

Prioritizing Web Usability
Nielsen & Loranger : Chapter 6
**Navigation & Information
Architecture**

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SWE 432

**Design and Implementation of
Software for the Web**

Navigation is a Map

Users are blind on the Web because the
visual clues of the real world are not present

Poor navigation is the worst problem in
websites today

Overview / Chapter 6 Outline

- Am I there yet?
- Match the site structure to user expectations
- Navigation: Be consistent
- Navigation: Beware the coolness factor
- Reduce clutter and avoid redundancy
- Links and label names: Be specific
- Vertical dropdown menus: Short is sweet
- Multilevel menus: Less is more
- Can I click on it?
- Direct access from the homepage

Good navigation requires clear structure, controls and links

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Am I There Yet ?

- Four key “findability” problems cause huge problems
 1. Navigation and menus
 2. Category names
 3. Links
 4. Information architecture
 - Definition : How the information space is structured
- Good navigation design ...
 - Shows users where they are
 - Shows users where things are located
 - Shows users how to access things in a methodical way

Good navigation is hard to design

But possible

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Am I There Yet ?

The best information architectures are invisible
They are so easy that people do not notice them

Designing without input from users
is a deadly mistake

Match the Site Structure to User Expectations

- Design for users, not builders (or managers!)
 - Do not show internal corporate organization
 - Users do not care about your org charts
 - Arrange products by user attributes, not brand
 - Example: Escalade sports
 - Try to find an actual product
- Proper categorization example : City of San Diego
 - But note wordiness
 - Optimized for ordinary citizens
- Improper categorization example : Cummins
 - Try to find fuel cell technology

Users do not think like developers

Navigation : Be Consistent

- Consistency is fundamental to good navigation
- Prime offenders : Large sites with subsites or affiliates
 - Any university !
- Pretty good example : Pixar
- Poor example : Social security administration
 - Note treatment of “find your retirement age”
 - Try to find “factors that may affect your retirement benefits” page
- Another poor example : Nestle
 - Note different page layouts on various corporate sub sites

A lot of work
But huge payoff

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Navigation : Beware the Cool Factor

- Save your creative juices for areas of site users care about
 - Poor examples : Wynn Las Vegas, Burger King Career Site
 - Note the moving menus
- Minesweeping
 - Definition : Moving mouse in search of something clickable
 - Some young children enjoy minesweeping
 - Most users hate it
- Reduce clutter and avoid redundancy
 - Poor example : US Postal Service (circa 2003)
 - Note : Options in middle identical to links at top

Just the facts, nothin' but the facts

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Links and Label Names: Be Specific

- Make sure your users understand your labels
 - Honda: 2006 vs. Now
 - What are the different car types? Pictures help a lot!
- Be brief
 - Users do not want to scan
- Start with keywords or information words
 - Do not use labels with redundant prefixes
 - Do not use “Here” or “Click Here” or “More”
 - Example: American Heart Association (“Learn More”)
- Sometimes sites get worse over time
 - HM customs and excise : 2002 vs. 2004 vs. now
 - Labels are unclear : How do I get a VAT refund?

What do users want ?

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Menus

- Vertical drop down menus: Short is sweet
 - The longer the menu is, the harder it is to control
 - The farther users travel, the more they get lost
- Multilevel menus: Less is more
 - Good and bad example: American Heart Association
 - Note fly-out limit of two levels
 - Three levels is usually bad; four levels is a disaster
 - Note unpredictability of which menu items fly out
- Always a usability problem if menu disappears or is replaced by a different menu

Limit 1 : 7 +/- 2

Limit 2 : A mouse is hard to use !

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Can I Click it ?

- Users should always know what is clickable
 - Blue is the default : Do not use blue for nonclickable text
 - Branding concerns may dictate other colors (gmu.edu)
 - High-lighting on mouse-over helps
 - But may require minesweeping
 - Standard button shapes imply clickability
 - Do not rely on the “hand” pointer
 - Novice users think arrow and hand pointer are identical
- Affordances : Whatever can be done with an object
 - Perceived affordance is crucial to design
 - Clickable objects need a perceived affordance of clickability
 - Unclickable objects should not look clickable

Doors should look like doors and walls should look like walls

Direct Access From The Homepage

- Directly link just a few high priority operations
 - Need to balance with other goals of homepage
 - Setting stage for site and informing users of full range of options
- Nielsen suggests 3 to 5 direct links from any specific area of homepage
- Good example: Firefox

Maximize what USERS want

Web Page Layout

The next few slides give specific suggestions
for creating better web pages
and better HTML

Hypertext

- ... is a non-linear way to display text
- ... is the basis for UIs on the web
- ... has been around in theory for 50 years
- ... provides information organization but not user interaction

We will discuss hypertext in general and then talk
about GUIs and web interfaces

Five Kinds of Problems in Web Page Design

1. Page layout and navigation links
2. Making hypertext navigable
3. Connecting with the rest of the world
4. Platform issues: Speed, reliability, graphics, whitespace
5. Professionalism: Grammar, spelling

1) Layout and Text – Images

- Use images for :
 - Title of the page
 - Illustrations
 - Navigation
 - Buttons
- Limit number of images for users with low-bandwidth
- Always use ALT attribute to provide a text alternative
- Use small size images

1) Navigating Within Pages

- Try to avoid horizontal scrolling
- Navigation buttons should always be visible
 - Top and bottom of the page
- Action buttons should always be visible
 - Top and bottom of the page
- Put most important content on the top
- Logos and headers should not use too much space
- Use intra-page links to help users keep their hands on the mouse
 - (“home” button is on the keyboard)

