Design Considerations in Making Web Pages More Accessible

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Agenda

1. What WWW means to the visually impaired people (VIP)?
2. Accessibility obstacles and how they can be removed.
3. Features for enhancing accessibility.
4. Conclusion

What WWW means to the VIP?

The invention of Internet and WWW

- Brings revolutionary changes to the life quality of the VIP

- Closes the information gap between the VIP and their sighted counterpart.

- Brings new opportunities and improves work performance for VIP in employment, education and daily living.

What WWW means to the VIP?

The VIP become truly independent in handling the following :

Accessing Information

- News, sports, finance, books, technology, hobbies, and etc.
  Access information without reading printed copies.

Communication

- Email, ICQ, newsgroup, …
  write messages without using pen and paper.

Transaction

- ESD, e-shopping, e-banking, …
  Acquire services without going to the service premises ;
  Electronic form filling is easy.

Accessibility obstacles and how they can be removed.

Inaccessible web pages defeats all the above benefits and creates digital divide.

Web page accessibility has profound impact on the VIP.

But is it difficult to make web pages accessible to VIP?

Do we need large extra efforts?

Accessibility obstacles and how they can be removed.

Thanks to IT, smart screen readers have been developed for the VIP.

Yet, there still exists limitations.

The more important limitations and characteristics of these tools are :

a. Graphics, pictures, images and diagrams can not be handled;
b. Items, or objects are read one-by-one in a serial manner;
c. The screen reader is triggered whenever a screen refresh is detected.

Accessibility obstacles and how they can be removed.

Major web accessibility obstacles

a. No descriptive text provided for significant image maps, diagrams and pictures.
b. Animation effects, such as flash, animated GIF, video clips and etc.
c. Poor color contrast.
d. Chinese and English versions posted in the same page.
e. File attachments in PDF or image format only.
f. Complex tables.

Accessibility obstacles and how they can be removed.

Screen readers cannot read graphics and drawings.

Suggested solution :

Use Alt-text for hyperlinks accessible through image map.

A brief descriptive text should be provided for significant diagrams and pictures.

Example

Accessibility obstacles and how they can be removed.

Similarly, Animation effects, such as flash, animated GIF, video clips and etc., can not be interpreted by screen readers.

Suggested solution :

Video Clip

For decorative purpose only
A simple description of the video, together with a music background, is sufficient.

For conveying useful information
An alternate presentation is required

Suggested solution :

An audio clip containing the information to be provided with the video.

Subtitles / descripted by a short text link can also be provided for maximum accessibility

(digital 21 video demonstration)

Accessibility obstacles and how they can be removed.

Flash Animation

For visual presentation

Same treatment as video clip.

As home page of a web site with entry links to site contents

- provide alternate entry points, e.g. Entry points for Animated and Static versions.
- Used at sitemaps or for menu selection
  Provide an alternative, e.g. a text only sitemap.

Accessibility obstacles and how they can be removed.

Other types of animation –

Banners using Javascript – usually used for decorative purpose or as entry links to hot topics e.g. hot news banners.

Ensure the addressed items in the banner can also be accessed somewhere else in the site, e.g. text only sitemap, "What's new", and etc.

Provide a text equivalent.

Banners with auto-refresh effect should not be used as it will trigger the screen reader continuously and cause frustration to visually impaired users.

(example of a auto-refresh banner)

Accessibility obstacles and how they can be removed.

Users with colour deficiency may not be able to differentiate the different colours and may miss out information that is presented in colour alone.

Suggested solution :

Test the colours used in web pages against a monochrome screen or a black and white printer. Ensure that a sharp contrast is displayed.

Example

Reference sites and webpages :

Lighthouse International
Effective Color Contrast
Color Setting in Browsers
Making Text Legible

Accessibility obstacles and how they can be removed.

In Hong Kong, it is quite common to have bilingual web pages (English and Chinese).

Some Chinese screen readers can handle English also but for most English synthesizer software, the reverse is not true.

Thus, if the English screen reader encounters Chinese characters, the internal coding being unknown to the tool, non-meaningful sounds will be generated.

Worse still, the alien characters may be interpreted as some control characters and cause a system upset.

Suggested solution :

- Put Chinese and English contents on separate pages

- If the entry page is coded in Chinese, place the language switching link as the first link at the top.

Accessibility obstacles and how they can be removed.

Documents and files for download, such as consultation papers, brochures, application forms or contract documents.

Usually in PDF format or in image format (by scanning the document).

For PDF format, some means are available to render the text portion of PDF documents (note that the image elements of PDF is still not accessible)

Rendering of Chinese PDF files is not guaranteed.

Suggested solutions :

- Provide an alternate document in text format. WORD documents can also be used but to avoid the different versions of the product used by various users, a file in RTF format is preferred.

