Information Management Resource Kit

Module on Building Electronic Communities and Networks

UNIT 4. DESIGNING AN ONLINE COMMUNITY

LESSON 5. USABILITY AND ACCESSIBILITY

NOTE

Please note that this PDF version does not have the interactive features offered through the IMARK courseware such as exercises with feedback, pop-ups, animations etc.

We recommend that you take the lesson using the interactive courseware environment, and use the PDF version for printing the lesson and to use as a reference after you have completed the course.

Objectives

At the end of this lesson, you will be able to:

• identify the main issues affecting the usability and accessibility of online communities; and

• exemplify basic usability and accessibility principles for the design of online spaces.

Introduction

Have you ever lost patience when reading the instructions of a TV set? Or had problems understanding how a new telephone worked? If so, you have encountered **usability** problems.

The usability of an object is its capability to meet the needs it was designed for.

This concept applies to different fields: architecture, industrial design, information technology, etc.

Overview of design considerations

When applied to an **online community**, usability relates to how easily and effectively your online community can use your Web site and other online spaces.

Designing for usability means answering questions such as...

- Who are the **users** of this online space?
- How easily can they perform the **tasks** they need to do, such as finding contact details, posting to a discussion board, finding an article, or signing up for a newsletter?
- How do they **feel** in general about using the online space? Is it a positive experience, or do they leave the site feeling frustrated or disappointed?
- How do you want to **lead the user** to particular information or tasks?

Overview of design considerations

Accessibility is part of usability, as it is the extent to which users can physically access Web sites and other online spaces.

Access is affected by factors such as technical infrastructure and physical abilities. Designing for accessibility means asking questions such as...

- Can people using a variety of browsers or operating systems access your site?
- Can users with poor Internet connections download the resources they need?
- Can people with disabilities make effective use of your Web site?

Overview of design considerations

Usability is about designing for users – and because users come in many shapes and sizes, **designing for diversity** is an essential part of usable design. User differences can include...

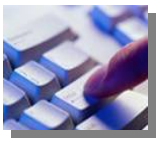
See next slides for more information about user differences.

Technical differences and user settings

People are likely to use a wide range of technologies and access the Internet in a variety of ways. All of these differences affect the way they experience your online community spaces.

International issues

"Sites that target a multicultural audience should have an international appeal" (Yvonne Cleary). Take into account language and cultural differences.

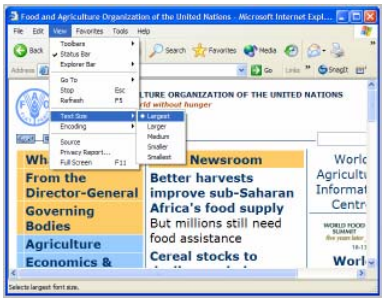


User skills, perceptions and physical abilities

Users have different experiences and skills that must be considered in your design.

Overview of design considerations

Technical differences and user settings



Here is an example of a user-determined font size (the user has set the font in their browser for the biggest display). Differences in display may result from the use of different operating systems, browsers, and monitor settings.

Technical differences may include...

- **Operating systems** (e.g. Linux. Mac, or different Windows versions)
- **Browsers** (e.g. Mozilla, Internet Explorer or Opera). Web browsers display HTML pages slightly (and sometimes substantially) differently. Browsers and e-mail clients also offer a number of settings which can be changed by the user. These include fonts and font sizes, link colours, and options for displaying e-mail as HTML or plain text.
- **Monitor size and screen resolution**
- **Type of connection** (dial-up access vs. "always on" broadband connection)
- **Type of physical access**, for example, full-time individual access at the office vs. a shared computer or access at a telecentre.

Overview of design considerations

International Issues

For example: "contact us" links on Web sites are often illustrated with an image of a post box. Because the size, shape, colour and general design of post boxes vary significantly from country to country, post boxes are not good visual metaphors to use for international web sites.

Language: although English is widely used on the Internet, many users do not have English as a first language. Web sites which are in English only, or use slang and colloquialisms without explaining them can be difficult for international communities to use.

Cultural differences: the meaning of many symbols, colours, metaphors etc. vary from culture to culture. In one culture a symbol may have a positive meaning, in another, a negative one – while in a third it may have no meaning at all. Do some research to ensure that symbols and graphics you plan to use are meaningful – and not offensive – to your community members.

