

Objective evaluation of likely usability hazards – preliminaries for user testing

by Jasper Sprengers (1999)

Abstract

This article is an attempt to consolidate and apply the recommendations from several excellent resources for good usability design of websites into a workable test. It will then provide a formal yardstick to evaluate the relative expense and benefits of rectifying flaws and implementing improvements. It is written both as a research effort and as a collection of useful advice and warnings that we hope will be of use to everyone involved in copywriting, graphic design and technical implementation of websites.

Objective usability criteria versus tastes in design

We define usability here as the decisive quality criterion for a website. It involves the overall success of the user's experience and therefore involves more than speed and ease of navigating. We have categorized the recommendations from these sources into a checklist of objective criteria that have proven to help or hinder usability in sites that vary both in size and objectives. Despite the inevitable shortcoming that it overlooks – or rather postpones – the experience of the individual user, a single tester can at least apply the criteria objectively and unbiased.

Evaluation criteria for website usability seldom distinguish explicitly between value judgments and objective criteria. Perhaps researchers prefer to deny that objective criteria have any relevance. Usability is after all a user's experience; not the verdict of an expert. No objective method can tell us whether a website is really usable unless we have observed ordinary people using it. Many sites, however, suffer from frequent flaws that are well documented. These are easy to identify, often simple to remedy, and can be carried out by a single expert.

The distinction we employ is not only pragmatic. Design decisions of an objective and subjective nature often compete over a single feature. This is especially true when a trade-off between aesthetic effects and ease of use is involved. Let us take blue underlined link colours as an example. Graphic designers can argue about the aesthetics, but because they are an established practice we all recognize them at once as links. The positive effect on usability is hard to dispute and something which many major sites have weighed up in their redesign, including Kodak.com.

While this test cannot identify **individual user problems specific to a single site**, it can make a subsequent task-based user test more meaningful and reliable by **first solving objective usability hazards**. The user will eventually not only have a more favourable impression of that site, but we can be confident that common flaws do not obscure any site-specific problems, which are always harder to locate and often harder to solve.

blue underlined link colours

Figure 1: Blue underlined text is recognised by users as a hyperlink.

Truly objective criteria are a matter of measurable degree. When the mere presence or absence of a certain feature is a criterion in itself (for example: 'provide a copyright notice'), we naturally have to disqualify those instances of it that are incomplete or otherwise of poor usefulness, such as 'Bob has the copyright to this page'. This decision needn't be a subjective judgment. If the necessary features of an item cannot be objectively defined – as they most certainly can for a copyright notice – the item has no place in our present evaluation. There is after all no need to carry the argument about subjective versus objective to a philosophical level.

To identify which guidelines are concerned with objective features we have defined the following two characteristics. There is no direct correlation between each characteristic and specific usability hazards: it is only there to help us sift the criteria.

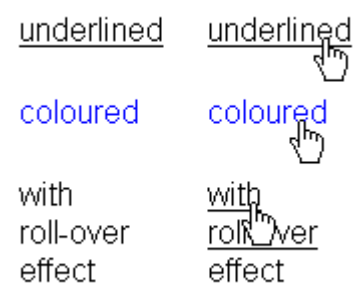


Figure 2: The way hyperlinks are rendered can be counted.

- Guidelines concerning the simple presence or absence of information items, either visible ('date last modified', copyright notice) or as part of the document's meta-data (keywords, document description).

Proper coding conventions for HTML, style sheets and scripts belong to the same group: they urge the programmer to include certain attributes or they suggest a preferred alternative to reach the same visual effect.

- Guidelines that concern how visible elements are rendered in countable and measurable terms. Some examples:
 - Size of page elements and their relative or absolute position on the page.
 - Use of fonts: types, colours, size. (E.g. only use underlined fonts for hyperlinks).
 - Length of text units in headings, lines, paragraphs and pages.
 - Assigning hyperlinks to images or text elements and how they are made visible (underlined, coloured, with rollover effect).

