessibility: Making Sense of Who It Affects and What to Do About It

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Questions to be answered

- Why do this?
- What do you really mean by “accessible”?
- Who is affected, and what difficulties do they encounter?
- Is my website accessible?
- How can I make it more accessible?
- What resources are available to help with this?

“The Issue” in a nutshell

- Activities and resources located in physical spaces are moving to virtual locations on the Web and computers
- As with physical buildings, we must provide students, faculty, staff, and visitors with access to these cyber-based buildings

Why make webpages accessible?

- The law requires it

- Section 504 of 1973 Rehab Act: prohibits discrimination based on disability
- Section 508 of Rehab Act: specific to telecommunications and information technology
- ADA (Americans with Disabilities Act), Title I: workplace accommodations, places of public accommodation

- It's the right thing to do

- *Special Bonus Incentive*

- Accessible webpages compatible with emerging technologies (PDA, phone, etc.)

Video clip

- *<http://www.webaim.org/media/video/curtis/curtis.htm>*
 - *Man with hearing impairment demos and discusses difficulties using information on the Web*
 - *Provides initial perspective on both accessibility and disability in general*

Two flavors of “accessible”

- Physically Accessible - user can get to information
- Functionally Accessible - user can make use of info for intended purpose
- Key points
 - Physical accessibility -> structure/navigation (~1/3)
 - Functional accessibility -> content, “intent” (~2/3)
 - Automated accessibility tools only check physical accessibility; remainder requires human evaluation

Perspectives to keep in mind

- Accessibility not so much “doing something extra” as it is “doing something different”
 - Be aware of the issues
 - Give thoughtful consideration to design decisions and potential impact
 - Make decisions which minimize or eliminate access challenges
- Good web design facilitates accessibility
 - Use standards-based HTML
 - Design to promote usability

Who has access difficulties?

Sensory

- Blindness
 - Low Vision
 - Color Blindness
 - Photoepilepsy
 - Hearing impairment/Deafness
-

Physical

- Motor impairment
 - RSI (repetitive strain injury)
-

Cognitive

- Learning differences/Learning disabilities
- ADHD (attention deficit hyperactive disorder)

Sensory - Blindness

- Access means/issues
 - Text-to-speech screen reader
 - Refreshable Braille display
 - Keyboard-only access - using mouse is “pointless”
 - Can’t use monitor
- Primary impacts on Web design
 - Only info available as text or text equivalent
 - Screen discerned one line at a time - can’t survey page
 - Navigation is linear (left-to-right, in tab order)
 - Images/graphics unusable; colors unusable
 - Visual relationships unusable (tables, forms, “click here”)

Video clips

- *From “Know Your Users” (CSU Fresno)*
 - *Blind professor demonstrates and explains online difficulties encountered by screen reader users*
 - *(Online version unavailable)*
- *From “Surfing the Web with a Screen Reader” (AccessIT)*
 - *Two video clips: blind user demonstrates difficulties encountered using online forms and tables*
 - *(Online version unavailable)*

Sensory - Low Vision

- Access means/issues
 - Screen magnification
 - High contrast, inverse colors, different colors
 - Text-to-speech screen reader
- Primary impacts on Web design
 - Use relative rather than absolute units to minimize horizontal scrolling
 - Text in image pixelated when enlarged, less readable
 - Contrast of inverse colors may be poor
 - (Similar to blind user with screen reader)

Demo

- *Use of Opera browser to simulate Web access by low vision user*
 - *Screen magnification*
 - *Inverse colors*

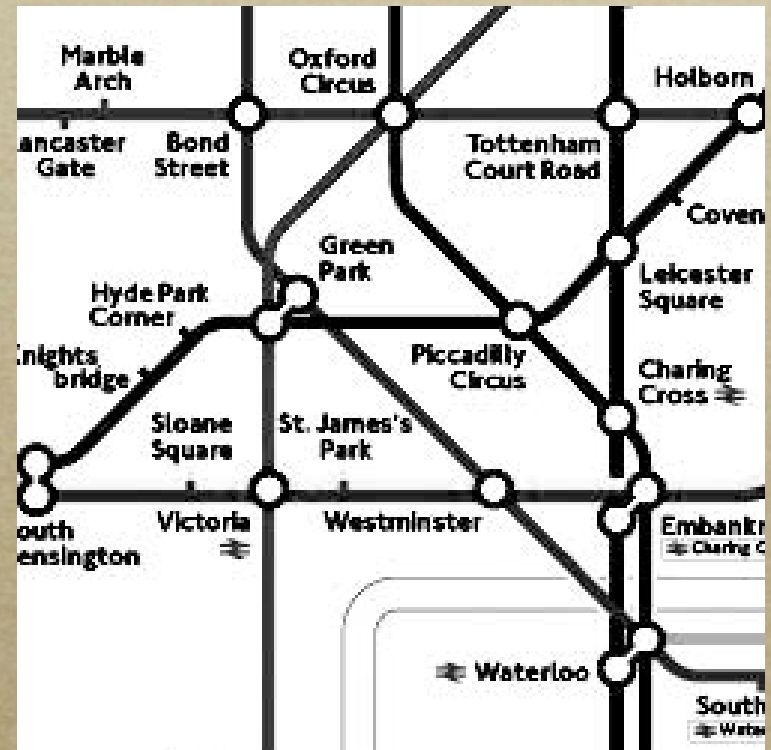
Sensory - Color Blindness

- Access means/issues
 - Items differentiated by color may not be obvious
- Primary impacts on Web design
 - Assure sufficient contrast between colors
 - Convey meaning by supplemental means as well (e.g., text)

Conveying info by color only



This is the London Underground...



