Design Patterns

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CS 147
Autumn 2018
November 28, 2018

Hall of Fame or Shame?

Direct translations

- software telephony solution where users dial a number by clicking on a simulated keypad

- airline website that simulates a ticket counter

Improved southwest.com

Misused Metaphors!

Wiimote

By Nintendo
Great at opening up gaming to a wider audience but…

- the main thing that differentiated the product (movement in gaming) resulted in it being thrown at windows/TVs
- slippery plastic hard to hold onto. Later designs added rubber case & strap
- lack of a joystick was initial problem resulting in a second controller

Hall of Fame/Shame!

Outline

- Detailed Design Example
- Web Design Patterns
- Team Break
- Patterns in the Design Exploration Phase

Design Patterns

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Basic Web Design

- Let's take a closer look page by page
What site is this?
- Logo in top-left corner denotes the site
- Another name/logo at top-right to reinforce
- examples of SITE BRANDING (E1)

What kind of site is this?
- Shopping cart icon
- Tab row categories & content on left
- UP-FRONT VALUE PROPOSITION (C2)
- changes from past version – no prices!
- example of PERSONAL E-COMMERCE (A1)

What can I do here?
- Sell your stuff
- Tab row / Search on top
- Click on books
- Not great examples of OBVIOUS LINKS (K10)

What site am I at?
- Logo in upper-left reinforces brand, can click to go to home
- Same font, layout, color scheme also reinforces
- examples of SITE BRANDING (E1)
- prices emphasize I can buy
- example of PERSONAL E-COMMERCE (A1)
Where am I in the site?
- “Home > Books” is LOCATION BREAD CRUMBS (K6)
- “Books” selected in TAB ROW (K3) & SEARCH ACTION MODULE (J1)
- Book cover, “Product Info”, … are additional cues

Can I trust these sellers?
- Who am I buying from?
- Are they reputable?
  - aside: what do stars mean?
- What about shipping?
  - used to show total price!

The Fold
- Hmm, what’s below here?

What site am I at?
- Logo in upper-left
- Colors, layout, font
- examples of SITE BRANDING (E1)
Where am I in the site?
- Last button clicked was "Add to cart!"
- "Shopping Cart" and "Proceed to Checkout" reinforce that this is "the right page"
- SHOPPING CART (F3)

Cross-selling
- Possibly a pleasant surprise
- Impulse buy
- CROSS-SELLING & UP-SELLING (G2)

What am I going to buy?
- Easy to remove
- Easy to move to save for later
What can I do (they want me to do)?
- "Proceed to Checkout"
- HIGH VISIBILITY ACTION BUTTON (K5)
- visually distinct
- 3D, looks clickable
- large
- used to be repeated above and below the fold

What if I don't have a User ID?
- What if I forgot my password?
- SIGN-IN/NEW ACCOUNT (H2)
• What site?
  – Logo, layout, color, fonts
• Where in site?
  – Checkout, step 1 of 3
  – “Choose a shipping address”
  – QUICK-FLOW CHECKOUT (F1)

• Note what’s different (?)
  – No tab rows
  – No impulse buys
  – Only navigation on page takes you to next step
• This is a PROCESS FUNNEL (H1)
  – Extraneous info and links removed to focus customers

• Last step of process
  – Step 3, “Place Order”
  – “Place my order” button
• TWO HIGH-VISIBILITY ACTION BUTTONS (K5) for fold

• No nasty surprises
  – Can see order
  – Total price is same as shopping cart
  – ORDER SUMMARY (F7)
**Design Patterns**

- Design patterns communicate common design problems and solutions
  - First used in architecture [Alexander]
  - Ex. How to create a beer hall where people socialize?

**Using Design Patterns**

- Not too general and not too specific
  - use a solution “a million times over, without ever doing it the same way twice”
- Design patterns are a *shared* language
  - for “building and planning towns, neighborhoods, houses, gardens, & rooms.”
  - Ex. Beer hall is part of a center for public life…
  - Ex. Beer hall needs spaces for groups to be alone… *ALCOVES*

**A Web of Design Patterns**

(8) Mosaic of Subcultures → (31) Promenade → (33) Night Life

(95) Building Complex

(90) Beer Hall

(179) Alcoves → (181) The Fire

(181) The Fire

**Design = Solutions**

- Design is about finding solutions
- Unfortunately, designers often reinvent
  - Hard to know *how* things were done before
  - *Why* things were done a certain way
  - *How* to reuse solutions

**Somewhere in the community at least one big place where a few hundred people can gather, with beer and wine, music, and perhaps a half-dozen activities, so that people are continuously criss-crossing from one to another.**

**Using Design Patterns**

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Web Design Patterns

- Now used in UI design
- Communicate design problems & solutions
  - how to create navigation bars for finding relevant content...
  - how to create a shopping cart that supports check out...
  - how to make e-commerce sites where people return & buy...

NAVIGATION BAR (K2)

Problem: Customers need a structured, organized way of finding the most important parts of your Web site

Solution diagram
- captures essence on how to solve problem

Pattern Groups

Our patterns organized by group

- Site genres
- Navigational framework
- Home page
- Content management
- Trust and credibility
- Basic ecommerce
- Advanced ecommerce
- Completing tasks
- Page layouts
- Search
- Page-level navigation
- Speed
- The mobile web

PROCESS FUNNEL (H1)

Problem: Need a way to help people complete highly specific stepwise tasks
- Ex. Create a new account
- Ex. Fill out survey forms
- Ex. Check out
**What’s different?**
- No tab rows
- No impulse buys
- Only navigation on page takes you to next step

**What’s the same?**
- Logo, layout, color, fonts

**PROCESS FUNNEL (H1)**

Problem: What if users need extra help?