Categories for evaluation

We have identified five categories, each representing an area where usability hazards are common. The rationale behind defining these categories is as follows:

- Verbal or visual rendering of information items make up categories 1 and 2
- The logical coherence between information items at all levels of the site's hierarchy (headings, paragraphs, tables, pages) and the ease of navigating through these levels make up categories 3 and 4.
- Working practices to ensure overall quality fall under category 5. These cannot be evaluated from observing the site alone, and belong to a site designer's self-evaluation of her methods and ideas.

1. Language

This refers to the choice of words used to present information. Much good advice on making a text easy to understand and well-structured is too subjective for the scope of this text. However, spelling, sentence length and use/avoidance of certain words ('cool', 'cyber-', etc.) do lend themselves to more objective judgements.

2. Layout & graphics

This concerns how elements are visually rendered on the page, but we identify a particular issue only as a layout problem when it can be remedied by adding/changing visual features such as size of elements, colours and

fonts. A long body of text, for example, can pose a **layout** problem when fonts, bulleted lists, or paragraph breaks could improve it. If it becomes better manageable by breaking it into several linked sections, it is an **information architecture** issue (see below). Thirdly, it becomes a subjective language problem if we should condense the text itself. In reality it can however be a combination of all three.

3. Information architecture

Good information architecture means a clear, intuitive division of tasks and topics. The site's content and features can be arranged in more than one way, both with regard to the number of branching (sub)sections (width) as in the levels of hierarchy (depth). Careful wording of titles, introductions and summaries are features that help emphasize this structure. Objective criteria for proper structuring are rare, because the best arrangement of information items is highly specific to each site and its purpose.

4. User interface

The user interface of a site determines the ease of navigating through its content. Any feature designed to facilitate the user's quest belongs to this category. Aspects of user interface discussed here are specific to the Web and typically of a technical nature, whereas the arrangement of tasks and topics is a question of information architecture, which extends to printed media as well.

5. General

This category contains warnings and recommendations that apply to the general practice of design and maintenance. Proper use of coding conventions (HTML, CSS, Scripts) are examples of essential requirements. Many criteria can be collected in a checklist of useful 'things to do' and often apply more to the way people work than to the final product.

Examples: 'conduct regular user testing', 'invite comments and reply to them'.

Categorization is based on areas of common usability hazards, not on a list of HTML elements or content items. A single page element can present usability problems in three areas, as explained above with a large body of text. As a further example, consider a navigation bar rendered as a clickable image map:

- The number of links and the rationale behind the division of topics belongs to the site's information architecture.

- The ease of using these links belongs to the site's user interface (e.g. how are they recognizable as links? Does a link open a new window?).
- The choice of words for the link labels is a language feature. Words like 'cool', 'hip' and 'stuff' carry little meaning.

Evaluating the results

For our evaluation of the test results we have marked each usability criterion for three features:

- Whether the criterion that was tested for poses **a usability hazard or a benefit**. One might argue that these are opposite sides of the same coin: removing a hazard means implementing a benefit, while omitting a beneficial feature poses a hazard. While there is some truth in that, we choose to interpret them as follows:
 - **Hazards** are features that must be rectified or implemented, because they can do real damage to user satisfaction and indeed the credibility of the entire site. Omitted features can also pose hazards.
 - **Benefits** are features that enhance usability, but do not strike users as a serious threat to usability when they are not present. To some extent this happens because they have not become standard practice yet. They are similar to Jakob Nielsen's 'good deeds'¹. While hazards should take priority over benefits in maintenance work, it is good to remember that benefits can become common practice over the course of time, and become a hazard when left out.
- The potential **improvement on the user experience**. These three categories apply both to hazards and benefits. Harmful features must be rectified and positive features can be implemented if they are feasible.
 - **Minor** hazards can go unnoticed and not strike users as either especially poor, or helpful. Minor benefits are not worth the effort of a major redesign, but can be implemented throughout the development of the site.
 - **Medium** hazards of this kind can be the cause of lost visitors when they are frequent and persistent. They should get high priority during site maintenance. Medium improvements are especially recommended when they only require minor expenses.
 - **Major** hazards are very likely to chase away visitors forever and at the worst harm the organization's entire reputation. They must be

¹ <http://www.useit.com/alertbox/991003.html>

solved before the site goes public. Major benefits can put a site ahead of its competition, but may cost accordingly.

