

CP1406 – Week 10

Usability and Accessibility



Usability

- Some of this lecture content comes from:
 - Jakob Nielsen
 - "the world's leading expert on Web usability" (U.S. News & World Report)
 - useit.com
 - Usability is a quality attribute that assesses how easy user interfaces are to use. The word "usability" also refers to methods for improving ease-of-use during the design process.
 - <http://www.useit.com/alertbox/20030825.html>



Usability is defined by 5 quality components

- **Learnability:** How easy is it for users to accomplish basic tasks the first time they encounter the design?
- **Efficiency:** Once users have learned the design, how quickly can they perform tasks?
- **Memorability:** When users return to the design after a period of not using it, how easily can they reestablish proficiency?
- **Errors:** How many errors do users make, how severe are these errors, and how easily can they recover from the errors?
- **Satisfaction:** How pleasant is it to use the design?

What is Important?

- **Utility** - the design's functionality:
Does it do what users need?
- Usability and utility are **equally important**
- **Utility** = whether it provides the features you need.
- **Usability** = how easy & pleasant these features are to use.
- **Useful** = **usability + utility**

Why Do People Leave a Site?

- If a website is difficult to use
- If the home page fails to clearly state what a company offers and what users can do on the site
- If users get lost on a website
- If a website's information is hard to read or doesn't answer users' key questions

- People don't read instruction manuals for websites.
- There are plenty of other websites available.

Note: many student designs don't have any real "content" on the home page - just links to other pages.

Provide some kind of "locating" text that helps new users know what the site is.

Usability Improvements: Results

- Current best practices suggest spending **about 10% of a project's budget** on usability.
This will more than double a website's quality metrics and nearly double an intranet's quality metrics.
- Internal projects = cutting training budgets in half and doubling the number of transactions employees perform
- External projects = doubling sales, doubling registered users or customer leads, or doubling another desired goal

Usability Metrics

- From a study of 43 website redesigns in 2003,
improvement in usability metrics
(spending 10% of project budget on usability)

<u>Metric</u>	<u>Improvement</u>
• Sales / conversion rate	100%
• Traffic / visitor count	150%
• User performance / productivity	161%
• Use of specific (target) features	202%

Improving a Website's Success

- Formula for website success is:

$$\mathbf{B} = \mathbf{V} \times \mathbf{C} \times \mathbf{L}$$

- **B** = amount of business done by the site
- **V** = unique visitors coming to the site
- **C** = conversion rate (the percentage of visitors who become customers)
- **L** = loyalty rate (the degree to which customers return to conduct repeat business)
- So how do we make a site more successful?

Test Your Website

- There are different types of testing:
- **Functionality (Quality Assurance) Testing** – where you check that the site does what it is supposed to do (checking for broken links, code errors etc.)
- **User Acceptance Testing** – verify the result meets the agreed-on requirements (usually with client)
- **Usability Testing** – determine how easy the site is to use; discover how the site aids or hinders people

Improve Usability by User Testing

- Get some **representative users**, such as customers or employees (who work outside your department)
- Ask the users to perform **representative tasks** with the design
- Have them test a **specific area** of the site
- **Give them specific tasks**, and give all users the same task so you have something to compare
- Who Are "Representative Users"?

Iterative Design & Testing

- You don't want a big, expensive study
- It is a better use of resources to run many small tests and revise the design between each one
 - so you can fix the usability flaws as you identify them
- Testing **5 users** is typically enough to identify a design's most important usability problems
- **Iterative design** is the best way to increase the quality of the user experience
 - **The more versions and interface ideas you test with users, the better**

Iterative Design & Testing

- Observe what the users do, where they succeed, and where they have difficulties with the user interface.
 - Shut up and let the users do the talking.
- If possible, record the user's mouse movements and faces, so you can review the footage later
 - Systems exist for tracking eye movement for where users look on a page

Don't help, or make them uncomfortable



Try to make it as natural as possible



Performing The Test

- Encourage the user to "**think-aloud**", that is to tell you what they are thinking as they are performing the process... no matter how silly it seems to them
- **Facilitator ...**

*"As you are working, please think out loud and describe what you are looking for, what questions you have, anything that surprises you, etc.
I won't normally answer these questions for you, but they will help us to understand how to make the site more user friendly"*

Performing The Test

- Help users **only** if they become totally stuck and unable to proceed, and you see they are wasting the limited test time you have.

