

Different Disabilities that Can Affect Web Accessibility

Disabilities	How People with Disabilities Use the Web	Barriers
Visual Disabilities		
<p>Blindness Involves a substantial, uncorrectable loss of vision in both eyes.</p>	<ul style="list-style-type: none"> ▪ Individuals who are blind rely on screen readers a software that reads text on the screen/monitor and outputs this information to a speech synthesizer ▪ Some people who are blind use text-based browsers such as Lynx, or voice browsers. ▪ They may use rapid navigation strategies such as tabbing through the headings or links or Web pages rather than reading every word on the page sequence 	<ul style="list-style-type: none"> ▪ Images that do not have alternative text ▪ Complex images (graphs or charts) that are not adequately described ▪ Video that is not described in text or audio ▪ Tables that do not make sense when read serially (in a cell-by-cell or “linearized” mode) ▪ Frames that do not have “NOFRAME” alternatives, or that do not have meaningful names ▪ Forms that cannot be tabbed through in a logical sequence or that are poorly labelled ▪ Browsers and authoring tools that lack keyboard support for all commands ▪ Browsers and authoring tools that do not use standard applications programmer interfaces for the operating system they are based in ▪ Non-standard documents formats that may be difficult for their screen reader to interpret

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<p>Low Vision Also known as “partially sighted”; poor acuity (vision that is not sharp), tunnel vision, (seeing only the middle of the visual field) central field loss (seeing only the edges of the visual field), and clouded vision.</p>	<ul style="list-style-type: none"> ▪ To use the Web some people with low vision use extra-large monitors, and increase the size of system fonts and images. ▪ Others use screen magnifiers or screen enhancement software. ▪ Some individuals use specific combinations of text and background colours, such as a 24-point bright yellow font on a black background, or choose certain typefaces that are especially legible for their particular vision requirements 	<ul style="list-style-type: none"> ▪ Web pages with absolute font sizes that do not change (enlarge or reduce) easily ▪ Because of inconsistent layout, web pages are difficult to navigate when enlarged, due to loss of surrounding context ▪ Web pages, or images on Web pages that have poor contrast, and whose contrast cannot be easily changed through user override of author style sheets ▪ Text presented as images, which prevents wrapping to the next line when enlarged ▪ Other barriers listed for blindness above, depending on the type and extent of visual imitation

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<p>Colour Blindness This is lack of sensitivity to certain colours. Common forms of colour blindness include difficulty distinguishing between red and green, or between yellow and blue. Sometimes colour blindness results in the inability to perceive any colour</p>	<ul style="list-style-type: none"> ▪ Some people use their own style sheets to override the font and background colour choices of the author 	<ul style="list-style-type: none"> ▪ Colour that is used as a unique marker to emphasize text on a website. ▪ Text that inadequately contrast with background colour or patterns ▪ Browsers that do not support user override of authors' style sheets

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Hearing Disabilities		
<p>Deafness Deafness involves a substantial uncorrectable impairment of hearing in both ears. Some deaf individuals' first language is a sign language and may or may not read a written language fluently or speak clearly.</p>	<ul style="list-style-type: none"> ▪ Deaf people rely on captions for audio content. ▪ May need to turn on the captions on an audio file as they browse a page; concentrate harder to read what is on a page, or rely on supplemental images to highlight context 	<ul style="list-style-type: none"> ▪ Lack of captions or transcripts of audio on the Web, including webcasts ▪ Lack of content-related images in pages full of text, which can slow comprehension for people whose first language may be a sign language instead of a written/spoken language ▪ Lack of clear and simple language ▪ Requirements for voice input on Websites
<p>Hard of hearing A person with a mild to moderate hearing impairment</p>	<ul style="list-style-type: none"> ▪ Rely on captions for audio and/or amplification of audio. ▪ They may need to toggle the captions on an audio file on or off, or adjust the volume of an audio file 	<ul style="list-style-type: none"> ▪ Lack of captions or transcripts for audio on the Web, including webcasts.

