WEBSITE CONSIDERATIONS AND ACCESSIBLE DESIGN

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The World Wide Web can be a great storehouse for information and resource for students and instructors. A well-designed website or web page can make the reader feel welcome to use the available resources and willing to return while a poorly designed website or web page can frustrate the reader and cause the reader to be reluctant to return.

As you begin to (re)design a web page or website, you will find it helpful to clearly define your goals for the page/site:

- What is the purpose for the web page or website?
- What is the intended audience for the web page or website?
- What type(s) of information or resources do you plan to post on the page/site?
- How frequently do you plan to update the information/materials posted on the page/site?
- Do those visiting your web page or website need any special software or plug-ins to access the information or to use the resources on your page/site?
- Will the information and/or resources posted on your web page or website be accessible to *everyone*? That is, have you considered the *accessible design* or your web page or website?

The answers to the first four questions can be tied together. You may be designing a web page or website for your college or university department or you could be designing a course web page or your own website. Whether the page/site is for the department, for a course, or for yourself, it is important to consider the way in which the information and/or resources are presented and their ease of access. You may want to use the newest technology, fancy animations, scrolling text, frames, complex URLs, or nonstandard hyperlink colors and formats to make your web page or website visually appealing or "professional" in appearance but each of these can pose a problem to the visitors to your page/site. Using "cutting-edge" technology may be easily viewed from the newest, fastest computers but may cause long download times or not even be displayed on older computers. Some animations may cause older web browsers to freeze or older computers to shutdown while others may not display in browsers at all. Animations and intricate images increase the download time for web pages. While you may have high speed Internet access in your office or at home, you need to remember that not everyone surfing the WWW does – many use dial-up Internet service providers that have, in comparison, relatively slow download speeds. To decrease download time, many users of dial-up Internet service providers turn off the graphics elements on the pages that they view.

While you may think of creating a web page as being similar to creating a document using a text processor, the results can be quite different. You do not have typographical control over web pages and how they display in web browsers: that is, unlike a printed text document or a pdf file which are WYSIWYG (what you see is what you get), web pages are more "what you see is not necessarily what someone else sees" since those displaying your web page do not necessarily use your favorite web browser, have the same type of video card or computer, or have similar screen or computer settings. If you become enamored with special web page elements such as scrolling text or pull-down menus with "go" buttons, you need to be careful to consider the visitors to your page: the scrolling marquee could have a text speed that is difficult for some visitors to read or the text may not display properly in the user's web browser; and the visitor may not be familiar with the purpose or use of the pull-down menu, and, in addition, the pull-down menu may not display in some web browsers – there *are* other web browsers than MS Internet Explorer and Netscape Navigator. While frames may be aesthetically pleasing and provide a regular structure for page set up and navigation, frames can be a problem for those using text-only web browsers since multiple frames on a page may not be recognized by the browser. You may think that coding your web pages will make the reader come through your web page or website to access information but complex URLs can deter users from visiting your pages again (of course, they could just create a bookmark/favorite to the page of interest and avoid the problem all together) and make it more difficult for you to recognize and update your own web pages. Nonstandard colors (blue/red/purple) or formats (underlined text) for hyperlinks on your pages may be appealing but, if you do not use any standard elements to indicate the presence of a hyperlink, the user will not know that there is a hyperlink on the page. In addition, visitors cannot access web pages to which there are no hyperlinks, for which there are no meaningful titles, and for which there are no meaningful keywords; this is not to say that you must submit your web page or web site to the various search engines in order for it to be accessible through Internet searches (I never have or plan to) but a meaningful page title can definitely make a difference. While you may want your web pages or web site to have a "professional" appearance, the more complicated the navigation, the longer and more crowded the pages, the less likely visitors are to feel welcome and even *want* to come back to your page/site again.