1) HTML Design Hints

- Put search boxes on the landmark (speed)
- Do not use frames (SS, errors, speed)
 - Confuse navigation
 - Bookmarks do not work
 - Make printing hard
 - Browsers render them differently
 - Slower
- `<iframe>` has fewer disadvantages
- Use CSS with `<div>` tags for robust layouts
 - For single pages, `<table>` works well, but is deprecated
- On site maps, “low light” current page

1) Layout and Text – Writing

- Follow basic principles of communication:
 - Simple, direct style
 - Thorough proofreading for confusing grammar and misspellings
 - Use a spellchecker !
 - Avoid colloquialisms, slang, and culturalisms
- Text on a screen is harder to read
 - lower resolution
- Use 10 or 12 point font (14 for older readers)
 - Stick to standard font types, don't change too much

If you make mistakes :

- At best, users will think you are careless
- At worst, they will think you are ignorant

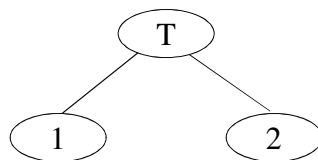
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2) Organization and Navigation

- Use a simple tree-structure as a basis
 - This is based on topology



- Every page needs a consistent menu with:
 - home, up, previous, next buttons

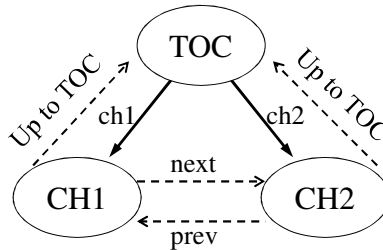
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2) Organization and Navigation (2)

- In hypertext, these three nodes will be documents
- Possibly a table of contents and two chapters



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2) Organization and Navigation (3)

- Previous button is the most problematic.
 - Imagine that you started at TOC, but chose to read Ch2 first
 - When you were done with Ch2, you might want to go back to TOC, which was the previous page you'd been reading ... but the Prev button will take you to Ch1 instead!
- Browsers have back buttons, but all buttons in HTML are static
- Dynamic buttons can be implemented with JavaScript
 - <http://cs.gmu.edu/~offutt/classes/Honor.html>

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2) Navigation Anchors

- Make clickable items obvious
 - Use standard color (blue) and underline
- Do not use blue and underline for emphasis
 - Users will get confused
- Highlight clickable items with mouseover
- Navigation should be on the top or the left
- Navigation buttons should not use much space

3) Connecting With the Rest of the World

- Remember that users do not always come in through the “front door”
 - Bookmarks, URLs emailed from friends, search engines
- Each page should have:
 - Clear identifiers to indicate its context
 - Titles that are meaningful without the context
 - Navigation to other pages in the website
- Every page must have a meaningful `<TITLE>` tag
- Clearly indicate non-HTML links
- Add last modified notes – remember that creation is fun, but maintenance is hard

4) Browser Compatibility

- Each browser displays HTML differently
 - KISS – Keep It Simple Stupid
- There are many incompatibilities in the JavaScript DOM
 - Try not to get too fancy
- Browsers behave differently with broken HTML
 - IE tends to be more “forgiving” of mistakes
 - The Netscape / Firefox family tends to conform better to standards

Must test with multiple browsers !!

5) Professionalism: Grammar and Spelling

Follow basic principles of communication:

- Simple, direct style
- Thorough proofreading for confusing grammar and misspellings
- Avoid colloquialisms, slang, culturalisms
- Only use black background color if all your users are under 25
- Include a last-modified date

Remember: If you make mistakes, at best, people will think you are careless, at worst, they will think you are stupid

URL Design

- Unfortunately, we must type and remember URLs
- Help the users avoid typos:
 - All lower case characters is best
 - Do not use upper case in domain, directory, or file names
 - Underscores require the shift key – hyphens are slightly better
 - Avoid zeros (0 or O?) and ones (1 or l)?
 - Do not add unnecessary directories
 - Choose short, common words and standard abbreviations
- Use URL aliasing to be error tolerant:
 - Allow x.com and www.x.com
 - Provide aliases for common misspellings
- Use the standard “html”, not the non-standard “.htm”

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A Wishlist for HTML

- A “virtual anchor” like “*http://... bigtext.html#%75*” that would allow you to link to a particular position (here 75% down from the top) in someone else’s document, without them having to insert a real anchor
 - <http://cs.gmu.edu/~offutt/classes/432/sched.html#%50>
- Allow me to print one page of an HTML document
- HTML variable tag:

```
<variable>
  <name>BaseURL</name>
  <value>http://www.cs.gmu.edu/~offutt/classes/432/</value>
</variable>
```

To be used anywhere in the document:

```
<a href=&BaseURL;/sched.html>schedule</a>
```

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A Wishlist for HTML (2)

- Improved radio tag syntax

```
<input type="radio" name="major" value="SWE">  
<input type="radio" name="major" value="CS">  
<input type="radio" name="major" value="INFS">
```

This leads to errors with the name attribute

We should use the "select" model:

```
<radio name="major">  
  <option Value="SWE">  
  <option Value="CS">  
  <option Value="INFS">  
</radio>
```

ASP has a specially designed control that looks similar to this

Summary

Getting the structure and navigation right is very hard !

? even harder ?

Maintenance & Evolution !