Formats: values such as times and dates, postal ("zip") codes are written in different ways in different countries – ensure that the format in which you provide and solicit information is clear to users.

Overview of design considerations

User skills, perceptions and physical abilities

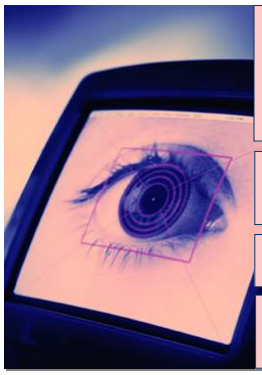
Users' computer skills, literacy levels, experience in using the Internet and personal preferences will affect the way they navigate and use online community spaces.

Users may have visual, hearing, motor or cognitive disabilities, and/or depend on "assistive technologies" such as screen readers and head pointer devices to use their computers.

Overview of design considerations

Usability and accessibility should be part of every stage of your design process.

Remember to follow the following steps:



1) **Define your audience**, and keep them in mind throughout all stages of development. Remember, though, that while you can define your primary audience (for example, formal members of a network), your Web site will probably be used by a much wider range of people.

2) **Plan and design your site** and other online community tools taking usability and accessibility principles and your user community into account.

3) **Test your Web site** and other online community tools before they are launched.

4) **Build usability and accessibility testing** into ongoing site maintenance and evaluation plans for your online community.

Overview of design considerations

Developing some "user scenarios"

It is helpful to develop a mental "picture" of some of your community members. These can be real community members who are known to you, or "imaginary" users based on what you know about your online community. Give your user a name. Describe her circumstances (where does she work? what skills does she have? how does she connect to the Internet?) and why she comes to your Web site. Think about where she might enter your site, and the paths she might take to find information. You can even draw her! For example...

Thandi
- Project manager of a rural women's health project in South Africa
- 33k dial-up Internet access from a computer shared with six staff members
- Uses mainly e-mail to participate in the community, but occasionally visits the Web site to look at the calendar and the directory of community health practitioners in her region
- First language is Zulu

Jenny
- Outreach coordinator of a network for women for disabilities across Southern Africa
- High-speed broadband Internet access at her desk
- Jenny is visually impaired, and uses a software program called a "screen reader" to access web pages
- First language is English

Thinking about community members in this way can help you decide both what content to provide, and how to present it. As you work on the site, do a mental check – how easily will Thandi find the calendar information she needs? Will Jenny be able to access the directory of members?

Web site usability

Let's now focus on the usability of a Web site (**Web site usability**).

A good Web site is **usable** as well as **useful**.

The usability of your Web site **reflects on your organization**. In some countries, Web sites are **legally required** to be accessible to users with disabilities. There is also a **business case** for designing usable and accessible Web sites: a Web site which does not pay attention to usability will have few users.

See interactive lesson for key points to keep in mind when building a site

See interactive lesson for the five main aspects of web usability

While the diversity of users means that there are no "one size fits all" rules for usability, there are some **general principles for usable web design**...

Web site usability

1 Provide a simple, consistent navigation structure, and use design elements consistently.

• Use the **same navigational elements** (e.g., navigation bars, menus and search boxes) **and core design elements** (e.g., logos and colour schemes) across your site. Adapt them as necessary for lower-level sections of your site.

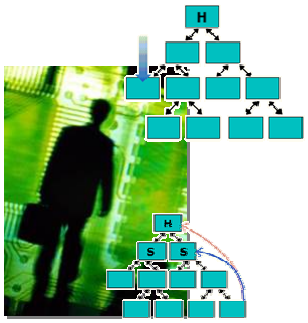
• Use **simple terms for core menu items**: e.g., "home", "help", "contact us", etc.

• Develop **templates** for different levels of the site (e.g., main, programme home, lower-level programme pages, individual articles) to ensure that consistency is maintained.

In this example from the APC site, the top navigation bar, the search box, and the logo are the same on the home page and the training sub-section, but the navigation panel on the left hand side has been adapted to correspond to the content of the training section.

Web site usability

2 Provide multiple pathways to information.



Visitors may enter your site at **any point**, not just through the "front door". Thus:

• they should be able to easily **find the information they need** regardless of whether they are using a search engine, site map, navigation bar, or a section menu: provide **a variety of pathways** to the information on your site.

