Prototyping and Usability Testing with Visio

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Overview of Prototyping

Uses, functions and types of prototypes
**What is a prototype?**

- A model of the final product
  - A way to see what something will be like before it is built.
- A vehicle for exploration
  - A way to validate ideas in a low-risk environment before making a final decision
- A proof of concept
  - A way to test specific aspects of a design problem
- A method of communication
  - A way to develop and maintain an understanding of the end result with the development team

**Why prototype?**

- Explore
  - Create a strong design by iterating through ideas rapidly
- Communicate
  - Demonstrate progress against time lines in tangible format
- Collaborate
  - Enhance collaboration with other teams through clear understanding and a shared vocabulary
- Validate
  - Test a design in early stages when changes can be made easily
Prototyping goals

1. Can users work effectively with the interface
   - Visual or information design issues
     - Can the user find and understand the information on the screen?
   - Navigation issues
     - Does the user understand the meaning of each control? Can they find the controls or information needed to complete their task?
   - Efficiency issues
     - Can the user work quickly enough to meet usability goals

2. Demonstrate the user interface
   - Communicate the design to developers, marketing, management, or customers
   - Walk through proposed navigation design
   - Match screens and controls to use cases
   - Demo proposed functionality to internal or external groups
Types of prototypes

- Low fidelity (wire-frames)
  - Simple layout sketches which usually focus on content and layout
- Slide shows
  - High fidelity visual design, but with minimal interactivity
- Medium fidelity
  - Good visual fidelity with nominal interaction capability following a scenario
- High fidelity
  - Full interaction capabilities and detailed screen layouts.

What to include in a prototype?

- Horizontal
  - Full breath of functionality, but with little depth
- Vertical
  - Complete demonstration of representative tasks or information paths
- Key Screen or T-Prototype
  - Full breadth indicated, with 1-2 tasks prototyped in detail
When to prototype?

- vision prototypes expose early ideas to comment
- wireframes accompany use-case analysis or participatory design sessions
- key screen prototype demonstrates interaction structure/UI architecture
- prototypes validate specific or complex work flows
- visual prototypes test layout for usability and technology

Selecting a prototyping tool

- **Paper**
  - low fidelity and difficult to distribute
- **HTML**
  - good for navigation, but not always appropriate
- **Development environment**
  - high fidelity, but slow and can limit creativity
- **Director** (or other interactive environments)
  - good for experimental interactions, can be rapid, can be too different from final environment
- **Visio**
  - hybrid: rapid, high screen fidelity, moderate interaction
Visio as a Prototyping Tool

Effective use of Visio to create screen prototypes that are in close fidelity to the final screen layout.

Introducing Visio

- An object-oriented drawing program
- Basic building blocks:
  - Shapes and stencils: Range from basic shapes and flowcharting to Windows UI and UML
  - Templates: Support consistent use and reuse of elements throughout prototype
  - Backgrounds: Contain common elements applied across screens
Visio Screen Layouts

- Setting up a screen layout to be correctly proportional
- Working with existing templates and stencils
- Creating backgrounds
- Creating custom shapes in a drawing master stencil
- Building custom stencils and template

Low-Fidelity Page Layout
Screen Layout from Project

iAsyst demo using Visio screens on http://www.cynocom.com

Visio drawing structure

- Benefits of using stencils
  - Consistency within and between projects
  - Reusable repository of elements and layouts
  - Rapid development of prototypes

- Analyzing visual design and layout
  - Customizable grid layout

- Creating composite shapes for screen objects
  - Custom stencils
  - Custom shapes
  - Layered backgrounds
Creating the Prototype

HTML pages contain an image of the Visio page and image map hyperlinks.

1. Prepare

- Understand how the demo will be used
  - Will the demo use a script or be free-form?
- What functions will be included?
  - What Visio pages represent these functions
- What links or other interactivity are required?
  - Be sure the level of interactivity is appropriate for Visio
  - Plan strategies for complex interactions
2. Plan the interactivity

- Identify all pages or screens in the demo
  - Create a single Visio file with all pages
- Draw an overall navigation flow
  - How the individual pages connect to each other
- Identify the links on each page
  - (Optional) Move any global links to the background layer
  - Identify the Visio page that is the target of each link

