

Information Technology Systems – Web Equity Issues

1. Discuss the issue of Equity (in terms of use for personal use as well as employment related activities) with regard to the Internet for people with disabilities and/or impairments.

There are over half a billion people in the world who are disabled, and although there are many commendable efforts on the Internet to support the cause of improving website accessibility for these people, the vast majority of websites do not follow the recommended guidelines to provide user friendly pages for the disabled (Information society, author unknown, 1998). As technology and electronic interactive services become a larger part of our everyday living, these groups risk severe social exclusion as a consequence of the myriad of technical barriers they face when using the Internet (Valdes, L, 2003). Nowadays, nearly all errands, such as banking, shopping, learning, and government services can be handled through the use of the Internet. Most of these barriers can be easily avoided if the designers follow some simple guidelines, such as those in the "HREOC World Wide Web Access: Disability Discrimination Act Advisory Notes".

Presently, many companies and businesses consider the use of the web to provide information and services electronically, as it has "the potential to provide equal access for people with a disability; and to provide access more broadly, more cheaply and more quickly than is otherwise possible using other formats." (HREOC). People with a disability now have a range of equipment and software that makes it possible for them to access and understand information on the Internet, and publication on the Internet should provide a simple and effective means of obtaining information that would otherwise be more difficult to acquire physically through premises, because of their disability. However, the presence of information on Internet does not guarantee accessibility, as the design of a website may limit access to the disabled. As well as this, equipment for access to the Internet for the disabled can be very expensive, so access of a page may not be reasonable in practice. Even so, barriers in the design of a website can be removed, so that it is possible for the disabled to have equal access to the Internet. (HREOC, 2004).

It can be seen that equal access of information can potentially be improved in regards to the Internet. However, as websites must be created according to guidelines in order for them to be accessible to disabled people, many web designers think this is optional, and so ignore them, believing that their target audience does not include the disabled, or that the disabled is only a small percentage of society. Because of this the majority of websites do not include such accessibility, and so equity, in relation to the web, is not balanced, resulting in the further marginalizing of the disabled community, as technology becomes an increasingly greater part of society.

2. The issue of accessibility to the Internet for people with disabilities and/or impairments is a significant one. Discuss what assistive technologies are currently available to support them.

There are four main areas of disability, which are:

Cognitive – Reading disorders, learning disabilities, and attention deficit/hyperactivity disorder. Website useability can be improved with illustrations, good graphics, organized content with headings, and visual cues for navigation.

Hearing – Deafness. Users may need assistive technology to read transcripts or view captioned multimedia content.

Motor – Inability to use a mouse and lack of fine muscle control. Users may need assistive technology such as mouse sticks for keyboard commands, eyetracking software, special keyboards, or voice input.

Visual – Full/partial blindness, colour blindness. Users may require screen reader applications, Braille hardware, or text to speech browsers. (Vais, F. 2001)

As explained previously, there are several hardware and software assistive technologies to help the disabled. Some technologies include; Braille displays, alternative keyboards and mice, screen readers, speech/voice recognition systems, text-to-speech synthesizers, PDA's, screen magnifiers, signing avatars, and neural interface devices.

Refreshable Braille displays, such as the "PowerBraille" displays are electromechanical devices connected by a serial cable that read text on the computer, and converts it into a Braille output on the Braille display for those with visual disabilities. They display only one line at a time, and normally include directional buttons to navigate through a document or website. One cell is made of eight pins and lift as necessary, to form Braille characters in place of letters. A combination of these cells form words. (ATRC. Author Unknown, Date Unknown)

Screen magnification software, such as "ZoomText" is used by people with visual disabilities to enlarge information on the computer screen by predetermined factors. This software works seamlessly with the operating system and applications, and some have the option to invert colours, and to have tracking options. (ATRC. Author Unknown, Date Unknown)

Voice and speech recognition, such as "Via Voice" is a voice to text software application that can recognize words spoken out loud by the user, and the most powerful can recognize thousands of words. It is commonly used in cases where the user cannot use a keyboard due to a disability, and so instead of typing commands, they speak into a microphone. As such technology improves in both cost and accuracy, it is entering mainstream. (CHIN. Author Unknown, 2004)

Text-to-speech synthesizers, such as "Windows Eyes" are hardware and software that produce a synthesized voice from on-screen text, as well as for keystrokes entered on a keyboard. This technology is often used by the blind and the partially blind. However, it is important to note that screen readers cannot recognize graphical elements in websites, without text being associated to these elements through the use of coding attributes such as "alt" and "title". (CHIN. Author Unknown, 2004)

Earlier, I explained that web designers must create websites according to guidelines, in order to assist the disabled. One such method is the use of alt tags. An alt tag is an attribute added to non-textual elements, which allow the designer to write a description of the element. Assistive technologies such as Braille displays and screen readers cannot recognize graphical elements, but are able to read the information within the alt attribute, and so the use of the alt tag ensures that people who use assistive technology will be able to understand the graphic. The LONGDESC tag is essentially the same as the alt tag, but provides a longer description obtained from a separate HTML document. (CHIN. Author Unknown, 2004)

Another is the use of a heading tag. When a blind person wants to get an overview of the contents of a website, they usually have a speech enabled browser that searches for the headings on the website and extracts them to a list, so that the user can easily hear the subjects on the page. However, these headings must be marked up and structured properly with appropriate heading elements, or the browser will not be able to recognize them. (Byrne. J. 2002)

Finally, the use of CSS (Cascading Style Sheets) is a good idea, because it separates document structure from document presentation. "By separating presentation from structure, specialized technologies used by people with disabilities can easily interpret the structure and render it properly to users." (Paciello, M.) So, with a website that is marked up properly and has a suitable set of style sheets, you can have a document that works well for those using Braille displays and screen readers, without compromising design quality.

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