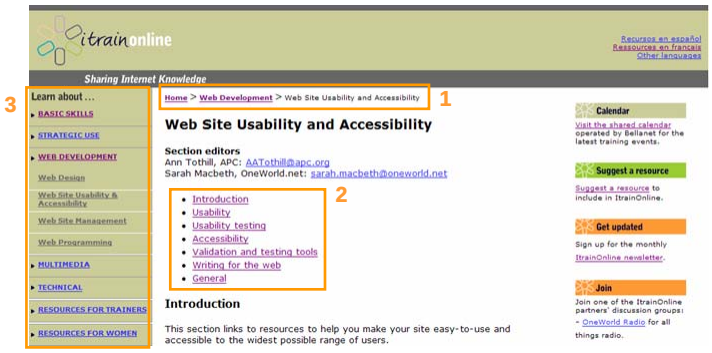
• they should always know **where they are**, and how to get to the home page: use **breadcrumb trails** to ensure that every page and document on your site contains these navigational information. For example:
Home > Publications > Online Books
Home > Members > Discussion Board

Example of multiple pathways

Let's assume that you have a "Guide to Immunization Advocacy" on your site. Possible pathways for accessing it from your site could be:
Entering the title into a search box
• Clicking on "Publications" on the navigation bar
• Going to the site map and clicking on "Publications"
• Clicking on the "Immunization Resources" link on the Health Programmes page

Web site usability

This web page contains breadcrumbs. Can you identify them?



Click on the relevant part of the image

Web site usability

3 Map out and test your information architecture in advance.

The way in which a site's content and navigation are structured is known as **information architecture**.

Map out your information architecture **before** you design the site: by focusing on purpose and use of the information you will provide the basis for graphic design without mixing with it.

Develop a "wireframe": a skeletal version of a page which sets out just the structure – particularly the navigation elements – without colours or graphics.

Steps for defining a wireframe	
1	Define your **content entities** (e.g. logo, navigation panel, search box, breaking news).
2	Develop the **wireframe** showing the basic structure for the page, with "placeholders" for all the content entities you have listed.
3	Discuss the wireframe with colleagues or members of your online community.

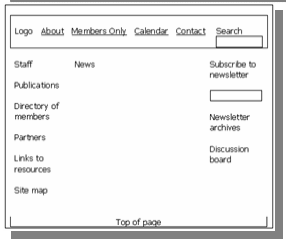
Web site usability

Which of the following is an example of a wireframe?

1

2

3



4

Logo

Navigation panel: links to partners, staff, publications, resources

Search box

Discussion board

Click on the relevant image

Web site usability

4 Conduct usability review and testing.

Web site usability can be tested by you (and your team) as well as by your target audience. The following approaches are the most effective ones...

• **Heuristic evaluation** is a technique in which reviewers (you or an expert reviewer) evaluate a site against a set of defined usability criteria.

• **Usability testing** involves users from the target audience who are given a set of tasks to perform on the site. The aim of usability testing is to find out what is and what is not working well on a site from an actual user perspective.

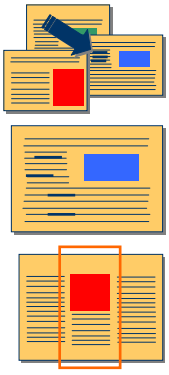
Whatever approach you take, it is important to assess the usability of your site **before it is launched** (or before major site redesigns) **and on an ongoing basis**.

See interactive lesson to read the guidelines on usability review and testing

Web site usability

Usability is not just a task for your web designers, but should be a concern of anyone **writing content** for your site. **We do not "read" a Web site the way we read a book!**

We see less at a time on a screen than on a printed page. We know immediately how long a printed document is. We don't get the same immediate sense of the size of a web page or other electronic document.



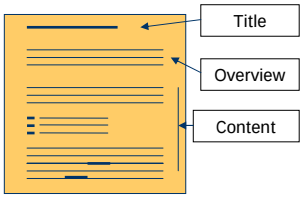
Web readers are usually purposeful, that is, they are looking for specific information. They also tend to be in a hurry, especially if they are connecting to the Internet from a telecentre, or from an expensive dial-up.

Web readers seldom read web pages word-by-word. They "scan" web pages to see whether the information on a site is relevant to them. If it does not appear to be immediately relevant, they will move on quickly.