- The **necessary expense** in terms of time, skills and hardware to solve the problems. We distinguish the following three levels:
 - **Minor.** Quickly and easily resolved without advanced tools or experience: typically less than 30 minutes per page. Some of this troubleshooting could be automated.
 - **Medium.** Requires more skills and experience from various disciplines (programming, graphic design, editing, information architecture). Although possible to solve quickly, tasks cannot be automated.
 - **Major.** Issues involve a drastic redesign or addition to the site, requiring considerable time and effort to implement, especially when new hardware is involved. Such decisions should not be undertaken until after a task-based user survey.

Part II: objective usability criteria versus tastes in design

Criteria have been arranged as follows:

- by main category: language, layout, information architecture, user interface and general.
- Within each main category, criteria are listed from highest to lowest priority in relation to expected improvement and required expenses: major, medium and minor hazards, followed by major, medium and minor benefits. Within these categories, smaller expenses take priority over higher expenses. Thus a major hazard with minor expenses would take top priority, while a minor benefit at major expenses should generally be implemented last.

1. Language

1.1. *Insulting, derisory or offensive language*

Is there any insulting or derisory language, especially when aimed at specific people or institutions?

Hazard: major,
investment: minor

The Web is the ideal medium for mudslinging and corrupted standards of journalism. It is also accessible to children and people of diverse cultural groups and countries. Be considerate of them and never publish any anonymous rants. Be aware that libel is still an offence.

1.2. *Spelling & grammar errors*

Are there any spelling errors or serious grammar mistakes in the text?

Hazard: major,
investment: minor

Blind faith in spellcheckers is bad practise (sic). Critical users will find any spelling error unacceptable. Depending on the nature of the site the verdict can range from sloppy to unforgivable (e.g. an English language school).

1.3. *Internet jargon/popular buzzwords*

Does the text contain frequent use of Internet jargon, especially popular buzzwords?

Hazard: medium,
investment: medium

Frequent use of these words creates the impressions of the Web as a sub-culture, which may not go down well with your users. A neutral and objective style is preferable.

2. Layout

2.1. Text colours

Are non-standard text colours still legible with other background defaults and on 256-colour screens?

Hazard: major,
investment: medium

Check whether text is legible for colour-blind people, i.e. avoid green on red. Common default background colours are white and grey.

2.2. Horizontal scrolling

Does the page require horizontal scrolling at screen/window sizes under 800 pixels wide?

Hazard: major,
investment: medium

Make sure that content can always wrap around the window and that a page with fixed-size elements (e.g. images) does not exceed a width of 725 pixels. Tables should be sized relative to the window size. Avoid horizontal scrolling as much as possible.

2.3. Counter-productive information scent

Can functional or meaningful page elements be mistaken for advertising?

Hazard: major,
investment: medium

Users are less and less inclined to click on advertising banners, animation and pop-up windows, even when they are legitimate design elements. If this happens to a vital linking graphic within your site the effects are serious.

2.4. Bandwidth-hogging eye candy

Are large images(>30K) being used solely for visual appeal? Select N/A if the site has no graphics.

Hazard: medium,
investment: medium

Large images that take long to load and have a purely decorative function can annoy the user, especially when they are loaded *before* other relevant content. A top-level image map for navigation purposes may be acceptable when used sparingly.

2.5. Embedded external graphics

Are graphics referenced from another site?

Hazard: medium, investment:
medium

This causes delay in downloads, and upsets the layout of your page when the images are not available. Do not assume that you can skirt copyright by referencing someone else's images in this way!

2.6. Graphical list item markers

Are graphical bullets used properly?

Hazard: medium, investment: medium

These should be used for a purpose, either to clarify the thematic content of the paragraph they stand for, or to reinforce the visual language or thematic content of a page. Use a small set frequently, rather than a large set only once.

