Usability Engineering for the Web

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About this Presentation

- Share techniques I use to improve the usability (quality) of web sites
- Not my opinions on good/bad design
- Processes to help you figure out good/bad for your own situation
- Cutting corners
Overview

- Introduction: Usability and Engineering
- Walk a mile in my users’ shoes
- Take a ride on their shoulders
- Embrace the Web
- Do usability sweeps
- Assume I will get it wrong the first time
- Sleep with the technology but do not marry it

Introduction: Usability and Engineering

- Easy to learn
- Easy to use
- Easy to remember
- Few errors
- Satisfying
- Related: utility
- Engineering: process
Nielsen’s UE Lifecycle

- Know the user: characteristics, tasks
- Competitive analysis
- Usability goals
- Parallel & Participatory design
- Guidelines and heuristic evaluation
- Prototyping
- Empirical testing
- Iterative design
- Feedback from field use

“Walk a Mile in my Users’ Shoes”

- Think like a “normal person” not a developer
- Know your customers
- Lots of testing for the technicalities
- Task-oriented & User-centered
Shoe Style: Sneakers vs Wing-tips vs Sandals

- Audience analysis
- May want to sell to everyone, but need to understand unique needs
- Broad categories of users (regulars, first-timers, only uses 1 part)

Shoe Manufacturer: Nike vs Adidas

- Test with various browsers
- Different bandwidths
- “Standard shoe” - HTML validation
Plan some Hikes

- General scenarios for each user group ("visit the site once a week looking for new things")
- Specific tasks ("trying to update address")
- Walkthroughs with prototypes

Look for Footprints

- Log analysis (popularity, location, browser)
- Search strings
- Impact of a redesign
- Strange behavior, incomplete actions
Mozilla/4 Percentage
BGSU COE, 1998

Listen to their Pain

- Feedback from real users: gold
- “I do not like this…”
- “I cannot find this…”
- Start up a dialog, beta testers
“Take a Ride on their Shoulders”

- Usability testing
- Watch users try to do something
- Start cheap, invest time only
- Later, spend money
- Not a focus group

Your First Usability Test

- Know your purpose
- Find ordinary people
- Watch & learn
- Collect the data
- Back to the drawing board
Know Your Purpose

- Why do people come to your web site?
- What tasks might they try to perform?
- Primary tasks
- Secondary tasks
- Compile list of 4-5 tasks (< 1 hour to complete)

Find Ordinary People

- People from target audience(s)
- Not programmer from down the hall
- Intranet: new hires work well
- Friends, neighbors, colleagues OK for first test
Watch & Learn

- Sit back and watch quietly!
- Reassure participants: they are not on trial, the user interface is
- Extremely eye-opening

Collect the Data

- Take notes
- Focus on the unexpected
- Make page printouts to write on
- Ask follow-up questions
Back to the Drawing Board

- To-do list: fix the stumbling blocks
- Some simple fixes: better labels
- Harder fixes: major overhaul?

Getting Serious with Testing

- Get training or hire a consultant
- Set up a lab
- Professional recruiting service
- Do it all of the time
Really Listen to Jared Spool

- "Pay attention to what *your* users are doing. Do usability testing with your users on your content. Find out who your users are, why they are coming to the site, and which path they would take to find information."
- May 15, 1998, Web Review

“Embrace the Web”

- Or, The Web: A bug or a feature?
- Take advantage of the features, avoid the bugs
- Design and engineer for this medium
- Usability tradeoffs
Bugs or Features?

- User control (preferences)
- Navigator / Explorer differences (and more...)
- HTML
- URLs, Domain names
- Browser back buttons (competition)
- Client-side scripting
- Bandwidth
- Email for pushing
- Standards

Example: Backdoor Access

- Users can jump into middle of a site
- Search engines, bookmarks, links
- Bug or feature?
Stress Test

- Make each page stand alone somewhat
- Site brand
- “You are Here”
- Descriptive links
- Also good for lost users
- Pick a page and ask some hard questions

Stress Test Questions

- What site am I at?
- What major section am I in?
- What other major sections are there?
- What is the parent page to this? What is "up" from here?
- How do I get to the top page of this site?
- What other pages are "nearby", in the same section?
More Stress Test Questions

- What does each link lead to?
- Which links lead to more detailed information (down)?
- Which links stand out the most? Least?
- What does each group of links represent?
Usability Tradeoffs

- Best solutions under current conditions
- Sacrifice usability: cost, time, management
- Bandwidth
- Browsers
- Standards

Browser Tradeoffs

- Browser and user control
- Bugs
- Incompatibilities
Standards Tradeoffs

- Variations from standard: opportunity for unusable feature
- Best deviations: good for haves, no effect on have nots
- Spirit of the standards

“Do Usability Sweeps”

- Easy to forget about usability
- Occasional inspections do not get in the way much
- Expert Evaluation
- Heuristic Evaluation
- Usability Checklists
Heuristic Evaluation

- 3-5 evaluators (UI experts, usually)
- Look for common problems
- Identify your rules of thumb
- Gather opinions
- Merge/rate problems
- Work towards solutions