*This is the London Underground
on monochrome...*

Any questions?

Sensory - Photoepilepsy

- Access means/issues
 - Pages elements which flicker may induce seizures
- Primary impacts on Web design
 - No page element may flicker at between 2 and 55 cycles per second to reduce risk of optically-induced seizures

Sensory - Hearing

- Access means/issues
 - Audio clips unusable
 - Multimedia soundtrack unusable
 - Audible alerts unusable
- Primary impacts on Web design
 - Include transcript of audio
 - Provide *synchronous* captioning for multimedia
 - Provide visual equivalent for audible alerts

Physical - Motor and RSI

- Access means/issues
 - May use alternative keyboard and/or mouse substitute
 - May use keyboard only
 - May use only a few keys or single switches to navigate
 - Fatigue from alternative input devices (e.g., sip-puff)
 - Use of speech recognition software
- Primary impacts on Web design
 - Means to skip over long lists of redundant links
 - All functions and navigation available via keyboard
 - Assure logical tab order
 - Speech recognition can only access text links

Video clips

- *<http://www.webaim.org/media/video/gordon/gordon.htm>*
 - *Man with quadraplegia demos and discusses difficulties using mouthstick & keyboard to access Web*
- *From “Know Your Users” (CSU Fresno)*
 - *Woman with RSI demos and discusses difficulties using speech recognition to access Web*
 - *(Online version unavailable)*

Cognitive - LD

Learning Differences/Learning Disabilities

- Access means/issues
 - Text-to-speech screen reader
 - Confusing layouts, inconsistent navigation schemes
 - “Information overload” - too much text or information
 - One form of info may not be sufficient
- Primary impacts on Web design
 - Clean, simple layout makes info easy to “grasp”
 - Employ consistent navigation scheme
 - Organize under logical headings in manageable “chunks”
 - Use ample white space
 - Supplement text with diagrams/other media & vice versa

Text as it may be discerned by person with dyslexia

On a fine, sunny day in the small town of Woodage, you see the people gather in the town square. There is not a notice to meet, nor an event to gather for. Rather the people come out to visit with each other on fine, sunny days in the small town of Woodage.

Whereas every other day, the people are accountants, bakers, engineers, clerks and regular working folk. On fine, sunny days in the small town of Woodage, the people are different when they gather in the town square. They are fiddlers, acrobats, clowns, jesters, peddlers, zoo keepers, dancers and cavorters. They play, they laugh, they sing on fine, sunny days in the small town of Woodage. And when

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Bad Web design for LD

- *Example of (intentionally) bad web design*
 - *<http://www.webpagesthatsuck.com/wpts1/>*

~Good~ Web design for LD

- *Demo of various pages in CourseWork*
 - *Course home page*
 - *Course materials page*

Strategy for evaluating accessibility

1. Validate HTML code
2. Use automated accessibility validation tool
3. Check for keyboard accessibility
4. Test with screen reader
5. Check for WCAG and/or 508 compliance
6. Conduct user testing
7. Repeat as necessary

Accessibility verification/repair tools

- Popular automated accessibility checkers
 - “Bobby” (CAST, Watchfire)
 - LIFT for Dreamweaver (Macromedia)
 - WAVE (WebAIM)
 - ...many others, ranging from free to expensive
- No automated tool can find all problems
 - Interpret HTML, help spot potential errors
 - Think of it as spell checker or grammar checker
- *Tools only evaluate physical accessibility!*

Demos of web accessibility checking tools

- *Bobby (Watchfire)*

- *<http://bobby.watchfire.com/bobby/html/en/index.jsp>*

- *WAVE (WebAIM)*

- *<http://www.wave.webaim.org>*

Guidelines: WCAG, 508, or ??

- WCAG is W3C's detailed checklist
 - Provides specific code techniques
 - Priorities 1 through 3
- Section 508 guidelines are U.S. Gov't interpretation of WCAG 1.0
- Rules not set in stone - subjective
- Focus less on priority levels, more on...
 - Audience breadth
 - Purpose of information
 - Can users access info?
 - Can users perform required tasks?

Using Opera to check accessibility

- Simulates how page will be discerned by people with various disabilities
 - Enlarge entire page - simulates screen magnifier
 - Turn off images - shows alt-text
 - Turn off styles - strips visual clues/adornments
 - Turn off tables - linearizes page (appears in order as read by screen reader)
 - View in “High Contrast (W/B)” mode
 - View in “Emulate Text Browser” mode

Special Bonus Incentive #1

- Accessible webpages more compatible with emerging technologies
 - PDAs (low bandwidth, low screen resolution)
 - Phone-based Web services (keypad or voice input, voice-only output)
 - Vehicle computing systems (hands-free input, voice-only output)
 - Archival and search tools (text equivalents)

Special Bonus Incentive #2

- Accessible webpages permit access in less-than-ideal environments
 - Noisy environments (captioning for audio)
 - Lab environment (hands-free operation)
 - Low bandwidth connection (text-only loads faster)
 - While driving (hands on the wheel, eyes on the road)

Best practices you are probably already doing

- Navigation that is clear and consistent
- Clean visual layout, use of white space
- Cascading stylesheets (CSS) for visual formatting
- Alt tags for images
- Header tags in their proper hierarchy (not used for visual formatting)

Best practices you could (or might already) be doing

- Flexible screen and font sizes (should be set by the user)
- Descriptive link text (never use "click here")
- Structural, not visual markup (not <bold>, not <i>)
- Summary sentence at top of each page
- "Skip to" links to main navigation and page content
- When using PDFs, provide documents in alternate formats
- If audio or video was scripted, provide link to transcript (HTML page or text document)

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