Web users' eyes tend to focus first on the centre of a web page: they are used to finding the useful content there. If they don't find what they're looking for at the centre, their eyes scan left and then right into the page margins.

Web site usability

How should these issues be addressed? A web writer should:



"Layer" the content by using short and clear titles and overviews, and writing in plain language. Detailed content can be provided as separate pages or documents.

"Chunk" the content by keeping sentences and paragraphs short, using bulleted lists to draw the reader's attention to key points, and highlighting keywords.

Go to the Home page

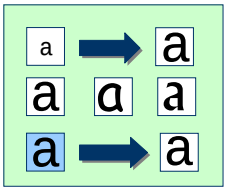
...is better than...

Click here to go to the Home page

Use links wisely. Use descriptive text for hyperlinks which clearly tell readers where you are taking them. Links provide a visual distraction which disrupt the "flow" of a text, so use them in the body of a web page by selecting meaningful descriptive phrases. When possible, offer a separate section of links to relevant resources. Finally, use a different colour for visited links, so that users know they have already been there. Don't underline anything that is not a link.

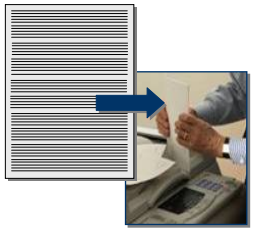
Web site usability

Moreover...



Ensure that the templates for your Web site take readability issues into account:

- **Don't use a font that is too small**.
- **Don't use too many different fonts in one document**.
- **Use high contrast between the background of the page and the typeface**. Black type on a white background offers the best contrast.



Long documents such as reports and long articles are likely to be printed out or saved for later reading, and should be handled differently.

Provide printable, PDF, or word processed versions of long documents.

Web site usability

You are publishing a report on your Web site. Which of the following report descriptions would you put on the Home page?

- **IICD Annual Report 2003**
  The International Institute for Communication and Development (IICD) published its Annual Report 2003. [06/16/2004] **More**

- **The International Institute for Communication and Development (IICD) published its Annual Report 2003.**
  For IICD, 2003 was a year of evaluation: in various countries local consultants analysed evaluation results, and the Building Digital Opportunities (BDO) programme carried out a Learning Study that included several of our activities. These evaluations led to valuable lessons, enabling us and our partners to learn from the past and identify areas for improvement.
  One of the highlights in 2003 was the start of a new Country Programme in Ecuador. In June this new programme officially took off with a Roundtable workshop in agriculture on the use of ICTs in sustainable production chains and marketing. Thematic Networking flourished in 2003, especially on issues relevant to livelihoods and education, sectors in which most IICD-supported projects are active.

Please click on the answer of your choice

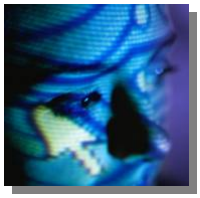
Web site accessibility

Web site accessibility relates to whether users can physically access your Web site or other online tools.

Accessible design ensures that your community has access to your online spaces, resources and tools regardless of their physical disabilities, types of Internet access and software they use. Accessible design benefits **diverse users**. Here are some examples of diversity and how they affect access:

See next slide for more information on accessibility issues

Bandwidth, type of connectivity and physical access



Disabilities

Interoperability

Let's see how these differences affect web design...

Web site accessibility

Bandwidth, type of connectivity, and physical access

Users are likely to have different levels and types of access to the Internet. For example, some might be using an expensive dial-up to access the Internet, with very limited bandwidth, others might have high-bandwidth access via a telecentre, but with limited connectivity time.

Disabilities

Physical, motor and cognitive disabilities are not in themselves a barrier to using the Internet; in fact, the Internet offers enormous potential for people with disabilities. Assistive technologies – and even just good design – can facilitate access to the full range of web tools. Conversely, poor design can render web sites virtually impenetrable to people with disabilities. Disabilities fall into the following broad categories:

- **Visual**: visual disabilities include blindness, low vision and colour blindness.
- **Hearing**: deafness
- **Motor**: inability to use a mouse, slow response time, limited fine motor control
- **Cognitive**: learning disabilities, distractibility, inability to remember or focus on large amounts of information

(WebAim. Introduction to Web Accessibility. http://www.webaim.org/intro/)

Interoperability

Users access the Web using a variety of devices and browsers. Your community members might be using Mozilla on a refurbished computer, or the latest version of Internet Explorer on a brand new computer, or screen reader software, which "translates" the text on a web page into spoken words.

