Introduction to Digital Accessibility

“The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect.” Tim Berners-Lee, W3C Director and Inventor of the World Wide Web.

What is Digital Accessibility?

Digital accessibility is the degree to which persons with disabilities can use electronic resources, webpages, documents, software, etc.

The Web can function with many different hardware and software configurations and be written in any language. It can remove barriers faced by people of varying physical or mental ability. However when websites, advanced features or technologies are poorly implemented, this creates barriers to communication and interaction. These introduced limitations most severely affect users with disabilities and also increase frustration in non-disabled users.

Users who are frustrated by your webpages or documents or who are forced to develop work-arounds are less likely to interact with the information you are trying to present. Understanding how to create accessible and inclusive materials can benefit every person who accesses your webpages, course materials, or departmental information.

Who comprises the audience for your webpages, online course materials, essential software, or departmental information? People in your audience may have

- A visual impairment – blindness, low/poor vision, or types of colorblindness
- Auditory disabilities – deafness or hearing impairments
- Mobility challenges – tremors, muscle slowness, loss of motor control, etc.
- Cognitive disabilities – dyslexia, dyscalculia, ADHD, etc.
- Seizures

Anyone can be disabled, either temporarily or permanently. Additionally, anyone can become disabled at any point in time. Can you easily read your computer monitor if you forget your glasses at home? Can you interact with webpages effectively and efficiently if you have broken your dominant hand?

Key Features of Accessible Design

While other modules in this series will provide specifics on how to use features in common software applications to create accessible digital content, the information below introduces important characteristics that content creators should build into webpages and documents.

All Images Have Appropriate Descriptions

Accessible design requires that content owners provide text descriptions of images, graphics, charts, etc., that illustrate important information. These descriptions, known as “alternative text tags,” “alt tags,” or simply “alt text,” can be read by screen readers. Screen readers are technology that read online content to users with visual or cognitive disabilities. Think Siri or Google Voice reading a search response to you.

Alternative text should be succinct and provide equivalent information for an essential image. You may find it helpful when writing alt text to think of what text you would use to convey the information if you couldn’t use a graphic. Avoid prefacing the text with “an image of ...” or similar phrases that provide no
detail, as the “image of” is implied and understood by the user. A simple way to think of this is: how would you describe this to someone if speaking to them over the phone? How would you succinctly convey the important aspects of the image. Keep in mind, the description may vary depending on the context for the image.

If an image is purely for decoration and does not convey or reinforce information, the alt text for the image can simply indicate that the graphic is decorative and not provide a detailed description. This is important because omitting a description for decorative images is often confusing to users who rely on screen readers. The screen reader will note the presence of a graphic but give no information about the graphic's content. The user is left to wonder if the image contained essential information and was not properly tagged or if the illustration was merely decorative.

Below is a screenshot from Microsoft Word for Mac, illustrating adding alt text to an image. As the content creator, you can decide if the image contains critical information that should be succinctly described in the alt text. Or you can simply indicate that the graphic does not contain information essential for understanding the webpage or document. (More details on using MS Word to create accessible content is available in the Creating Accessible Microsoft Word Documents module.)

Meaning Is Not Conveyed by Images Alone
Text included within a graphic image, such as .gif, .png, .jpg, and some .pdf files, cannot be read by a screen reader. Important information included in images, charts, or graphs, must be explained and described contextually within a paragraph or in a caption. Such an explanation or description should be in addition to any alternative text tags applied to the image, chart, or graph.

Meaning is Not Conveyed by Color or Shape Alone
When designing images, charts, and graphs make sure that meaning is not conveyed solely through color or shape. Users with visual disabilities need cues other than just shape or color to extract meaning from these illustrations.
Webpages and Documents Use Headings to Clarify Structure and Relationships of Ideas

Headings, lists, and other structural elements show relationships between ideas on a webpage or in a document. They also provide shortcuts that screen reader users utilize to quickly “scan” or “skim” a webpage or document to find specific information of interest.

Headings should be used to provide and organize information rather than a formatting shortcut. Many software applications used for creating documents or webpages come with pre-defined formatting characteristics, such as font size, color, and style, that can be applied to text to indicate the heading level. Content creators new to designing accessible materials may be tempted to use these styles as shortcuts to applying formatting purely for visual effects. Instead these styles should be used to highlight how ideas are related on the page.

Every webpage or document should have one Heading One, which is the main idea of the page or document. Ideas that support or clarify some aspect of this main idea should be introduced as a phrase with the Heading Two style applied. A page or document may have many Heading Two ideas. Heading Three phrases introduce ideas that are subordinate to but support Heading Two ideas. Most pages or documents require no more than four levels of headings, although some may require no more than two levels.

A look at this document’s structure illustrates how headings provide information about the relationship between ideas:

- Introduction to Digital Accessibility – Heading 1 (H1)
- What is Digital Accessibility? – Heading 2 (H2)
- Key Features of Accessible Design – Heading 2 (H2)
- All Images Have Appropriate Descriptions – Heading 3 (H3)
- Meaning is Not Conveyed by Images Alone – Heading 3 (H3)
- Meaning is Not Conveyed by Color or Shape Alone – Heading 3 (H3)

The main heading of the document, the Heading 1, serves as a title, explaining the topic. The topic is supported by subordinate ideas that provide additional information, the Heading 2 ideas. In turn, Heading 2 ideas can be divided into specific subtopics. If necessary, I could add more Heading 2 sections with their own Heading 3 assigned supporting points.

Data Table Layouts Are Defined

Data tables are made up of information organized in columns and rows. The intersection of a column with a row provides information about the content in the cell. Header rows help users with visual disabilities understand the relationships between columns and rows of data in a table. Without the defined header row, the table’s information can seem disjointed and confusing to someone relying on a screen reader.

Every Form Element Should Have a Label

Components of forms, such as text boxes, text areas, select menus, checkboxes, and radio buttons, should be properly labeled. The form should be designed so that users relying on screen readers can easily interact with the form controls, recover from errors, and submit the form.
Link Names Are Understandable
Links should be named in such a way that they are understandable without relying on context. Avoid “click here” or similar constructions for link names. Instead, use names that give detail about the destination of the link. The screen reader notifies the user that it is a link. Like alt tags, there is no need to use “link” in the name.

Media Elements Require Transcripts/Captions
Videos must be captioned. Audio content must have a transcript.

Non-HTML Content Must Be Accessible
Non-HTML content includes PDF files, Microsoft Office files, Adobe Flash, etc., and must be readable, navigable, and controllable by assistive technology, without requiring the use of a standard keyboard or mouse.

Web Sites Should Have Skippable Repetitive Elements
Many developers build in repetitions of navigation elements. These can add clutter to screen readers. Allow users to skip these repeating elements if they prefer.

Content Should Be Clearly Written and Easy to Read
Use a simple, clear writing style that is appropriate to the material and focuses on conveying information.

Fonts should be easy to read and sized appropriately. Make sure the font color provides adequate contrast to the page background.