Prototyping & Design

CS 352

Where we are…

• We have talked about:
  – How to study users
    • Ethnography
    • Surveys
    • Interviews
  – How to structure that data
    • Use Cases/Scenarios
    • Hierarchical Task Analysis
  – How to interpret data

• So, what do we do with this knowledge?
What is a prototype?

In other design fields a prototype is a small-scale model:

- a miniature car
- a miniature building or town

Something you plan to throw away!

What is a prototype?

In interaction design it can be (among other things):

- a series of screen sketches
- a storyboard, i.e. a cartoon-like series of scenes
- a Powerpoint slide show
- a video simulating the use of a system
- a lump of wood (e.g. PalmPilot)
- a cardboard mock-up
- a piece of software with limited functionality
Why prototype?

Facilitates evaluation and feedback
- Stakeholders can see, hold, interact with a prototype more easily than with a document
- Team members can communicate more effectively
- You can test out ideas for yourself
- Encourages reflection
- Prototypes answer questions, and support designers in choosing between alternatives

What to prototype?

- Work flow, task design
- Screen layouts and information display
- Difficult, controversial, critical areas
Compromises in prototyping

- All prototypes involve compromises

- For software-based prototyping maybe there is a slow response? Low-fidelity icons? limited functionality?

- Two common types of compromise
  - ‘horizontal’: provide a wide range of functions, but with little detail
  - ‘vertical’: provide a lot of detail for only a few functions

Low-fidelity Prototyping

- Uses a medium which is unlike the final medium, e.g. paper, cardboard
  - Intentionally rough and unfinished

- Is quick, cheap and easily changed (?)

- Encourages “high-level” criticism; problems with conceptual models and fundamental usability/functionality issues
Storyboards

- Often used with scenarios, bringing more detail, and a chance to role play

- It is a series of sketches showing how a user might progress through a task using the device
Interactive Prototyping

- Extreme prototyping!
- Going with the flow
Low-fidelity Prototype Evaluation

- Formative evaluations
  - Wizard of Oz studies
  - GOMS and action analysis
  - Cognitive walkthroughs
  - Heuristic evaluations

High-fidelity prototyping

- Prototype looks and behaves like (subset of) the final system

- Commonly used tools: Macromedia Director, Visual Basic, and Smalltalk.

- Users may think they have a full system (problem!)

- Get at details of design (layout, icons, colors etc)
Abandoned Prototype
Medium-fidelity prototypes (?)

- Somewhere in-between
- Typically high production values, no/limited interaction
  - Powerpoint mock-ups
  - Photoshop

- Tests detail of design without committing
- Because no functionality, less pressure from users

## Prototype and Evaluation

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Low Fidelity to High Fidelity

Low Fidelity to High Fidelity
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