Web site accessibility

Imagine you receive the following complaints from you users. Can you identify the problem?

1 I can't distinguish between red and green. As you use these colours to differentiate members-only content from content accessible to anyone, I have problems finding my way around your site!

Very long documents and graphics-intensive pages take a long time to load. Sometimes the connection drops before download is complete!

I see your web pages in a very strange way... I'm using Netscape. Have you designed the site for Internet Explorer users only?

BANDWIDTH a

DISABILITIES

INTEROPERABILITY

Click on each option, drag and drop it into the corresponding box.

When you have finished, click on the Check Answer button.

Web site accessibility

You can deal with accessibility issues in a number of ways, for example...

• By designing **different site versions** for different bandwidth ranges and browsers. This is not a cost-effective option for most online communities as it requires time and effort to maintain multiple versions.

• By using **valid HTML code** (set out by the World Wide Web Consortium - W3C) and conforming to basic **accessibility guidelines and standards**.

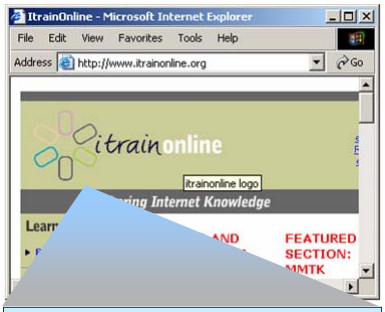
A number of tools are available to help you **check the validity and accessibility** of your Web site.

Would you like to know more about accessibility standards and testing?

See Annex 4.5.1 for a mini-lesson on validation services, simulation tools and accessibility standards.

Web site accessibility

Here are some of the most important specific issues site designers should pay attention to:




```
<a href="index.shtml"><IMG src="itologo.gif
alt="ItrainOnline home page"></a>
```

Link destination | Image description

Provide **text versions of links** in image maps. Users should be able to access links in image maps even if they are unable to display the image, or are using their keyboard instead of a mouse.

Use **"Alt" tags** to provide text descriptions of all non-text elements such as images, audio and video files, Flash files and Java applets. The description should be short and specific. If images are used as links, describe the link destination.

Web site accessibility

Moreover...

Pay attention to **size**: large files, whether HTML pages, graphics, documents or other file types, reduce the accessibility of your site for users with poor Internet connectivity. Download time can be reduced by using images sparingly, using smaller images, limiting the use of tables, and using valid HTML code.

If a page requires a **plug-in**, make sure it includes a link to that plug-in: for example, if users need a particular sound player to hear a news clip, make you include a link to a download location for that sound player.

Use **graphics and other multimedia elements sparingly**. They can improve the appeal of your site and help convey important information. However, they also slow down the speed at which pages load and may be inaccessible to community members using certain types of equipment or with physical disabilities.

Web site accessibility

OTHER TIPS FOR WEB SITE DESIGNERS

• Provide **meaningful page titles**.

• If information is conveyed with colour, provide it in **non-colour dependent** ways as well.

• Use **style sheets (CSS)** to control the presentation of information, but ensure that the document will still be readable in browsers which do not use style sheets.

• Ensure that **forms can be filled in by diverse users**. Web forms can present a number of obstacles to users. For example:

- Registration forms may restrict the format of addresses or postal codes in ways which may make them impossible for users in other countries to complete. For example, some areas do not have street deliveries for post. A form which does not allow users to enter a post office box address will be inaccessible to users in such areas. Take international issues into account, and test your form with community members from different countries.
- Forms may be difficult or impossible for users using different browsers to complete: use valid code, and test your forms in a variety of browsers.
- Forms may be impossible for users who depend on assistive technologies: ensure that all form controls (for example, check boxes, the “submit” button, and the “reset” button) have text labels next to them.

E-mail usability and accessibility

Diversity issues also influence the **use of e-mail for communication** in your online community or network. For example, people use different programs to access e-mail (**e-mail clients**):

• free web-based tools such as Hotmail and Yahoo that require the user to be online while they read and compose messages, and usually place strict limits on mailbox sizes; and

• standalone e-mail clients such as Pegasus, Eudora and Microsoft Outlook.

E-mail clients **display messages differently**. This means that while some users can see formatted messages (e.g., including bold text or graphics), others can see only plain text.

This message has been sent using formatting and graphics.