So, how can we sum up all of this before we go on? First, keep your web *site* focused. It is better to use multiple web pages to create a website to meet your needs than to try to use only one web *page*. Long web pages are difficult to read and scrolling through a long web page looking for information is annoying. Keep your web pages short and focused: if you are teaching three courses, consider creating a page devoted to each course. If you are creating a website for an activity, department, or organization with which you are affiliated, carefully consider how you group the information so that visitors can quickly find what they need without having to scroll through a large amount of text searching for the desired information. Second, animations and graphics are pretty and they can dress up a page but they also *slow down* a page by increasing the download time. Eliminating unnecessary images/animations can make your web pages more *inviting* since they will be quicker to access and simpler to use without superfluous distractions. Third, be

careful to create a simple structure for your website – keep in mind the idea of a *web* in constructing the site, there are connections but there is organization. Similar navigation bars or locations and styles for hyperlinks on your web pages will make the pages easier to use. In addition, creating a site map and creating a hyperlink on every page of your website to this site map will make all of your web pages easily accessible. Fourth, you must maintain your website on a regular basis. Updating web pages is more than posting new information: it is eliminating old information, correcting errors, and verifying external hyperlinks to make sure that the pages for these external hyperlinks are still posted on the WWW. Contacting the webmasters or authors for the pages to which you have created external hyperlinks can be helpful. Many webmasters and authors of web pages are delighted to know that someone values their website and has referenced this site as a resource through an external hyperlink, and they are willing to inform you of changes that they make to these linked pages. Finally, keep in mind that the WWW is no WYSIWYG. Test you web pages using different web browsers including text-only web browsers using different screen settings and different window sizes. If particular elements on your pages do not display well then change them.

The last two questions are more about the *accessible design* of your web pages. Although you may be familiar with MS Internet Explorer and Netscape Navigator, there are text-only web browsers, most notably Lynx, http://www.cc.ukans.edu/about_lynx/about_lynx.html, developed by the Academic Computing Services at the University of Kansas, as well as screen readers and talking browsers such as Jaws, Window Eyes, Home Page Reader, and SuperNova, and Screen Magnifiers such as ZoomText, Magic, and Lunar. That is, displaying pages on a computer screen does not work for everyone, and the animations and audio and video clips that you may want to include in your website may pose a problem for those having audio or visual impairments. If your desire is to create a website as a resource, whether intended just for your students or not, posting this site on the WWW, makes it available to everyone, and it should be *accessible* to everyone. In making your website *accessible*, there is more to consider than the visual display of information and having equivalents for audio and video components, you need to consider those having physical disabilities as well for typing URLs and navigating your site with a mouse. If you truly want to make your website more accessible then you should read

- the Web Content Accessibility Guidelines (WCAG), http://www.w3.org/TR/WAI-WEBCONTENT/, and the Checklist of Checkpoints for the Web Content Accessibility Guidelines, http://www.w3.org/TR/WAI-WEBCONTENT/full-checklist.html, that were first developed by the Web Accessibility Initiative (WAI), part of the World Wide Web Consortium (W3C), in 1999 to help web developers to make page content accessible to people with disabilities, and
- Section 508, http://www.section508.gov/index.cfm?FuseAction=Content&ID=11, of the Rehabilitation Act of 1973, amended in 1998.

For each, a goal is to eliminate barriers and to make the information and resources of the WWW accessible to all.

Carefully consider the web pages that you have visited or created and imagine what you would see if you had a vision impairment including colorblindness or how you would navigate these pages if you could not manipulate the mouse well or at all. The whole point of the WCAG and Section 508 is to provide information and help in making all web pages useable and readable for everyone. So, how do we do this? Since text-only browsers and text readers depend on the presence of text on web pages, you must make sure that all elements of your web pages have text equivalents. So, for any images that you use, you should include **alternate text**, this includes any equation and symbol images that you use as well as any animations, applets, graphical buttons, graphical bullets, audio/video components, and frames. Without these text equivalents, a text reader will simply state the image file name or "image". Alternate text can be used to not only identify these graphical elements on web pages but also explain their purpose. So, of course, this brings us back to the elimination of superfluous images – if the image does not serve a purpose then it should not be there, and if there is no alternate text for the image then the image is essentially not there. If you are using software such as MS Word, MS FrontPage, or Dreamweaver, you can provide alternate text when you set up the properties as you insert an image on the web page, and if you are editing the HTML directly or using the HTML interfaces in MS FrontPage or Dreamweaver then you simply add the "alt=" code together with the alternate text that you would like to use. Another important use of alternate text is to provide summaries of tables as well as titles of frames to identify the frames and to facilitate navigation. Alternate text should be as short, as meaningful, and as non-repetitive as possible. A useful alternate text for graphical bullets or buttons is ALT=" " to convey that there is no content or ALT="*", and if you have a separator line/bar, consider using ALT="-----------" or a simple <HR>. If you want to test the effectiveness of your use of alternate text then turn off the graphics in your web browser, submit your web page the Lynx Viewer, http://www.delorie.com/web/lynxview.html, test it for accessibility at a site such as Bobby, http://bobby.watchfire.com/bobby/html/en/index.jsp, or read the source code for your page – if your site relies heavily on the word "image" or if there are page elements that would not have a text equivalent then your page will not be easily read using a text-only browser or a text reader.