- For application forms, where the use of text or RTF format is not desirable, the use of on-line electronic form can address the problem.

Example

Converting PDF Files Into Readable Format

Adobe Acrobat has provided accessibility plug-in for converting English PDF files into text format. However, the corresponding plug-in for Chinese PDF files is not yet available.

Below are the URLs to get Acrobat Reader and its Accessibility Plug-in

1. To download Acrobat Read 4.05 for Win9x and WinNT, visit
http://www.adobe.com/products/acrobat/alternate.html

2. to download Acrobat Access for Windows plug-in, visit
http://www.adobe.com/support/downloads/5efe.htm

3. to get more information on accessibility for Acrobat Read, visit http://access.adobe.com

Another means :

Send your PDF file to :

pdf2txt@sun.trace.wisc.edu or
pdf2html@sun.trace.wisc.edu

Accessibility obstacles and how they can be removed.

Simple Tables –

The more advanced screen readers can render simple tables by telling the visually impaired user the table format and then read out the contents of the cells one by one. The user can base on the format to map the subsequent contents of the table as the contents are being read by the screen reader.

Example 1

The above example shows telephone directory of a company. The screen reader will read out the table contents in this sequence when the VI user walk through the table with the down-arrow key :

Table with 3 columns and 3 rows.
Summary : Telephone directory of ABC Co. Limited.

Name of person, Department, Telephone, John Chan, marketing, 2222 1111, Bob Lee, sales, 2222 1122, Susan Ho, Accounting, 2222 1234.

So, it works perfectly for the VIP!

Accessibility obstacles and how they can be removed.

Complex Tables –

For complex tables, such as one with interim subtitles.

Take the below as an example **-**

Example 2

The screen reader will read out :

Table with 5 columns and 13 rows.

(Then, it will read out 8 heading titles instead of 5!)

GDP distribution of various products and services of a country products and services categories
Products and services categories
1998
1999
GDP value at current market price (in US$ million)
% of total GDP
GDP value at current market price (in US$ million)
% of total GDP

Thus, the VI user will get very confused.

Suggested solutions :

* Break it up into two or more simple tables.

- Provide a linear presentation of the table. For example, the above complex table can be presented as follows :

    - The GDP figure valued at current market price for the Garment Sector in 1998 is US$ 5 million and accounts for 5.1% of the total GDP.
    - The GDP figure valued at current market price for the Electronics Sector in 1998 is US$ 20 million and accounts for 20.2% of the total GDP.
    - The GDP figure valued at current market price for the Toys Sector in 1998 is US$ 10 million and accounts for 10.1% of the total GDP.
    - The GDP figure valued at current market price for the Watch manufacturing Sector in 1998 is US$ 5 million and accounts for 5.1% of the total GDP.
    - The total GDP figure for the above manufacturing sectors in 1998 is US$ 40

million and accounts for 40.5% of the total GDP.

and similar rendering for the remaining items. ..

Features for enhancing accessibility.

a. Maintain consistency in all page, e.g. hot links always located at the top.
b. Set up an alternative text-only version page if a particular page is complicated and rich in graphics;
c. Place frequently used hyperlinks, such as Sitemap, Chinese/English vesion,and etc., on the top let corner of the front page.
d. Provide sufficient navigation buttons e.g. back, next, previous, goto top and etc.
e. Provide indicators as appropriate, e.g. end-of-page, close (for a pop-up window).
f. Avoid blinking and flicking features.
g. Avoid complicated frames.

The following is extracted from an article prepared by the Royal National Institute for the Blind, UK :

What is best practice?

RNIB encourages the design of websites that practice 'universal design' or 'design for all'. That is, a single version of the website which is accessible to everyone, no matter how they access the Web. This is made possible by the extensive accessibility features designed into HTML 4.

In most circumstances there is no need to create a separate text-only version of a website. Unless database content management is being used, the creation of an additional text-only version simply doubles the work involved in updating or amending the site, and often leads to an increasingly useless version of the site, with time constraints resulting in the graphic version being updated regularly while the

text-only version is neglected and becomes more and
more out of date. The creation of a text-only version should be seen only as a final option when all other alternatives for making the site accessible have been exhausted.

Accessible pages needn't be boring! They can be well designed, attractive and interactive, while at the same time providing access for everyone.

More on web accessibility can be found in the following websites :

www.digital.gov.hk/eng/knowledge/access_main.html
www.w3.org/wai
www.webable.com
aware.hwg.org
www.sun.com/access

Web Accessibility Advisory Service
Miss Judy Fong, Hong Kong Blind Union
Tel : 2339 0666
e-mail : info@hkbu.org.hk