Let's have a look at how it is displayed...

• In an e-mail client which can't display graphics.

• In a text-only e-mail client.

E-mail usability and accessibility

In your opinion, which of the following three e-mail messages best applies usability principles?

1

Subject: New South African University

Dear all,

I would like to inform you that a **new university** is born in Johannesburg.

2

Subject: New South African University

Dear all,

I would like to inform you that a new university is born in Johannesburg.

3

Subject: New South African University

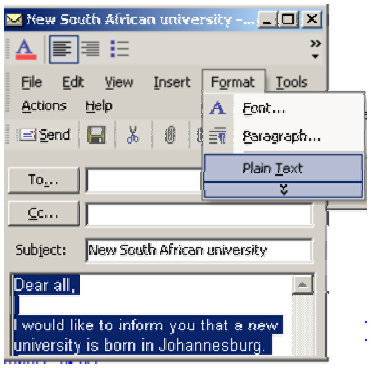
Dear all,

I would like to inform you that a new university is born in Johannesburg.

Please click on the answer of your choice

E-mail usability and accessibility

Use the following guidelines in your individual communications, and include them in the guidelines you develop for listserver members.



To learn how to change the setting in a variety of e-mail programs to send plain text only, see Gerry Boyd's "Configuring Mail Clients to Send Plain ASCII Text": http://www.expita.com/nomime.html

Use plain text:

• don't use **formatting** in e-mail messages (for example bold or underlined text, or HTML);

• don't include **images** in e-mail messages.

Write for e-mail:

• use **descriptive subject lines**, and change the subject line if there is a significant change in the topic of an ongoing exchange of messages.

• quote the relevant sections of messages you are responding to.

E-mail usability and accessibility

Finally, you should limit the **use of attachments** in the following ways...

Make sure that the recipients have the necessary software (e.g. Microsoft Word, Open Office suite, etc.) to **open the attachment** you are sending.

Consider uploading large files to a **web repository**, and send only the URL by e-mail.

If you maintain a discussion-type listserver, stipulate that attachments may not be posted to the list. Attachments may be unavoidable in a collaborative workspace-type list, but consider restricting their size.

Don't send an attachment if **plain text** will do. Word processed documents are much larger than plain text e-mail messages with the same content.

There are also **security issues** related to the use of HTML-formatted e-mail messages and attachments to messages: they are the primary means for spreading viruses!

Summary

A Web site is usable if it allows users to perform tasks easily and effectively, and promotes a positive experience of the site.

The accessibility of a Web site relates to whether users can physically access your site. Accessibility is a pre-condition for usability.

Designing for usability and accessibility means being aware of user differences and designing for diversity.

Undertake usability testing before your site is finalized, and gather usability-related information on an ongoing basis.

Chunk content and use headings and summaries so that it is easy for reader to pick out key points while scanning.

Conforming to standards (valid HTML, WCAG guidelines) is the simplest way to ensure the accessibility of your site.

People use a variety of e-mail programs and software. Be aware of the diversity of Internet users.

If you want to know more...

Online Resources

USABILITY AND ACCESSIBILITY

US Department of Health and Human Services. Web Site Usability and Accessibility (http://usability.gov/)

WebAim (http://www.webaim.org/)

Web site USABILITY

Nielsen, Jakob. Useit.com (http://www.useit.com/)

Nielsen, Jakob. Ten Usability Heuristics http://www.useit.com/papers/heuristic/heuristic_list.html

Information and Design. Usability Toolkit
http://www.infodesign.com.au/usabilityresources/default.asp

MIT. Writing for the Web: Guidelines for MIT Libraries
http://macfadden.mit.edu:9500/webgroup/writing/

Walton, M. 2003. Writing for the Web.
http://www.itrainonline.org/itrainonline/mmtk/mmtk_writing_for_the_web_handout.doc

Goldberg, L. 2003. An Introduction to Information Architecture
http://www.dcwebwomen.org/hotshot/goldberg_20030428.html

If you want to know more...