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Physical Disabilities		
Motor Disabilities		
<p>Include weakness, limitation of muscular control (involuntary movements, lack of coordination or paralysis), limitations of sensation, joint problems, or missing limbs.</p> <p>Includes pain that impedes movement, and can affect the hands and arms as well as other parts of the body</p>	<ul style="list-style-type: none"> ▪ People with motor disabilities affecting the hands or arms may use a specialized mouse, a keyboard with a layout of keys that matches their range of hand motion, a pointing devices such as a head-mouse, head-pointer or mouth-stick, voice-recognition software, an eye-gage system, or other assistive technologies ▪ May activate commands by typing single keystrokes in sequence with a head pointer rather typing simultaneous keystrokes to activate commands ▪ May need more time to fill out interactive forms on Websites if they have to concentrate or manoeuvre carefully to select each keystroke 	<ul style="list-style-type: none"> ▪ Time-limited response options on Web pages ▪ Browsers and authoring tools that do not support keyboard alternatives for mouse commands ▪ Forms that cannot be tabbed through in a logical order

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Speech Disabilities		
<p>The disability includes difficulty producing speech that is recognizable by some voice recognition software, either in terms of loudness or clarity</p>	<ul style="list-style-type: none"> ▪ To use parts of the Web that rely on voice recognition, someone with a speech disability needs to be able to use an alternate input mode such as text entered via a keyboard 	<ul style="list-style-type: none"> ▪ Websites that require voice-based interaction and have no alternative input mode
Learning Disabilities		
<p>Persons with visual and auditory perceptual disabilities including dyslexia and dyscalculia may have difficulty processing language or numbers Difficulty processing spoken language when heard May also have difficulty with spatial orientation</p>	<ul style="list-style-type: none"> ▪ To use the Web, people with visual and auditory perceptual disabilities may rely on getting information through several modalities at the same time. ▪ May use a screen reader, a synthesized speech to facilitate comprehension; or someone with an auditory processing disability may use captions to help understand an audio track 	<ul style="list-style-type: none"> ▪ Barriers may include the lack of alternative modalities for information on Websites (e.g. lack of alternative text that can be converted to audio to supplement visuals, or the lack of captions for audio)

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Mental Health Disabilities		
This person may have difficulty focusing on information on a Web site, or difficulty with blurred vision or hand tremors due to side effects from medications	<ul style="list-style-type: none"> ▪ Web users with disability may need to turn off distracting visual or audio elements or to use screen magnifiers 	<ul style="list-style-type: none"> ▪ Barriers may include distracting visual or audio elements that cannot easily be turned off ▪ Web pages with absolute font sizes that do not enlarge easily
Seizure disorders		
Some individuals with seizure disorders, including people with some types of epilepsy (including photo-sensitive epilepsy), are triggered by visual flickering or audio signals at a certain frequency.	<ul style="list-style-type: none"> ▪ To use the Web, people with seizure disorders may need to turn off animations, blinking text, or certain frequencies of audio. Avoidance of these visual or audio frequencies in Web sites helps prevent triggering of seizures 	<ul style="list-style-type: none"> ▪ Use of visual or audio frequencies that can trigger seizures

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Multiple Disabilities	<ul style="list-style-type: none"> ▪ Combinations of disabilities may reduce a user's flexibility in using accessibility information. 	<ul style="list-style-type: none"> ▪ While someone who is blind can benefit from hearing an audio description of a Web-based video, and someone who is deaf can benefit from seeing the captions accompanying audio, someone who is both deaf and blind needs access to a text transcript of the description of the audio and video, which they could access on a refreshable braille display. ▪ Someone who is deaf and has low vision might benefit from the captions on audio files, but only if the captions could be enlarged and the color contrast adjusted. ▪ Someone who cannot move his or her hands, and also cannot see the screen well, might use a combination of speech input and speech output, and might therefore need to rely on precise indicators of location and navigation options in a document.

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Age-Related Conditions		
	<ul style="list-style-type: none"> ▪ Changes in people's functional ability due to aging can include changes in abilities or a combination of abilities including vision, hearing, dexterity and memory. Barriers can include any of the issues already mentioned above. Any one of these limitations can affect an individual's ability to access Web content. 	<ul style="list-style-type: none"> ▪ For example, someone with low vision may need screen magnification, however when using screen magnification the user loses surrounding contextual information, which adds to the difficulty which a user with short-term memory loss might experience on a Web site.