

# Universal Design for Web Sites

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## BASIC PRINCIPLES

### *Favor clarity and consistency*

All users benefit from clear and consistent Web site design, but for some it is critical. With a lack of spatial cues and with radically different approaches to navigation that must be relearned at every site, it is far too easy to get disoriented or lost on the Web. For people with cognitive disabilities such as memory or learning disabilities, this difficulty is increased many-fold. Stick with simple language and navigation applied consistently throughout your site, and everyone will benefit.

### *Supply text alternates for all relevant non-text elements*

Blind users are likely to be the people most affected by your Web design choices. Blind users most often use screen reader software, a speech-enabled browser, or a Braille display, and designing pages that are understandable when “read” by these devices is probably the biggest challenge for Web designers. Users with cognitive or learning disabilities also use screen reader software because having the text read aloud while reading along visually helps them understand the materials. These adaptive technologies can transform *text* into something that is accessible to people with different needs. But the Web is not only about text, and any non-text item on a Web page presents a potential barrier, particularly for visually disabled users. Provide alternative text for any non-text element.

### *Provide equivalent alternates*

Sometimes designing accessible pages is simply a matter of telling the same story different ways. People with cognitive or learning disabilities may benefit from having audio descriptions available as well as text, so you could include “audio notes” to accompany your text content. You could supply images (with appropriate ALT-text) along with text for navigation and page content, which would also make your pages more accessible to users with cognitive or learning disabilities. Deaf or hearing-impaired users, as well as others, benefit from captions with video content. Provide an equivalent version whenever you include content in a modality that may not be accessible to all users.

### *Use structural markup and style sheets*

With CSS-styled pages, users can easily apply personalized formatting to Web documents. Some browsers have a feature that allows users to override author-defined style sheets with their own style sheet. A page designed using red text against a green background, for example, presents a problem for people with red-green color blindness: the contrast between text and background may not be great enough for the text to be readable. If text color is set using `<FONT COLOR>` and headings are set using `<FONT SIZE>` and `<B>` for emphasis, the user-defined style sheet will have nothing to apply itself to (no paragraph or heading tags). If the colors are set via a style sheet, users can set their browser preferences to override your settings and can apply their own style sheet to the page instead. Use CSS-styled pages, so users can transform Web content into a format that meets their requirements for accessibility.

### *Use flexible layouts for graceful transformation*

Many disabilities can be accommodated by standard browser software as long as the Web pages are flexible and can transform to meet the viewer’s needs. For example, color-blind users can apply their own text and background color to a page to increase legibility, or low-vision users can enlarge the text to a size they can read comfortably. Some low-vision users read better with white or yellow text on a black background. Design pages that hold up to these transformations – that remain legible and navigable under different viewing conditions.

## Universal Design for Web Sites

### VERIFICATION CHECKLIST

1. Turn off graphics. Make sure you can understand and navigate the site with only the supplied ALT-text.
2. Turn off style sheets. Make sure your pages are still readable without style sheet formatting.
3. Turn off features like JavaScript, frames, plug-ins, and scripting. Make sure your pages are still usable with these features disabled.
4. Set the text zoom to its maximum value. Make sure your text resizes, and that your page layout can accommodate large text.
5. Resize your browser window. Make sure the layout holds up to different window widths.
6. Navigate your site from the keyboard. Make sure you can access all navigation and form elements without using a mouse. Make sure you cycle through links in a logical order. Verify that the text of your links makes sense when read out of context.
7. Check your pages with monochrome settings. Make sure there is sufficient color contrast, particularly between text and background.
8. Check your pages using screen reader software like Home Page Reader (see *Tools*, below). Make sure the page makes sense when read aloud.
9. Save your pages as text-only from the browser. Make sure your pages make sense when read linearly.
10. Validate and preview your pages using the tools listed below under *Verifying Web pages*.

### RESOURCES

#### *Verifying Web pages*

Bobby: Accessibility validation service

<http://bobby.watchfire.com/>

Lynx Viewer: Lynx (text-only browser) simulator

<http://www.delorie.com/web/lynxview.html>

UsableNet: Accessibility validation service

<http://www.usablenet.com/>

Vischeck: Color-blindness simulator

<http://www.vischeck.com/>

WAVE: Accessibility validation service

[http://www.temple.edu/inst\\_disabilities/piat/wave/](http://www.temple.edu/inst_disabilities/piat/wave/)

W3C HTML Validation Service

<http://validator.w3.org/>

W3C CSS Validation Service

<http://jigsaw.w3.org/css-validator/>

#### *Web design guidelines and tutorials*

Accessible Design Guidelines

<http://www.dartmouth.edu/~webteach/resources/download.html>

Flash Accessibility

<http://www.macromedia.com/macromedia/accessibility/features/flash/>

How to Create Accessible Adobe PDF Files Booklet

<http://access.adobe.com/booklet.html>

IBM Accessibility Center

<http://www-3.ibm.com/able/>

Microsoft Accessibility

<http://www.microsoft.com/enable/>

Rich Media Resource Center

<http://ncam.wgbh.org/richmedia/>

WebAIM

<http://www.webaim.org/>

Web Accessibility Initiative (WAI)

<http://www.w3.org/WAI/Resources/>

Web Content Accessibility Guidelines 1.0.

<http://www.w3c.org/tr/wai-webcontent/wai-pageauth.html>

## Universal Design for Web Sites

### *Tools*

A-Prompt: Web accessibility validation software

<http://aprompt.snow.utoronto.ca/>

Betsie: Text-only generator

<http://www.bbc.co.uk/education/betsie/>

Home Page Reader: Speech-enabled browser

<http://www-3.ibm.com/able/hprtrial3.html>

MAGpie: Captioning and describing software

<http://ncam.wgbh.org/webaccess/magpie/index.html>

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