Online Resources

Web site ACCESSIBILITY

W3C HTML Validation Service (http://validator.w3.org/)
W3C Web Accessibility Initiative (http://www.w3.org/WAI/)
W3C Web site accessibility checklist (http://www.w3.org/TR/WCAG10/full-checklist)
Section 508 site (http://www.section508.gov/)
Usability.gov Accessibility section (http://usability.gov/accessibility)
Accessify.com (http://www.accessify.com/)
Dive into Accessibility: 30 days to a more accessible Web site
http://diveintoaccessibility.org/
iCapture (http://www.danvine.com/icapture/)
Vischeck (http://www.vischeck.com)
Delorie Lynx Viewer (http://www.delorie.com/web/lynxview.html)
WebAIM Simulations (http://www.webaim.org/simulations/)
WebXACT (http://webxact.watchfire.com/)

E-MAIL USABILITY AND ACCESSIBILITY

Boyd, Gerry. Configuring Mail Clients to Send Plain ASCII Text
http://www.expita.com/nomime.html

Annex 4.5.1
Mini-lesson: Accessibility standards and testing

Standards

What is **Valid HTML**?

HyperText Markup Language (HTML) is the basic "language" used for developing web pages. HTML has evolved over the years, enabling increasingly sophisticated web design. The official HTML specifications are maintained by the World Wide Web Consortium (W3C). These set out what is "valid" – in other words correct - for each HTML version.

In addition to Valid HTML, many software developers have developed additional specifications to extend the web page display options for their own browsers. Because these additional specifications are not part of the official W3C HTML specifications, they are not considered "valid code". They may display in the browsers for which they were designed, but display incorrectly or not at all in other browsers.

If you use only valid code you increase the chances that your site will display correctly **regardless of the type of browser or device** your community members use to access your site.

Standards

Web accessibility **guidelines and standards** set out a number of good practices (in addition to the use of valid HTML) which make Web sites more accessible to users with disabilities and/or users using assistive technologies.

A number of countries in Western Europe and North America have passed legislation which requires government Web sites to conform to accessibility standards. In the United States, Section 508 of the Rehabilitation Act sets out accessibility requirements for all U.S. Federal Web sites.

W3C Web Accessibility Guidelines (WCAG)

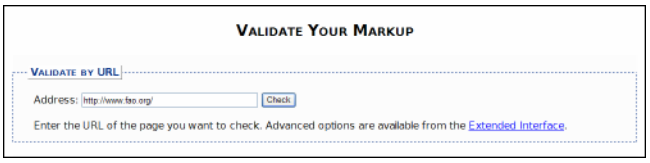
Please find the full checklist at http://www.w3.org/TR/WCAG10/full-checklist.html.
The WCAG guidelines set out three levels of priorities and conformance. Recommendations include enabling different types of searches for different skill levels and preferences if search functions are provided; providing keyboard shortcuts to important links; and providing information so that users can receive documents according to their preferences (e.g., language, content type, etc.).

Testing

A number of tools are available to help you **check the validity and accessibility** of your Web site. Many offer both a free version which tests only one page at a time, and a commercial version which can test many pages simultaneously.

W3C Markup Validation Service

This is a free service which checks the validity of web pages and indicates what errors have been made.



Using the W3C Markup Validator
Enter the URL of the page you want to validate, and click on "Check". If there are HTML errors on the page, you will get a message stating that the page is not valid HTML, and an explanation of the errors. If the page is valid HTML, you will get a message indicating that the page is valid. You will also be entitled to use a W3C icon on the page stating that it is valid.

Testing

WebXACT

This is a free online service that lets you test single pages of web content for quality, accessibility, and privacy issues.

Using WebXACT
Enter the URL of the page you want to check, and click on "Go!". The site will generate a report indicating which tells you whether your page complies to certain standards (WCAG and United States Section 508 compliance), and notes any points of non-compliance.

Some issues can be identified with a machine, but some WCAG requirements must be reviewed by a human. Automated tools alone are not sufficient for testing WCAG conformance. Validity, on the other hand, is something that is machine-testable.

Testing

Simulation tools

Simulation tools let you experience using the internet from the perspective of users using particular tools, or with particular disabilities. Some simulation tools let you see how your own web pages would appear to community members using different platforms or different browsers, using assistive technologies such as screen readers, or with particular disabilities such as colour blindness.

iCapture lets you see your web page as it would be displayed in a variety of browsers.
Delorie Lynx Viewer lets you see your site as it would appear in a text-only browser.
WebAim simulations let you experience some of the problems which users who are blind, have low vision, or cognitive disabilities might have in using the Web.
Vischeck shows you how your pages would appear to someone who is colour blind.