2.7. Graphical divider bars

Are graphical divider bars used properly?

Hazard: medium, investment:
medium

The same criteria apply as for graphical bullets. In addition, multiple use on the same page will make sections appear indistinguishable.

2.8 Animation

Is there any blinking text, scrolling marquees or animated GIFs?

Hazard: minor, investment: minor

Instead of attracting attention, users turn away from any blinking text, scrolling marquees, or animated GIFs. There are other and better ways to highlight the text (bold, coloured background).

2.9. Image dimension declarations

Are HEIGHT and WIDTH dimension attributes used for images?

Hazard: minor, investment: medium

This enables the browser to start arranging elements on the page before the images are loaded and it avoids having to make multiple requests to the server.

2.10. Vertical scrolling

When presenting short, clearly segmented information intended to attract people's attention, are pages longer than a single window?

Hazard: minor, investment: medium

Users may not notice there is content following if a small section of the screen is not visible. While screen sizes vary both in inches and pixel-depth, a good standard to work from would be 800x600 pixels, while making sure that content can always wrap and tables are sized relative to the window size. Avoid pages with horizontal scrolling as much as possible.

2.11. Long documents

For pages intended to be read at length: Are pages longer than four screens in length?

Hazard: minor, investment: medium

An ideal average length is 1,5 screenfuls (800x600). Consider a separate document for printing if the document is intended to be read at length. Reading from paper is always more comfortable than from a screen.

2.12. JPEG images

Is JPEG used for message-critical images?

Hazard: minor, investment: medium

Not all browsers support JPEG, or render it quickly, especially palmtop devices. For full-colour images there is however no other option available, since GIF images do not support full colour. Therefore always provide ALT-text and text links.

2.13. Single versus multiple image files

Is a single image rendered by several image files?

Hazard: minor, investment: medium

Low bandwidth connections load one large image faster than several small ones, because they require only one request to the server. However, to be of benefit the large image must be either interlaced GIF or JPEG, to enable partial rendering. High bandwidth connections can sometimes load several images with one request to the server, but the gain in download speed will be marginal.

2.14. Web-safe colours

Are colours chosen from the web-safe palette?

Benefit: minor, investment: medium

This makes use of 216 colours which are always rendered well on any platform. You should use this for all background colours, even though the gain in usability is minimal.

2.15. Miniatures of images

Are cropped and reduced thumbnail images provided to link to full-size versions?

Benefit: minor, investment: medium

Thumbnail images should highlight the essential area of an image at a reduced size. This enables you to display a gallery of images in a single screen, which will also work well with slower connection.

2.16. Background images

Are background images less than 15 kilobyte in size?

Benefit: minor, investment: medium

When displayed in 256 colours, the foreground text must still contrast enough to be legible.

2.17. Total page size

Is the total size of images on a page less than 30 kilobyte? If not, state the total size. Select N/A if the site has no graphics.

Benefit: medium, investment: medium

You should consider the number of images, relevance, sizes, and the order in which they are displayed. Use a thumbnail of the image instead, or crop to a small portion if total file sizes get out of hand. The benefits of a page that loads quickly are nearly always greater than more impressive artwork, given average bandwidth.

2.18. Alternate text for images

Is alternate text included for each image for those viewing without images or visually impaired users?

Benefit: medium, investment: minor

This is a small effort with a great increase in usability for those viewing with graphics disabled or unavailable.

2.19. Separate print document

Is there a separate link to a complete document for printing and saving? Select N/A if the nature of the content allows for neither.

Benefit: medium, investment: minor

If your content is suitable for reference or printing and consists of several files (including images), provide a separate document for downloading and printing.

2.20. Page allows for quickly glancing through its contents

Does the page layout facilitate scanning?

Benefit: medium, investment: medium

The page must be structured to help users ignore large chunks of the page in a single glance. This can be achieved by using grouping and subheadings to break a long list into several smaller units.

2.21. Accessible pages

Have important pages been made accessible for users with disabilities, especially visually impaired users? Choose N/A if by its nature the site simply cannot provide a service for users with some disabilities, e.g. a database of sound fragments.

