CS 160: Lecture 26

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Preamble

- Team work assignment.
- Final exam time is Monday Dec 20th from 8-11am in 105 Northgate.
- Review sessions as per Scott’s email.
Final Exam

The final exam will break down as:
- 33% on the material before the midterm
- 67% on the material since the midterm
This lecture will cover the big ideas from the course.

Your task is to fill in the gaps, ask questions, and relate the material to your needs for it in future.
HCI is a challenge because

* People are not all the same - values very different

* Identity (traits) are both individual and collective

* Tension between designing too narrowly and too broadly
Personae

- A rich portrait of a character
  - Name:
  - Occupation:
  - Values:
  - Likes:
  - Dislikes:

- Why do we do this?
**Personae**

**Answer:** Narrative detail is *generative*

* It helps you *generate* design ideas based on your experience
* helps you *anticipate* user needs and wants
* With multiple personae, you can cover a *range* of user backgrounds
UI Design Cycle

Design

Prototype

Evaluate
Why do we do this?

Design

Prototype

Evaluate
UI Design cycle

A: We can’t model human behavior well enough to predict UI performance.

Evaluation allows us to measure performance, and highlights weaknesses.

Rapid prototyping allows us to complete more iterations, and achieve better designs.
Contextual Inquiry

- Select some representative tasks.
- Interview using Master-Apprentice model.
- Watch for critical incidents, take notes.
Contextual Inquiry

Why do we do things this way?
Human Learning

1. Piaget and Vygotsky – Constructivism and social learning
2. ZPD – Zone of Proximal Development
3. Facilitating Transfer
4. Meta-cognition
The Task Analysis Questions

1. Who is going to use system?
2. What tasks do they now perform?
3. What tasks are desired?
4. How are the tasks learned?
5. Where are the tasks performed?
6. What’s the relationship between user & data?
Task Analysis Questions (cont.)

7. What other tools does the customer have?
8. How do customers communicate with each other?
9. How often are the tasks performed?
10. What are the time constraints on the tasks?
11. What happens when things go wrong?
Rapid Prototyping

- Support fast iterations, encourage changes.
- Low fidelity techniques
  - paper sketches
  - cut, copy, paste
  - video segments
- UI builders
  - Fusion, NeXT, Visual Café, Denim,…
Teams

- Teams: common purpose, mutual accountability.
- Smaller is better (3-10 is ideal).
- Positive conflict helps creativity.
- Short-term goals help motivation.
Budget usability methods

- Scenarios.
- Simplified thinking aloud.
- Heuristic evaluation **:
  * Based on real user studies.
  * “Top-10” list of bugs.
  * Add severity/cost ratings.
  * Use ~5 evaluators.
Human models

- Model Human Processor.
- Fitt's law.
- Memory model.
Human models

- What are some limitations of cognitive models?

- What are they useful for?
Cognitive models

- Structural vs. Functional models.

- Metaphors (e.g. desktop).

- Other Cognitive Models.
Cognitive models

- Contrast cognitive models with metaphors.

- Give an example of a system with a clean cognitive model that is not a metaphor.
Break


- Final exam time is Monday Dec 20th from 8-11am in 105 Northgate. Review sessions as per Scott’s email.

- Final presentations in reverse order 10,9,8,...
Model-View-Controller

- Architecture for interactive apps
  - introduced by Smalltalk developers at PARC
- Partitions application in a way that is
  - scalable
  - maintainable
Model-View-Controller

Should there be the same number of views and controllers?
Aesthetic Principles

- Simplicity
- Scale, Contrast, Proportion
- Organization and Visual Structure
- Grid-based Design
Design Patterns

- Originated in architecture (Alexander).
- Codify design knowledge, include problem, solution, and context.
- Well-matched to iterative design. Why?
Quantitative Evaluation

- Used to measure differences (b/w UIs).
- Dependent and independent variables.
- Within vs. Between subjects experiments.
- Q: which is better with few subjects?
Social Psychology

- Mere presence influences speed, error rates, improves well-learned tasks.
- Attributions of behavior have an actor-observer effect.
- Groups influence our perception of self and others through norms (reference groups).
CSCW

- Asynchronous groupware: email, etc.
- Synchronous groupware: video, audio, ...
- Issues with videoconferencing.
- Face-to-face vs. email.
- Grudin’s 8 challenges for CSCW.
Information design and viz.

- Information tasks (4).
- OAI model, action/object hierarchies.
- 4-phase search pattern.
- Viz techniques:
  * 2D projection: MDS
  * Focus+Context
  * 3D viz
Error Handling

- Error recovery is a "normal" process.

- Types of errors: slips and mistakes; Capture and description errors.

- Five responses to errors: Gag, warn etc.

- Recovery.
Help systems

- 4 Types of help:
  * quick reference, task-oriented, full explanation, tutorial
- Minimalist help systems.
- Adaptive help - user modeling - knowledge representation.
- Design/implementation issues.
Multimodal systems

- Multi-modal systems provide advantages in certain environments and for certain users.

- Speech and pointing are complementary.

- Early vs. late fusion, advantages/disadvantages.
That's it!

Remember to study “forwards” as well as “backwards”: i.e. “where will I use these ideas again?”
That’s it!