Prototyping Techniques for Better Web Design

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Agenda

• Overview of Prototyping Technique
• Prototyping Progression
• Paper vs. Digital Prototypes
• Conclusion
Seminar Goals

• Understand how prototyping can be used to:
  – identify, describe, and validate user interface
  – facilitate communication, collaboration and build consensus.

• Ultimately deliver a product that will garner positive customer response
Overview of Prototyping

• What is Prototyping?
• Why Create Prototypes?
What is Prototyping?

• Definition
  – A partial or preliminary version of the system.

• Prototyping Categories
  – Functional Scope
    • Horizontal
    • Vertical
  – Usage throughout Systems Development Lifecycle
    • Throw-away
    • Evolutionary/Functional
Horizontal/Throw-away Example

Set-up Organization
Role 1

Set-up Organization
Role 2

Organization and Individual Management

Set-up Individual
Role 1

Set-up Individual
Role 2

Set-up Individual
Role 3

...
Why Create Prototypes?

• Early identification of requirement refinement
• User Interface (UI) blueprint, pre-cursor to the end design

• Why should the prototype be developed before development?
  – Elicit external interface requirements from a user centric perspective
  – Analyze and document external interface requirements from a user centric perspective
  – Verify and validate external interface requirements from a user centric perspective

• Did I mention USER CENTRIC?
What is User-Centric?

• Focus in developing prototypes is on the user

• Definition of User –Centric
  • A design philosophy and a process in which user needs, wants, and limitations of a product are given extensive attention at each stage of the design process.
    • Multi-stage problem solving process to foresee how users are likely to use a product
    • May validate assumptions regarding user behavior with usability studies.
  • Seeks to optimize the product around how users can, want, or need to use the product, rather than forcing the users to change their behavior to accommodate the product.

• Access to users is critical
Prototyping as a Risk Mitigation Technique

- What are the leading causes of risks to a project?

- What needs to be asked to prevent risks?

- What risks can you see the prototyping technique driving out of your projects?
When does the prototype occur?
PROTOTYPING PROGRESSION
Prototyping Progression

• Understanding user needs via Personas
  – Describes real (exaggerated) target users
  – Provides clear picture of how the user will most likely interact
  – Paints a multi-dimensional image of the user to the design teams leading to effective design

ASPE SDLC TRAINING
Prototyping Progression (continued)

- Site Strategy
  - Competitive Analysis
  - Concept Model
  - Content Inventory
Prototyping Progression (continued)

- **Site Maps** (aka Structural Model, Taxonomy, Hierarchy, Storyboarding, Navigation Model, Site Structure)
  - Provides an overall site view
  - Captures site structure
Prototyping Progression (continued)

- **Flow Charts** (aka, Flows, User Flows, Process Charts)
  - Defines a process
  - Goals are two fold
    - Business process
    - User experience
Prototyping Progression (continued)

- **Wire Frames** (aka Screen Flows, Schematics, Blueprints, Prototypes)
  - Represents content and structure
  - Communicates initial design ideas
  - Communicates relative priorities of content
Prototyping Progression (continued)

- **Screen Design** (aka screen composites, mock-ups, page design, visual design, graphic design, interface design, design concepts, pretty pictures)
  - What the site looks like
PAPER VS. DIGITAL PROTOTYPING
Prototyping Considerations

• All types of prototypes may be:
  – Varying degrees of fidelity
  – Paper
  – Digital

• In all cases, the emphasis is:
  – Collaborative
  – User centric
# Benefits of Paper vs. Digital

<table>
<thead>
<tr>
<th>Paper</th>
<th>Digital</th>
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</thead>
<tbody>
<tr>
<td>Encourages Creativity</td>
<td>Better for organization and storage</td>
</tr>
<tr>
<td>Zero coding effort – No technical skills needed</td>
<td>Better for remote collaboration</td>
</tr>
<tr>
<td>Early design ideas and concepts inexpensively – Promotes rapid iterative development</td>
<td>Better after overall flows and functionality has been agreed upon</td>
</tr>
<tr>
<td>Never mistaken for working application</td>
<td>Can demonstrate technical feasibility</td>
</tr>
<tr>
<td>Provides for significant user feedback</td>
<td>May discover technology gaps</td>
</tr>
<tr>
<td>Maximum Feedback – Minimum Effort</td>
<td>Provides vehicle for designers to learn needs</td>
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</tbody>
</table>
Paper Prototyping – Is it useful?