But **don't** jump in and give them hints,
or explain how the site is meant to work.

- Remember to explain to your users that **you are testing the website, not them**
 - Why is this important?

Performing The Test

- Test across **different browsers** and make sure you clear all the settings between tests like the history, cookies
- Use post-test questionnaires to capture quantifiable feedback about their experience.

Typically, this is the *least useful* part of the text as people tend to give answers to "please you", rather than honest feedback.

Sample Form

Please rate your satisfaction with these aspects of the site you have just finished working with by circling the appropriate *number*. As you evaluate other sites, you may come back and change ratings you have already made for this site.

	Very Unsatisfied	Very Satisfied
1. Getting to the right part of the site	3 2 1 0 1 2 3	
2. Quality of information about individual products	3 2 1 0 1 2 3	
3. Ease of reading the text	3 2 1 0 1 2 3	
4. Site's search facility (if used)	3 2 1 0 1 2 3	
5. Appearance of site, including colors and graphics	3 2 1 0 1 2 3	
6. Speed of pages displaying	3 2 1 0 1 2 3	
7. Fun, entertainment value	3 2 1 0 1 2 3	
8. Completing the order form	3 2 1 0 1 2 3	
9. Quality of information about ordering and delivery	3 2 1 0 1 2 3	
10. Use my credit card and personal information	3 2 1 0 1 2 3	
11. Overall shopping experience	3 2 1 0 1 2 3	
12. How sure are you that you found the best product based on what you were asked to do?		
Not at all sure	3 2 1 0 1 2 3	Very confident
13. Were all your questions answered?		
No, none of them	3 2 1 0 1 2 3	Yes, completely
14. Do you feel that this site:		
Only wants my money	3 2 1 0 1 2 3	Cares about my satisfaction as a customer
15. How relevant are the products on this site to you?		
I can't even imagine shopping for products like this.	3 2 1 0 1 2 3	I love these kinds of products and shop for them all the time.
16. How likely are you to return to this site on your own?		
No way	3 2 1 0 1 2 3	I'll probably return the next time I sit down at my own computer.

Task Type 1 - First Impressions

- **Give them limited free time to explore the site,** (2-3 minutes) then stop and ask basic questions like:
- what does this site sell?
- who is this site designed for?
- at first glance do you feel this site would have what you are looking for?
 - ▶ do you trust the website?

Task Type 2 - Specific Item

Ask the user to search for a specific item, or a specific type of item by giving them a realistic scenario

Example - You live on Horn Island with postcode 4875 in the Torres Strait. Your electric jug has just died. You want to buy a new stainless steel cordless jug and have it shipped to you.

Find the cheapest item and how much it will cost including postage.

Task Type 3 - Open Ended

Give the user a vaguer problem they have to solve for themselves, allowing them to use their own preferences to find the answer.

Example - Your 4-year-old daughter has been given a \$50 gift card for her birthday.

Find and purchase an educational toy which will come as close to this \$50 amount including postage.

Use realistic data

- If you expect your user to purchase items, determine in advance **how they will do this** (will you provide them with a credit card, or build in a "testing" credit card number which you will disable later).
- Also establish if they are to provide dummy details or their real details.
- **Using their real details is better**, as people make mistakes when they try to enter rubbish.
- Fake but realistic details are better than blah blah aorsietnasrt stuff

Task Type 4 - Customer Service

Give the user a problem they need to resolve in relation to a purchase on the website.

Example: You live in Cairns, postcode 4870. You have purchased an iPod Nano worth \$170 for your sister, only to find she already has one. You still have the receipt and the packaging, but it has been opened.

Find out if you can return the item, and if so how.

*When you write these tasks **describe the goals but not the steps**, for example don't say "search using the term electric kettle" or "click on returns"*

When To Test?

