

## Usability & Accessibility

Two terms that are fundamental to web design (or should be) are usability and accessibility. The two terms mean something slightly different, however, in most discussions regarding website creation the two terms are always used together when taking a user-centred approach.

### Usability

“Usability rules the web. Simply stated, if the customer can’t find a product, then he/she will not buy it. The web is the ultimate customer-empowering environment. He/she who clicks the mouse gets to decide everything. It is so easy to go elsewhere; all the competitors in the world are but a mouse-click away.”

*Jacob Nielsen, Designing Web Usability, <http://www.useit.com/>*

What does it mean to be usable?

The user of a website can easily understand or learn how to use the website in order to achieve a particular goal. The design approach is a user-centred approach meaning that the website has been developed from a user-oriented rather than a technology-oriented method.

The primary notion of usability is that websites that are designed with the user in mind are:

- more efficient to use — it takes less time to accomplish a particular task
- easier to learn — an operation can be learned by observing the object
- more satisfying to use

The goal is to provide **clear** functionality as well as rapid access to **useful** information. This information is **easily** communicated by the layout of the website pages. Generally, the first page that users will see is the homepage, so the layout of the homepage is where you establish your navigation and also the kind of website it is. This needs to be communicated clearly, easily and quickly, as users will make a decision within a few seconds as to whether they will stay in the website or go somewhere else.

Other important usability features that need to be established quickly are:

- the style of typeface (is it readable and legible)
- placement of the various navigation tools
- clear hierarchy indicating the location of your main level and sub level navigation
- Content breakdown or organization - chunking - into usable pieces of information
- use of visual clues that don't overwhelm the user.

## Accessibility

“The Web is an increasingly important resource in many aspects of life: education, employment, government, commerce, health care, recreation, and more. It is essential that the Web be accessible in order to provide equal access and equal opportunity to people with disabilities. An accessible Web can also help people with disabilities more actively participate in society.”

*Web Accessibility Initiative, World Wide Web Consortium, <http://www.w3.org>*

## What does it mean to be accessible?

Web accessibility means that people with disabilities can use the Web. More specifically, Web accessibility means that people with disabilities can perceive, understand, navigate, and interact with the Web, and that they can contribute to the Web.

Web accessibility encompasses all disabilities that affect access to the Web, including

- Visual
- Auditory
- Physical
- Cognitive and neurological disabilities

It is possible for people with a disability to access the Web, by using Adaptive Technologies. Adaptive Technology is any tool used to assist a person in alleviating a disability. They may be as simple as a stick from a tree or an expensive piece of equipment. Accessibility aids are specialized programs and devices that help people with disabilities use computers more effectively (Woodrow). Some examples of aids that are available are:

- Screen enlargers for people who have low vision
- Screen readers for people who are blind
- Voice input utilities for people who provide verbal commands to their computers instead of using the keyboard or mouse
- Braille keyboards





These are some adaptive technologies available

Braille keyboards (previous page)

Enlarged keyboards

Screen enlargers

## Kinds of disabilities that could affect access to the Web

### Visual Disabilities

#### Blindness

Examples of barriers that people with blindness may encounter on the Web can include:

- images that do not have alternative text
- video that is not described in text or audio
- non-standard document formats (or coding) that may be difficult for their screen reader to interpret

#### Colour Blindness

Colour blindness is a lack of sensitivity to certain colours. It is not the inability to see a colour, but rather the inability to discriminate between 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.

Some people with colour blindness use their own style sheets to override the font and background colour choices of the author.

Barriers that people with colour blindness may encounter on the Web can include:

- colour that is used as a marker to emphasize text
- text that is inadequately contrasted with background colours or patterns

### Hearing Impairments

#### Deafness or hard of hearing

Some deaf individuals' first language is a sign language, and they may or may not read a written language fluently. To use the Web, many people who are deaf rely on captions for audio content. They 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.

Barriers that people who are deaf may encounter on the Web can include:

- lack of captions or transcripts of audio on the Web
- lack of content-related images in pages full of text
- lack of clear and simple language

### Physical Disabilities

Physical disabilities could include weakness, limitations of muscular control (lack of coordination, or paralysis), and missing limbs.

