Design Patterns
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Hall of Fame or Shame?
Direct translations
- software telephony solution where users dial a number by clicking on a simulated keypad
- airline web site that simulates a ticket counter

Hall of Shame!
Direct translations
- software telephony solution where users dial a number by clicking on a simulated keypad
- airline web site that simulates a ticket counter

Misused Metaphors!

Improved southwest.com

TEAM BREAK (20 MINUTES)
WORK ON MIDWAY MILESTONE PRESENTATIONS
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. Later designs added rubber case & strap
- lack of a joystick was initial problem resulting in a second controller.
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 & left content
- UP-FRONT VALUE PROPOSITION (C2)
- Changes from past – 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)

- Most important info visible without scrolling
- ABOVE THE FOLD (I2)
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 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?
• Impulse buy
• Personalized recommendations (G3)
• About this album
• Lots of unused space
• Still more info below…

• More versions
• Used to have!

• Editorial reviews
• Customer reviews
• Recommendation community (G4)

• 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” & “Proceed to Checkout” reinforce 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, & save for later
  – How much will it cost?
  – Shipping costs there, no surprises
  – Shopping cart (F3)

• What can I do (they want me to do)?
  – “Proceed to Checkout”
  – Visually distinct, 3D, looks clickable
  – Large
  – Used to be above & below 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 = 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

Design Patterns
Communicate common design problems & 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…

A Web of Design Patterns

- Mosaic of Subcultures: (8)
- Night Life: (33)
- Promenade: (31)
- Beer Hall: (90)
- Building Complex: (95)
- Alcoves: (179)
- The Fire: (181)

Web Design Patterns

- Also 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

Link to home
First-level navigation
Second-level navigation
Pattern Groups

Our patterns organized by group

A Site genres
B Navigational framework
C Home page
D Content management
E Trust and credibility
F Basic ecommerce
G Advanced ecommerce
H Completing tasks
I Page layouts
J Search
K Page-level navigation
L Speed
M 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?
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

Related Patterns

- (A1) E-Commerce
- (A10) Web Apps
- (A11) Intranets
- (H1) Process Funnel
- (K2) Navigation Bars
- (K3) Tab Rows
- (K4) Action Buttons
- (H8) Context-Sensitive Help
- (I2) Above the Fold
- (K5) High-Viz Action Buttons
- (K12) Preventing Errors

FLOATING WINDOWS (H6)

PROCESS FUNNEL (H1)

Solution Diagram

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FLOATING WINDOWS (H6)
Format of Web Design Patterns

- Pattern Name and Number
- Exemplar
- Background
- Problem
- Forces
- Solution
- Solution Diagram
- Related Patterns

Web Design Process

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

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
  - look up 1645 Solano Ave, Berkeley CA
  - look up 1700 California Ave, San Francisco CA & find Tadich Grill
  - 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 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 3 Hi-Fi Prototype
Adding SEARCH ACTION MODULE (J1)

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

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
- Mark Hurst’s creativegood.com
- Jakob Nielsen’s www.nngroup.com

Next Time

- Mon
  - Smart Interfaces for Global Grand Challenges
  - Team Work on Project

- Wed
  - Guest Lecture: “Building Hardware/Software Interaction Models - A Case Study”, Joe Belfiore, Microsoft
  - Team Work on Project