- Before starting the new design, test the old design
- Test your competitors' designs
 - to get cheap data on a range of alternative interfaces that have similar features to your own.
- Conduct a field study to see how users behave in their natural environment.
- Make quick (paper?) prototypes of new design ideas and test them.
- Refine the design ideas that test best through multiple iterations, testing each iteration.
- Implement final design, test it again.

Let's Test:

Volunteer Group(s)

Tasks for project site (examples):

1. Buy tickets to next concert
2. Become a supporter
3. Find out who to contact and email to arrange an appointment
4. Learn who the conductor is for the next concert

Accessibility

- The inclusive practice of making websites usable by people of all abilities and disabilities.
- <http://www.w3.org/WAI>
- "Accessibility is about ensuring an equivalent user experience for people with disabilities, including people with age-related impairments. For the Web, accessibility means that people with disabilities can perceive, understand, navigate, and interact with websites and tools, and that they can contribute equally without barriers."

Accessibility for Usability

- Accessibility's business goal is not to just be compliant.
- What you really want is to **sell more products** to disabled customers, or **get more workplace productivity** out of your disabled employees or similar
 - i.e. you want to achieve the site's goals more broadly
 - These goals are the same as any usability project.

Accessibility -> Usability

- Accessibility improvements also improve usability for everyone (not just disabled users), especially:
 - older users
 - people using different devices
 - people with low literacy or not fluent in the language
 - people with low bandwidth connections or using older technologies

Accessibility Guidelines

- Guidelines ensure websites work well with **assistive technologies**:
 - screen readers (read aloud Web pages)
 - screen magnifiers (enlarge Web pages)
 - voice recognition software (used to input text or navigate)
- Most of these requirements are technical and relate to the underlying **code** rather than to the visual appearance.

Web Content Accessibility Guidelines (WCAG) 2.0

- **Perceivable**

- Provide text alternatives for non-text content.
- Provide captions and other alternatives for multimedia.
- Create content that can be presented in different ways, including by assistive technologies, without losing meaning.
- Make it easier for users to see and hear content.

Web Content Accessibility Guidelines (WCAG) 2.0

- **Operable**

- Make all functionality available from a keyboard.
- Give users enough time to read and use content.
- Do not use content that causes seizures.
- Help users navigate and find content.

Web Content Accessibility Guidelines (WCAG) 2.0

- **Understandable**

- Make text readable and understandable.
- Make content appear and operate in predictable ways.
- Help users avoid and correct mistakes.

- **Robust**

- Maximise compatibility with current and future user tools.

How can you test accessibility?

Online Checking Tools

- <http://www.w3.org/WAI/ER/tools/>
- Demo: <http://wave.webaim.org>

How to design accessible sites

- #1. Use semantic, valid HTML
 - Conduct tests to ensure that your website makes sense without CSS (Firefox Web Developer toolbar – test site without CSS)
 - Avoid using frames
 - Set DOCTYPE and <meta> elements (like **lang** and **charset**)
 - Ensure that navigation works without a mouse
 - Ensure that your website makes sense in black and white
 - Avoid animations, including blinking or scrolling text
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- Taken from **Deliver First-Class Websites 101 Essential Checklists** (Shirley Kaiser)

Simple Stuff - Quick to do

- Use alt attributes for ALL images
(use alt="" for images that assistive technology should ignore)
- Use <labels> for form input fields
- Make link text meaningful – not "click here"
- Use semantic elements to mark up structure
- Allow text resizing (no horizontal scrolling)
- Provide controls for time-based media (audio/video)
- Ensure paragraph spacing is at least 1.5 times larger than line spacing

Much of this is the same as what you do to improve search engine results.

Example using abbr (abbreviation) and dfn (definition)

HTML:

```
<abbr title="James Cook  
University">JCU</abbr> is a <dfn title="A  
place where people learn good stuff like  
this">university</dfn>...
```

CSS:

```
abbr, dfn { cursor: help; }  
dfn { border-bottom: dashed thin darkblue; }
```