Benefit: medium, investment: medium

It is easy to leave out what seems only a small percentage of the population, but the benefits to these users will surely outweigh the small necessary changes on your part.

2.22. Interlaced images

Are image files interlaced?

Benefit: minor, investment: medium

This technique adds more detail to the entire image in multiple passes. It works well for larger images, but it is less useful for small images.

3. Information architecture

3.1. Link rot

Have existing pages moved to new URLs recently?

Hazard: major, investment: medium

This pestering phenomenon is called linkrot. While your internal links work perfectly after a reshuffle, users who expect to be referred to your site simply never reach you. Although it is good practice to check and update outgoing links, do not assume that sites always do so with their links to you. Always provide a re-direct page at the old address if a URL has moved, because you cannot get feedback from visitors who cannot find you.

3.2. Sensible titles

Do TITLE-tags make sense out of context?

Hazard: major, investment: medium

TITLE-tags display in search results and bookmark lists. They must be identifiable and understandable when read out of context. Therefore every TITLE-tag in the Abeleto website starts with the company name, which would be superfluous for page titles in the body text. Content of the TITLE tag is more important for search engine results than META-tags or content of the BODY (Rosenfeld & Morville, pp. 79).

3.3. Systematic navigation labelling

Are navigation systems labelled systematically?

Hazard: major, investment: major

Labelling for a navigation system can be audience-, task-, topic-, or metaphor-based. Combining these types can destroy the intuitive coherence of the system and confuse the reader. However, too rigid consistency makes the navigation system less adaptable to changes in content. Creating a new system of labelling may require an entire re-arrangement of the site's architecture.

3.4. Sensible page headings

Does the title of the page body explain what the page is about?

Hazard: medium, investment: medium

This concerns titles within the context of the page they describe. Though they can rely more on context and can be longer, they should convey the content of the page at once and unambiguously.

3.5. Alike document and page title

Does the HTML title reflect the textual page title?

Hazard: minor, investment: minor

This does not mean that the two should be identical. Titles in the page's body are read within the context of the page and the entire site. A title like 'online ordering' is acceptable. An HTML title typically occurs within search results and lists of bookmarks. They *must* make sense out of context. 'Online ordering' is not enough.

3.6. Hypertext for structuring large bodies of content

Is hypertext used to structure large bodies of content, instead of long pages?

Benefit: major, investment: medium

This enables a bird's-eye view of the page. It is also easier to update several short files entirely than change sections from longer ones.

3.7. Hyperlink context

Does the textual context of each link tell users what they can expect from following that link?

Benefit: major,
investment: medium

When creating a hyperlink the highlighted text should reflect the topic of what you link to, while the surrounding text must relate to this topic only secondarily. Links and their context must give the user a good sense of what she should and should not expect from following that link.

Consider the following sentence and think where the links might logically lead you: "[Ira Gerschwin](#) has written many timeless [lyrics](#) to [music by his brother George](#), which belong to [the best loved tunes of the early 20th century](#)."

This is how we would highlight text in order to link to the following topics:

- **Ira Gerschwin** would link to a biography
- **lyrics** would link to a text version of the lyrics
- **music by his brother George** would link to works that Ira did not collaborate in
- **the best loved tunes of the early 20th century** would link to a CD-title or a retrospective about related artists.

3.8. Relation link and target

Do hypertext links relate to the linked content in a relevant, meaningful and unambiguous way?

Benefit: major, investment: major

Parts of the text selected for linking should directly relate to the linked content, and not wholly rely on its content. This happens when you highlight text as follows:

[Click here](#) to read more about this product.

The highlighted text itself does not relate at all to the linked content, and since we all know how to follow a link the instruction is superfluous. Simply use:

[More about this product.](#)

Choose also an appropriate length for the link text. Too short may go unnoticed or will not be understood. Too long links are more difficult to read. When using lists of links with similar text, use links to highlight those words or phrases that are different, rather than highlighting the entire phrase.