To use the web, people with physical disabilities may use adaptive equipment such as a specialised mouse, a special keyboard with a layout of keys that matches their range of hand motion; a pointing device such as a head-mouse, head-pointer or mouth-stick; voice-recognition software; an eye-gaze system (software that allows you to control your computer using your eyes); or other assistive technologies to access and interact with the information on Web sites.



Barriers that people with motor disabilities affecting the hands or arms may encounter include:

- 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

### **Cognitive and neurological disabilities**

Cognitive (relating to thought processes) and neurological (relating to the nervous system) disabilities can include dyslexia, Attention Deficit Disorder, learning impairments, and other mental health disabilities. These disabilities are probably the most difficult to define and therefore the most difficult to cater for.

Barriers can include:

- use of unnecessarily complex language on Web sites
- lack of graphics on Web sites
- lack of clear or consistent organization of Web sites
- distracting visual or audio elements that cannot easily be turned off

Designing for accessibility also benefits people who don't have a disability and also older people. This is why usability and accessibility are generally linked together. There are many reasons why it is important to design for usability and accessibility. The prime one is that not to do so is discrimination. It is also beneficial to reach as many users as possible (particularly if you are selling a product or services). Another good reason to consider accessibility issues (if the other two are not enough) is that

the Law requires it.

## Case Study

### Maguire V SOCOG

In 1999, prior to the Sydney Olympic Games, Bruce Maguire contacted the Organising Committee with concerns about the inaccessibility of the ticket booking section of the website. Bruce was an experienced user of a refreshable Braille display, but was unable to access important information. He subsequently lodged a complaint with the Human Rights and Equal Opportunities Commission under the Australian Disability Discrimination Act.

He claimed that he was being discriminated against because he could not access the contents of the Olympic Games website.

The website was examined by usability experts and was found to contain the following accessibility issues:

- There were no labels (alternative text) on images or image maps
- There was no access to the index of sports pages from the schedule page
- Contents of the results table were inaccessible

The Olympic Committee defence was:

- The site was too big and to make the website accessible would entail 'unjustifiable hardship'
- They estimated that additional infrastructure, time and resources would cost \$1.5 mil and it would take over a year to fix.

Expert witnesses for Maguire challenged this, claiming the site could be made accessible by five skilled people in about six weeks with no hardware investment.

SOCOG lost the case and was ordered to make the changes. They refused to comply and were fined \$20,000. This was a landmark decision and has been used as a test case for the need for accessibility on the Web.

## Usability & Accessibility

### Accessibility

Some simple things that you can instigate when you design your website that will help accessibility are:

- When using images always provide an ALT attribute in the <img> tag. The ALT attribute (alternative text) provides a text label for the image that appears when images are turned off in a browser or when screen reading software is used for people with visual impairments. Make a label that best describes the image.
- Think carefully about colours
- When using (X)HTML and CSS follow the Web Design Standards set up by the W3 Consortium

Dreamweaver makes it very easy to create standards compliant websites, which is the first step in designing accessible websites.

Here are some simple questions you can ask yourself when designing your website.

### **Winning Web Design - Accessibility**

Can the majority of your web users access your web content easily?

Do they need special plug-ins, or other types or versions of web browsers to access your web pages?

Can your users read the font on your web pages in contrast to the background colour?

What if a user's web browser does not support the technology used on your web pages?

Are the colours and themes on your web pages uniform and consistent?

Are the images and other multimedia components necessary and do they download quickly?

### **Winning Web Design - Usability**

Is there a clear visual hierarchy?

Are heading levels easy to distinguish?

Does the site have easy to understand navigation?

Does the site use consistent navigation?

Are the links underlined or obvious?

Does the site use consistent and appropriate language?

Do you have a sitemap page and contact page? Are they easy to find?

For large sites, is there a search tool?

Is there a link to the home page on every page in the site?

Are visited links clearly defined with a unique colour?

### **Web Design Usability**

Some useful websites to visit:

Two 'Web Gurus'

Jacob Nielsen - <http://www.useit.com/>

Lynda Weinman - <http://www.lynda.com/home/DisplayCourse.aspx?lpk2=448>

Many of Lynda's video tutorials are available on paid subscription but her accessibility tutorials are free.

Web Design Standards Web Accessibility Initiative

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

## References

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