Usefulness of Paper Prototyping Survey Results

- Essential: 40%
- Useful: 50%
- Marginal: 60%
- Useless: 0%
Warning – Digital Prototype Too Early

“You love the system! ... You love the system!”

Cartoon used with permission from ModernAnalyst.com
## Prototype Capture

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Paper Prototype</th>
<th>Digital Prototype</th>
<th>Functional Digital Prototype</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look</td>
<td>Low – Medium</td>
<td>Medium – High</td>
<td>Medium – High</td>
</tr>
<tr>
<td>Interaction</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Horizontal</td>
<td>Low – High</td>
<td>Low - High</td>
<td>Low - High</td>
</tr>
<tr>
<td>Vertical</td>
<td>Medium – High</td>
<td>Low - Medium</td>
<td>Low - High</td>
</tr>
</tbody>
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USABILITY TEST
Usability Test Overview

• Evaluates if product meets intended purpose
• What are the Usability Tests for?
  • Learn how users approach the interface
  • Determine what makes sense to the user
• Who uses?
  • Design team to advise of structure and design
  • Stakeholders as input for external interface requirements approval
Usability Test Benefits

- Usability Tests allows users to perform tasks
- Opportunity to close the gap between product teams, users and project team
- Usability Tests can employ cognitive processing (for example Gestalt principals of visual design and eye tracking)
- Think of Usability Tests as risk management – “It’s not the rattlesnake you see that will bite you”

Plan for Usability Tests with paper or digital format
Usability Tests ARE & ARE NOT

<table>
<thead>
<tr>
<th>ARE</th>
<th>ARE NOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usability Tests involve observation under controlled conditions to</td>
<td>Simply gathering opinions on an object or document. This would represent</td>
</tr>
<tr>
<td>determine how well people can use the product.</td>
<td>market research rather than usability studies.</td>
</tr>
<tr>
<td>Watching people trying to use something for its intended purpose.</td>
<td>Showing users a rough draft and asking, &quot;Do you understand this?&quot;</td>
</tr>
</tbody>
</table>
## Usability Test Process

<table>
<thead>
<tr>
<th>What Happens</th>
<th>Who</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kick-off</td>
<td>Discuss goals, risks, and concerns, agree on user profile, determine “core team”, set schedule</td>
<td>All Stakeholders</td>
</tr>
<tr>
<td>User Recruit</td>
<td>Find people who match the user profile and schedule</td>
<td>1 – 2 if in-house; could outsource</td>
</tr>
<tr>
<td>Task Design</td>
<td>Create the tasks to be used in Usability Test</td>
<td>Core team</td>
</tr>
<tr>
<td>Creation and Trial Runs</td>
<td>List task related interface elements Hold periodic trial runs without real users prior to usability sessions</td>
<td>Core team; others can come and go as schedules allow</td>
</tr>
<tr>
<td>Usability sessions and refinement</td>
<td>Perform usability sessions (1–2 hrs/session) List issues after each session, revise the prototype before next session</td>
<td>All Stakeholders</td>
</tr>
<tr>
<td>Prioritizing issues and action plan</td>
<td>Prioritize unresolved issues, discuss top issues and possible solutions, create action plan to address issues, and track issues</td>
<td>Attendees and core team</td>
</tr>
<tr>
<td>Results Communication</td>
<td>Socialize results and create external interface documentation</td>
<td>BA</td>
</tr>
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**Reference:**  
**Paper Prototyping** – Carolyn Snyder or  
http://www.paperprototyping.com/downloads/Table5.1_overview.pdf
Usability Test Task Card

<table>
<thead>
<tr>
<th>Task # and Name:</th>
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<table>
<thead>
<tr>
<th>Goal/Output:</th>
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<table>
<thead>
<tr>
<th>Inputs:</th>
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<table>
<thead>
<tr>
<th>Assumptions:</th>
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<table>
<thead>
<tr>
<th>Steps:</th>
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<table>
<thead>
<tr>
<th>Time for experts:</th>
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<tr>
<th>Notes:</th>
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**Instructions for user:**

![ASPE SDLC Training Logo]
Conclusion

• Decompose external interface needs
• Prototyping = user centric solution
• Consider Prototyping Workshop for hands-on experience
• The proof is in the doing