3.9. Comment mechanism

Does every page link to a comment mechanism? (Either *mailto:* or a form.)

Benefit: medium, investment: minor medium

This encourages users to help you improve the site and indicates a willingness to stay in touch with your users. Of course it is less than useless if you do not reply.

3.10. Table of contents on long pages

Do long pages contain a brief table of contents so readers know what to expect from a page?

Benefit: medium, investment: medium

Anything is good that helps people get a clear and quick impression of a larger body of content. The page title is the most concise presentation, possibly followed by a few lines of summary.

3.11. Biographical data

Are the author's biographical details included?

Benefit: medium, investment: medium

This helps to instill a level of trust and credibility. However, make sure that all details are concise and relevant.

4. User interface.

4.1. Open in new window

Do links open a new browser window?

Hazard: major, investment: minor

Users rely heavily on the back-button for navigation, and a new window makes this button inactive. When a second window is minimized, content can load in that invisible window while the user is waiting. More importantly, users may treat any new window as unwanted advertising and click it away before it has finished loading.

4.2. Broken links

Does every internal link work?

Hazard: major, investment: medium

Internal linkrot is even worse than incoming links that do not work. It is *absolutely vital* to remedy this before the site goes public.

4.3. Server response times

Are server response times under one second?

Hazard: major, investment: major

Users do not know what causes an overall slow transfer, and neither do they care. Whereas the cost of updating to a fast server is considerable, so is the price of lost custom.

4.4. Pervasive branding

Does every page contain the organization's name and logo?

Hazard: medium, investment: minor

This is a vital navigational aid which tells users they are still at your site. It should be combined with other consistent layout features, and the logo should link back to the site's homepage.

4.5 Automatic redirection

Do pages have an automatic redirect feature?

Hazard: medium, investment: minor

This is a good habit for *this page has moved*-announcements and a bad habit everywhere else. It forces the user to an undesired location every time he hits the back-button.

4.6. Dated pages

Are pages dated with absolute reference and in an internationally recognized format?

Hazard: medium, investment: minor

Even pages that do not require regular updates or archives should tell you when they were last modified. An unambiguous date reference indicates at once to the user whether the information is worth reading at all, e.g. when the page announces forthcoming events.

4.7. Next, Previous, etc.

Are links labelled with relative directions 'return, back, previous' or 'next'?

Hazard: medium, investment: medium

These imply that you know where visitors came from, or that they are familiar with the structure of your site. Even when pages have a linear relationship (like chapters in a novel) it is better to give absolute references like 'proceed to chapter 2'. Users may have landed anywhere in the path that you carefully laid out.

4.8. Use form controls correctly

Are graphic user interface widgets used in the standard fashion?

Hazard: medium, investment: medium

They break consistency of interaction when they do not perform the same functions when manipulated across all platforms. Radio buttons give you one choice from at least two alternatives. Check boxes can occur on their own, while set can be entirely checked or unchecked. They should also allow the user to correct her choices, and not submit the result immediately on selecting.

4.9. Clickable regions marked as such

Are clickable regions in an image map clearly marked?

Hazard: medium, investment: medium

If possible, make the clickable regions in an image map look like 'buttons.' Provide alternate text links elsewhere on the page for image-map destinations.

4.10. Provide text labels for navigation icons

Are graphic navigation buttons used without text labels?

Hazard: medium, investment: medium

Only very large sites can assume that users are sufficiently familiar with their graphic navigation aids. Always provide text labels and ALT text.

4.11. Search scope

Does the search feature enable the user to set the scope of any collection being searched?

Hazard: medium, investment: medium

Also indicate whether a search is global or local (e.g. within a site/country/language), and allow the user to specify a maximum number of hits. Sort options for the results are also very helpful.

4.12. Logo link to the homepage

Does each main logo link to the home page?

Hazard: minor, investment: minor

This visually binds all pages to the same site and refers users unambiguously to the main page.

4.13. Standard link colours

Are link-colours used in a non-standard fashion?