Carefully consider how you use **color** on your pages since those with vision impairments may not be able to perceive the colors that you use. This can be a big problem if you rely on color to indicate the presence of hyperlinks. The two most common red/green color deficits are Deuteranopia and Protanopia, and a very rare blue/yellow color deficit is Tritanopia. Relying on specific colors to indicate the presence of important elements on your web page, will be a problem for someone who is "blind" to that color. Vischeck has viewers that allow you to test your images, http://www.vischeck.com/vischeck/vischeckImage.php, and your web pages, http://www.vischeck.com/vischeck/vischeckURL.php, and see how they would look to a person with the above mentioned color deficits. In addition, both Vischeck, http://www.vischeck.com, and Lighthouse International, http://www.lighthouse.org/color_contrast.htm, provide information about effective color contrast. When you consider your color scheme, if any, for your website, be careful of

the use of dark backgrounds with light text and bright backgrounds with bright text. While you may find the contrast visually appealing, light text on dark backgrounds do not print well (light or white text on a white piece of paper), and the bright background with bright text can be harsh on the eyes. Background patterns can be distracting to those with Attention Deficit Disorder (ADD) or for those with Dyslexia.

While some JavaScript elements and be helpful, there are some for whom they can be a problem. For example, for someone with ADD, **animations, sounds, pop-up windows, and pop-up dialog boxes** can be distracting. Before you add such elements, carefully consider their purpose and their value. If these elements are only included to make you site seem more "professional" or fancy then they really have no purpose. However, if you have included these elements to simplify navigation or to allow the base page to remain accessible at all times then consider providing a warning so that the user will know that the selected content will open in a new browser window. In addition, you may consider providing a text-only version of your page to accommodate those who prefer to use only one browser window without distracting animations or pop-ups. For those with short-term or long-term **memory impairments** consider using a consistent structure for all navigational elements within your web site and be careful to include a site map that is linked to all pages within the site so that all pages are accessible. For those with **seizure disorders**, some audio/visual elements having particular color or auditory frequencies can act as triggers for seizures as can pop-up windows, and those with **mental health disabilities** may find pop-up windows distracting. As previously mentioned, it is important to carefully consider the value of such elements before you include them in your web pages. For anyone, **font size** and readability are important. Whether one has a vision impairment or has simply been reading a computer screen for too long, effective color contrast and sufficient font size are important to making a page readable. Also, decreasing the space between letters and between lines of text decreases the readability of the text. Do not be concerned about adding blank lines between lines or paragraphs of text – the blank line makes the page more readable and distinguishes between paragraphs. Select your font carefully: condensed fonts are not as effective as Arial, Sans-serif, and Times New Roman, and neither is Italic type; use Italic type sparingly for emphasis. Finally, special elements that you may want to include on your web pages may require special browser plug-ins. You cannot assume that visitors to your website have these plug-ins or want to or know how to download these plug-ins; the needed plug-in may not work with an older browser or be downloadable for someone with an older computer with limited hard drive or RAM.

In creating a useful, accessible web page or website, you want to keep in mind the purpose of the website and your goals. If the web page or website is meant to be a resource with useful information then this information must be presented so that it is accessible to everyone whether (s)he is using a new graphical web browser, an older graphical web browser, a text-only browser, or a text reader. If you keep in mind the purpose for the website as well as your target audience and even their interest(s), it will help you to see your web pages through their eyes and to evaluate the effectiveness of these pages in presenting information.