**CONTEXT-SENSITIVE HELP (H8)**

**FLOATING WINDOWS (H6)**
Patterns Support Creativity

- Patterns come from successful examples
  - sites that are so successful that lots of users are familiar with their paradigms (e.g., Google, Amazon, Yahoo, Facebook…)
  - interaction techniques/metaphors that work well across many sites (e.g., shopping carts)
- Not too general & not too specific
  - you need to specialize to your needs
- Patterns let you focus on the hard, unique problems to your design situation
  - every real design will have many of these

Patterns Offer the Best of Principles, Guidelines & Templates

- Patterns help you get the details right, without over-constraining your solution
  - unlike principles, patterns not too general, so can see how to apply to your situation
  - unlike guidelines, patterns discuss tradeoffs, show good examples & tie to other patterns
  - unlike style guides, patterns not too specific, so can still be specialized
  - unlike page templates, patterns illustrate flows among different pages
- Patterns can serve as documentation for team-oriented environments

Format of Web Design Patterns

- Pattern Name and Number
- Exemplar
- Background
- Problem
- Forces
- Solution
- Solution Diagram
- Related Patterns
Administivia
- Final assignments online later today
- Project Questions?
- Project Fair Questions?
- Exam should be graded by tonight

Quiz
https://goo.gl/forms/oQ2cEv86VjwAcpZ42

TEAM BREAK
(20 MINUTES)
WORK ON MIDWAY MILESTONE PRESENTATIONS

Patterns in Exploration Phase
- Use Exploration-level patterns to design overall structure
  - different choices will give radically different designs
- For example, how to organize information
  - HIERARCHICAL ORGANIZATION (B3)
  - TASK-BASED ORGANIZATION (B4)
  - ALPHABETICAL ORGANIZATION (B5)
  - …
Patterns in Exploration Phase

**TASK-BASED ORGANIZATION (B4):** Link the completion of one group of tasks to the beginning of the next related task(s).

Design Exploration Example

- John given the task of designing a new subsite for showing maps to businesses
  - listings found by typing in address
  - key feature: show nearby businesses
- John comes up with two design sketches
  - Design #1 uses ALPHABETICAL ORGANIZATION (B5) for list of all nearby businesses
  - Design #2 uses TASK-BASED ORGANIZATION (B4) for list of related nearby businesses

**Design #1**
ALPHABETICAL ORGANIZATION (B5)

**Design #2**
TASK-BASED ORGANIZATION (B4)

Evaluating Which Design to Choose

- Low-fidelity Usability Test
  - sketches the rest of the key screens on paper
  - brings in 5 participants to his office
  - asks each to carry out 3 tasks while John’s colleague Sam “plays computer”
  - John observes how they perform

- Tasks
  1) look up 1645 Solano Ave, Berkeley CA
  2) look up 1700 California Ave, San Francisco CA & find Tadich Grill
  3) look up 2106 N 55th St, Seattle WA & find a Sushi restaurant nearby

Evaluating Which Design to Choose

- Results with Design #1 (Alphabetical)
  - Task 1: look up 1645 Solano Ave
    - no difficulties encountered – warm-up task!
  - Task 2: look up 1700 California & find Tadich Grill
    - several users didn’t notice that the list of nearby businesses was scrollable (due to paper affordances?)
    - those that scrolled took awhile to find in list of over 500
  - Task 3: look up 2106 N 55th St & find nearby Sushi restaurant
    - 3 users only picked restaurants that had “restaurant” in the name & thus couldn’t find “Kisaku”
Evaluating Which Design to Choose

- Results with Design #2 (Task-based)
  - Task 1: look up 1645 Solano Ave
    - no difficulties encountered – warm-up task!
  - Task 2: look up 1700 California & find Tadich Grill
    - 1 user took awhile to figure out that Tadich Grill was a restaurant & to click on the “Restaurants” link
    - all others found it in 2 clicks (Restaurants -> Tadich Grill)
  - Task 3: look up 2106 55th St & find nearby Sushi restaurant
    - 3 found “Kisaku” in 2 clicks
    - 2 others asked for a listing of Japanese restaurants

Evaluating Which Design to Choose

- General comments
  - 2 users said they often want to email/SMS maps to friends who they will be meeting (task-based)
  - 3 users wanted driving directions (task-based)

→ TASK-BASED ORGANIZATION (B4) worked better, but still had some minor problems

Design #2 – Revision 1
Adding More Related Tasks

Design #2 – Revision 2
Adding HIERARCHICAL ORGANIZATION (B3) & LOCATION BREAD CRUMBS (K6)

Summary

- Lots of issues involved in designing compelling, usable web sites
- Design patterns are one way of capturing good design knowledge
  - generative (help you create new designs)
  - consider trade-offs
  - concrete examples of successful uses
  - a networked language that works together
Further Reading

Books on Web Design

- *Information Architecture for the Web and Beyond*. Louis Rosenfeld, Peter Morville, Jorge Arango. O'Reilly. 4th edition. 2015

Further Reading

Websites on Web Design

- UsableWeb.com, links to other usability sites
- Usability.gov, for building accessible websites & more
- User Interface Engineering, at [http://www.uie.com](http://www.uie.com)
- Mark Hurst’s creativegood.com
- Jakob Nielsen’s www.nngroup.com

Next Time

- Mon
  - Team Work on Project

- Wed
  - Smart Interfaces for Global Grand Challenges