Hazard: minor, investment: medium

Consider the trade-off between a better look and a more intuitive interface. Typically, visited links are darker than unvisited ones. This way you can have recognisable links that still harmonise well with other colours.

4.14. Search on large sites

If the site has more than 100 pages: Is there a 'search' feature?

Benefit: major, investment: major

This is a time-consuming effort but with a considerable usability improvement *if the content is indexed properly, i.e. manually*. Keywords for searching a local search engine should be different from those contained in the document and used for global services. Of course a good search engine is never an excuse for a poor user interface.

4.15. Title for link texts

Do links have a usable TITLE attribute specified?

Benefit: medium, investment: medium

This provides users with a pop-up comment of where each link will take them, before they have clicked on it. The feature is not available on version-3 browsers, so the vital context for the links should not depend on this attribute.

4.16. Navigation repeat at bottom on long pages

If a page is longer than one-and-a-half screens: Is there a (possibly simplified) navigational header at the bottom of the page?

Benefit: medium, investment: medium

This prevents users from having to scroll upwards to proceed to other major locations. Especially when the page is part of a linear succession it is helpful to include a reference to previous and following pages/chapters.

4.17. Recognisable titles

Does every page contain a recognisable title header in the text body?

Benefit: medium, investment: medium

Not every user notes the TITLE-tag of the document. A recognisable page title with consistent layout in the text body reminds users they are still at your site and immediately relates the purpose of that page.

4.18. Uplinks in hierarchical sub-sites

For multi-part documents: Are document and chapter headings provided that link back to higher levels of the hierarchy, i.e. the top of the chapter?

Benefit: medium, investment: medium

Consider the long document as an integral subsection of the site, with a separate set of navigation features.

4.19. Mention size with links to large files

Are links to large files explicitly mentioned with size?

Benefit: minor, investment: minor

When downloading files for saving, your computer will tell you the file size and estimated download time, but it is good practice to provide this on the page as well. For links to pages with large embedded graphics files it is more important.

5. General

The following is a list of recommendations that can only be verified and rectified by the webmaster of the site under discussion. They are not part of this test, but encourage to set a better standards of practice.

5.1. HTML coding flaws

Does the HTML have coding flaws (incorrect nesting, absence of closing tags)?

Hazard: major, investment: medium

The effects of HTML-coding flaws can be very serious across different browsers and hardware platforms. Pages may not display at all, or upset the layout of the page. Closing tags are vital when using Cascading Style Sheets. Be aware of tags that are deprecated in HTML 4. They should be replaced in favour of style sheets.

- Follow the conventions of most big websites.
- Always test your design with real users as a reality check.
- Be careful using document format HTML "converters."
- Don't publish copyrighted material without explicit written permission of the owner.
- Take care in using trademarks when others may attribute your product to the owner of the trademark or logo.
- Don't publish links to someone else's pages unless you know that they want that exposure, unless it is very clear the owner is creating a public resource.
- Respond to people who comment on your pages.
- Give back to the Net. Many sites can broaden their appeal significantly with only minor changes.
- Make sure that texts are professionally edited.
- Preview your images on several hardware and browser combinations, at least a Mac, a PC with with Windows 3.x and a monochrome UNIX display.

Reporting the results

The report of test findings reproduces the same categorization as the above list of criteria. Added to each of the following subcategories are specific comments made by the tester.

- potential hazards, listed from major to minor.

- benefits that were *not* implemented
- potential hazards that were successfully eliminated
- benefits that were successfully implemented.
- any feature that was considered not applicable to the tested site.

Conclusion and recommendations

This article has proposed an objective method to chart the possible usability hazards and improvements in a website before task-based user testing. It provides a formal yardstick to weigh the expense of implementing changes against the likely gains in usability. Our aim is that this will help web designers make better informed decisions to optimize their service within a given budget.

References

- *Information Architecture for the World Wide Web (1998)*, Louis Rosenfeld & Peter Morville. O'Reilly, Sebastopol
- *Designing web Usability - The Practice of Simplicity*, Jakob Nielsen. New Riders, Indianapolis