3. Create the links

- To create a link:
  - Select a shape
  - Select Insert | Hyperlink or Alt-K
- Enter the link target
  - Address: Leave blank for the current file
  - Sub-Address: Select a Visio page
  - Description: Enter appropriate text
Tips

- Hyperlink tips
  - Links on background pages or grouped shapes only work in Visio 2000
  - Do not layer links on top of each other
  - Do not create multiple targets to a link
  - Links work better on solid objects, with a larger click-target

- Delete any shapes outside the page layout area
  - The HTML page image will contain all shapes on each page, including hidden shapes or those on a different layer
  - If you included browser toolbars in the layouts, delete them

4. Save As HTML

- Save your file, then Save As HTML
- All HTML files will be created in the selected directory, with File Name as a prefix
- Files created:
  - filename.htm
  - filename_frame.htm
  - filename_nav.htm
  - .js files and nav images
  - *_raster.htm
  - *_raster.gif/jpg
  - *_vml.htm
  - *_vml.enz
  - *_vml.vml

* Only if VML is selected
4a. Save As HTML options

- Select graphic format
  - VML - scaleable, but only works in IE5
  - GIF, JPEG - work in all browsers
  - PNG - works in some browsers

- Select pages to include
  - Default is all foreground pages

Be sure to test a typical page to see which graphics format works best for your page images.

5. View the prototype

- Two ways to navigate:
  - Use hyperlinks in your screens
  - Use the page index in the bottom frame
Usability Testing with Visio Prototypes

Conducting a usability test with a Visio prototype. A rapid usability technique to gain insights into users’ reactions to specific user interface elements.

15 mins

What can Visio effectively test?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navigation between major functions or within a single task</td>
<td>Complex interaction requiring dynamic presentation of information</td>
</tr>
<tr>
<td>Screen layout and placement or grouping of controls</td>
<td>How well users can complete forms, especially with program response to data entry</td>
</tr>
<tr>
<td>Terminology and language in the interface</td>
<td>Windows management</td>
</tr>
<tr>
<td>How well users understand functionality provided</td>
<td>Choice of graphical elements, such as icons</td>
</tr>
</tbody>
</table>
Planning a usability test

- Establish goals and scope
  - What do you hope to learn?
- Plan the usability test
  - What tasks or sections of the product are included?
  - Scripted task or user-driven exploration?
  - What functionality must be active?
- Recruit users and set up facility
  - 2-3 users per round
  - Plan facilitation and interaction areas

Guerilla usability tests

- Small in scope
  - Looking for input on specific design problems
  - Testing overall organization of workflow or information architecture
- Small number of users per iteration
  - Just enough to gain enough insight to confirm or iterate design
How do users interact with the prototype?

- **Navigation is done on-screen**
  - All buttons, links or other major navigation controls are active and can be used to move from page to page

- **Post-it notes represent**
  - Drop down menus or combo boxes
  - Some popup windows

- **Filling in forms on paper**
  - Print outs of the forms let users write in any data they would enter.

- **Talk through the actions**
  - Users describe aloud what actions they take and data they use

Sounds crazy!

...but it works.

- **The informality is infectious**
  - It’s relaxing and interactive for the users
  - Users have little trouble moving from screen to paper when necessary (as long as they match)
  - The fact that it’s obviously a work in progress encourages users to make suggestions and talk easily
  - Users will feel that they are making a real contribution to the development of new products
Any questions?

Reading List

- Prototyping Using Visio by Robin Kavanagh and John Soety
  http://www.stcsig.org/usability/newsletter/0007-prototypingvisio.html
- Usability Methods Toolbox (Section on prototyping)
  http://www.best.com/~jthom/usability/usable.htm
- Five Paper Prototyping Tips by Matthew Klee
  http://world.std.com/~uieweb/paperproto.htm
- Using Paper Prototypes to Manage Risk
  http://world.std.com/~uieweb/paper.htm
- Conceptual User Interface: A New Tool for Designing E-Commerce User Interfaces
  http://mime1.gtri.gatech.edu/tim/imb/papers/cui.html
- Interactive Sketching for the Early Stages of User Interface Design by James A. Landay and Brad A. Myers
  http://www.cs.berkeley.edu/~landay/research/publications/SILK_CHI/jal1bdy.html
- Microsoft Visio Tips & Tricks
  http://officeupdate.microsoft.com/visio/tips/vistips.asp
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