ICS 463, Intro to Human Computer Interaction Design:
7 (practice). Prototyping

Dan Suthers

Arguments for Prototyping

- Structured design has limitations
  - Notations inaccessible to users
  - Users may have under- or over-constrained conceptions of what is possible
- Prototyping provides concrete (partially) working system that forms the basis for discussion
  - Build quickly and cheaply
  - Can address multiple issues

Types of Prototyping

- Rapid Prototyping
  - Build it and throw it away
  - Fast cycle to generate and test ideas
- Evolutionary Prototyping
  - The prototype becomes the product
  - eXtreme Programming pushes this idea
- Incremental Prototyping
  - Actually a production technique; build a functionally limited system and add modules
- Requirements Animation — ?

More Types of Prototyping

- Paper versus Software
  - Cost and ease of construction versus fidelity
  - High fidelity not always best ...
- Low versus High fidelity
  - Low fidelity may better support consideration of alternatives
    - Unpolished look = critics less inhibited
    - Ambiguity = open to interpretation and discussion
  - High fidelity...
    - Good for selling the idea
    - Can expose more subtle design issues

Even More Types of Prototyping

- Coverage:
  - Full: all functionality
  - Horizontal: all of interface, little or no functionality beyond navigation
  - Vertical: full interface and functionality only for restricted part
- Chauffeured: user watches
- Wizard of Oz: please ignore the man behind the curtain

Prototyping and Design Stages

- Product Conceptualization
  - Rapid sketching of alternatives
  - Low fidelity paper prototypes are best
- Screen Design
  - Test comprehension and aesthetics
  - Transition from paper to software prototype
- Task Level Prototyping
  - Test suitability of support for specific tasks
  - Need full or vertical functionality
  - Software prototypes may be best
  - Need not have polished interface
Tools: Be open to all possibilities

- Textbook is dated!
- Paper, markers, Post-its
- Whiteboards, Smartboards, Mimeo
- Sketch, Painting, and Drawing tools
- Multimedia Authoring
  - Macromedia Director
- Hypermedia Authoring
  - HyperCard
  - Dreamweaver

More Tools

- Modeling Tools
  - Rational Rose
- Integrated Development Environments
  - JBuilder, Kawa, etc.
- Graphical User Interface Toolkits
  - Easy to prototype but limited control
- Many other tools not specific to HCI
  - Version control
  - Data dictionary and documentation
  - Meeting support and collaboration

Example

- Demonstrate NetLearn design sketches:
  - Paper and software (html) based
  - Low to medium fidelity,
  - Mixture of horizontal and vertical functionality
  - Product conceptualization and screen design

http://lit.ics.hawaii.edu/netlearn/design/