Activity Design

CS 3724
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Problem scenarios:
work from current practice to build new ideas

Activity design scenarios:
transform current activities to use new design ideas

Goal: work from problems and opportunities of problem domain to envision new activities

- Transform old activities to new activities that use technology
- Focus on system “what” not “how”
  - “conceptual design”, “task-level design”
- Focus on improvements
- Iterative

An Example

- Goal: design a universal remote control
- Measure use of remote controls and functionalities
- Mathematically determine which remote and which function might be next
- Automatically perform it with a touch of a button

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Analyse

Problem scenarios

Activity scenarios

Information scenarios

Interaction scenarios

Design

Derivative analysis of usability claims and re-design

Usability specifications

Prototype & Evaluate

Formative evaluation

Summative evaluation

Analysis of stakeholders, field studies

- metaphors, information technology, HCI theory, guidelines

Claims about current practice

Iterative analysis of usability claims and re-design
From Requirements to Design

- Requirements analysis sets the scene
- Design transforms people’s activities
  - New technology, new tasks, new experiences
  - And the cycle continues...

The Two Faces of HCI Design

Activity Design

- Emphasizes broad scope of what is being designed
- Establishes and maintains usage context
- Also referred to as conceptual design or task-level design
Why System Functionality First?
- Designers can focus on what a system will do
- Postpone the “how” question until later
- Hard to analyze UI needs without knowing what a system will do
- UI difficulties can destroy a system’s usability

Envisioning New Activities
- Three activity design concerns to keep in mind:
  - Effectiveness: Designing tasks that meet real needs
  - Comprehension: Designing concepts and services that your users can predict, understand
  - Satisfaction: Designing tasks that are motivating and lead to feelings of accomplishment, satisfaction

Designing for Effectiveness
- Innovation is good, but how much is too much?
  - Build on what is already working well
  - Engage stakeholders in cooperative design
- What parts of a task to support via technology?
  - Leverage other aspects of the work context, both people and things (distributed cognition)
- Balance tendency toward general solutions with the needs of specific tasks
  - Predict and support exceptions, provide special cases for common or critical tasks

Designing for Comprehension
- Cannot directly observe comprehension
  - Must rely on users’ behaviors, reactions, comments
  - Make inferences about their mental models
- Metaphors play a crucial role in this
  - Designers explore metaphors to get new ideas
  - Users evoke metaphors to understand new concepts
- Try to leverage users’ existing knowledge
  - Anticipate and support analogical reasoning
  - But look for ways to “break” current understandings
Designing for Satisfaction

- Automate tedious tasks, but try not to remove sources of reward or accomplishment
- Carefully examine sources of reward, maintain or enhance opportunities for feelings of achievement
- Use the computer to make tasks more personal, more stimulating, more “fun”
- Balance the needs of individuals with those of the groups they work with
- The people who do the most “work” when using a system may not be those who get the most “benefit”

Refining an Activity Design

- Ongoing claims analysis of activity scenarios
  - Capture key ideas, begin to build design rationale
  - Document problems to address during UI design
- Participatory design
  - Brainstorming sessions with stakeholders
  - Share rough ideas, get them to elaborate (metaphors can be very useful here as well)
- Consistency and coherence
  - Reuse actors and objects to increase coherence
  - Complement with ongoing “what if?” reasoning to expand and test the overall design
**Grocery Shopping - problem**

- Soccer mom:
  - Screaming kids
  - Browsing strategy
  - Search strategy
  - Weekly repeats

- Shopping cart:
  - + 1 slot for 1 kid
  - + Pile stuff, big stuff underneath
  - > 1 kid?
  - - Have to push

**Grocery shopping - metaphors**

- Pizza delivery
  - + stay home
  - - no browsing

**Grocery shopping - activity scenario**

- Online grocery
- Soccer mom:
  - Puts screaming kids outside
  - Repeating purchases, template
  - Search items quickly
  - Linked recommendations: beer + diapers
  - Browsing?