General Heuristics

- Visibility of system status
- Match between system and the real world
- User control and freedom
- Consistency and standards
- Error prevention
- Recognition rather than recall
- Flexibility and efficiency of use
- Aesthetic and minimalist design
- Help users recognize, recover from errors
- Help and documentation
Gather Opinions

- Find evaluators
- Provide basic information about your site (intended audience, purpose)
- Evaluators inspect
- List errors in terms heuristics

Merge and Rate

- Each error rated in terms of seriousness
- “No problem” to “catastrophe” (0-5)
- Average rankings to prioritize
Work Towards Solutions

- Solve major problems first
- Solve easy ones first
- Harder ones later
- Maybe focus on specific heuristic earlier next time

Web-Adapted Heuristics

- System status, Recognition: Where am I? Where can I go next?
- Match with real world: Labels in users’ language
- User control: Forcing font, sizes, widths
- Standards: HTML and web standards
- Error prevention: Forms
More Web-Adapted Heuristics

- Flexibility: Bookmarkable and linkable
- Minimalist: Progressive detail
- Error recovery: Search
- Help: Embedded documentation

Usability Checklists

- Check sheet of how to implement
- Specific conventions you come up with
- Fill out checklist for key pages (templates)
- Anyone can do
Your Own Conventions

- Principles: goals which guide design decisions
- Guidelines: specific to a particular domain of design
- Conventions: specific design decisions you have chosen to follow

Sample Guidelines

- Animation should not disrupt your reader's concentration (Yale)
- Provide useful content on each page seen by your audience (Sun)
- Use link titles (pop ups) to help users predict where they are going (Nielsen)
- Write in inverted pyramids (Nielsen)
- Your users need to know where they are (IBM)
### Possible Conventions

- Animation must be at top of page so it can be scrolled out of sight
- Navigation pages include a sentence about each link
- Links to a different major section must have link title = the new section
- First paragraph of every page summarizes the entire page
- Site logo and link to home page at top left of every page (except home page)

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### “Assume I will get it Wrong the First Time”

- Iterative design
- Integrate usability engineering techniques into your processes
- Paper and computer prototypes
- User-centered design means less wrong, but still...
Your Design/Implementation Process

You are here

Close the Loop Once

Task Analysis  User Testing  Heur. Eval.  Prototype
“Sleep with the Technology but do not Marry it”

- Understanding the technology crucial for usable implementations
- Too flaky/immature to use for its own sake, however
- Find usability problem first, then pick best technology
Example: Client- vs Server-side Scripting

- Netscape DevEdge View Source
- Need: direct links into framed articles
JavaScript Solution

// NOW WRITE OUT THE FRAMESET
writeln ('<FRAMESET ROWS="72,**" BORDER=1>
writeln ('   <FRAME NAME="banner"
   SRC="/viewsource/banner.html" SCROLLING=no
   BORDERCOLOR="#ffffff">
writeln ('<FRAMESET COLS="146,**">
writeln ('    <FRAME NAME="toc" SRC="/viewsource/toc_frame.html"
   BORDERCOLOR="#ffffff">
writeln ('    <FRAME SRC="' + frameObject[1].link + '" NAME="content"
   SCROLLING=auto MARGINHEIGHT=5 MARGINWIDTH=10">
writeln ('</FRAMESET>
writeln ('</FRAMESET>

Perl Solution

print <<EOT;
Content-type: text/html
<FRAMESET ROWS="72,**" BORDER=1>
   <FRAME NAME="banner"
   SRC="/viewsource/banner.html"
   BORDERCOLOR="#ffffff">
<FRAMESET COLS="146,**">
   <FRAME NAME="toc"
   SRC="/viewsource/toc_frame.html"
   BORDERCOLOR="#ffffff">
   <FRAME NAME="content"
   SRC="/viewsource/$content"
   MARGINWIDTH=10 MARGINHEIGHT=5 SCROLLING=auto>
</FRAMESET>
</FRAMESET>
EOT;}
Recap

- Walk a mile in my users’ shoes
- Take a ride on their shoulders
- Embrace the Web
- Do usability sweeps
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Levels of Commitment

- Low: 1-person shop, very limited resources
- Medium: 10 people, limited resources
- Large: 100s of people, business success depends on it
## Where to Cut Corners

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browser tests</td>
<td>2</td>
<td>5</td>
<td>Separate code</td>
</tr>
<tr>
<td>HTML validation</td>
<td>Once</td>
<td>Service</td>
<td>In-house</td>
</tr>
<tr>
<td>Log Analysis</td>
<td>Informal</td>
<td>Package</td>
<td>In-house</td>
</tr>
</tbody>
</table>

## Where Else to Cut Corners

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>User testing</td>
<td>Friends</td>
<td>Strangers</td>
<td>Lab</td>
</tr>
<tr>
<td>Heuristic evaluation</td>
<td>You</td>
<td>Outsider</td>
<td>3-5</td>
</tr>
<tr>
<td>Checklists</td>
<td>Informal</td>
<td>Written down</td>
<td>Enforced</td>
</tr>
</tbody>
</table>
Learning More

- usableweb.com: Links and descriptions of web usability issues, techniques, etc.
- useit.com: Jakob Nielsen’s site
- Information Architecture for the World Wide Web by Rosenfeld & Morville
- http://instone.org/keith/web98sf/ for links to items from this presentation