IPM 10/11 – T1.5
Iterative HCI Design Process

Licenciatura em Ciência de Computadores

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Summary

- Evaluation as the key to good design.
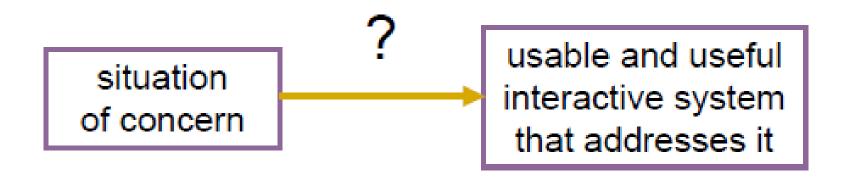- Iterative HCI Design
- Design Methods
- Stakeholders

Review
Conceptual models: **Learning goals**

- People have "**mental models**" of how things work
- We **build** our conceptual models from **many things**, inc**:**
  - affordances
  - causality
  - constraints
  - mapping
  - positive transfer
  - population stereotypes/cultural standards
  - instructions
  - interactions (inc. w/ other people)
  - familiarity with similar devices (positive transfer)
- Models **may be wrong,** esp. if attributes are misleading
- Models allow us to **mentally simulate** device operation
- The designer has control over the **system image**
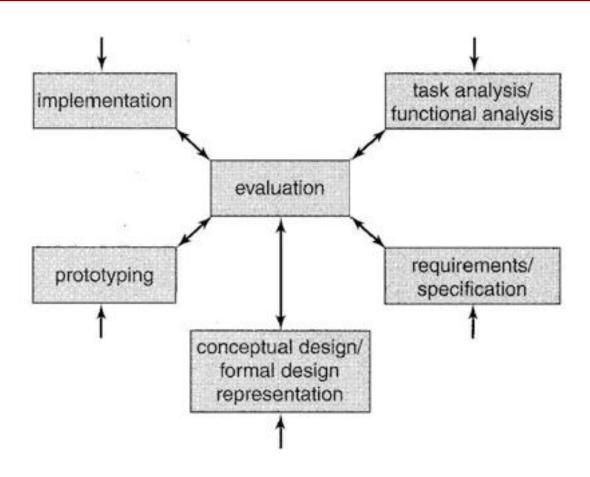
Design Process

situation of concern → **?** → usable and useful interactive system that addresses it

Different design process models have been proposed

Who and what are these models for?
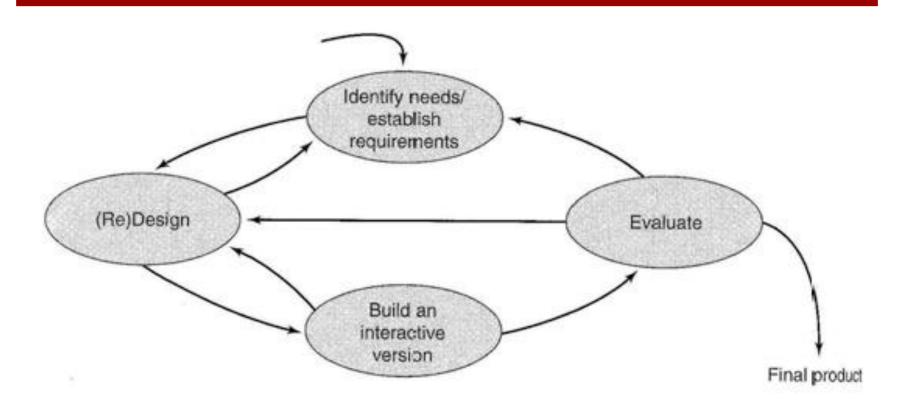
"Star" lifecycle model

Star lifecycle model

- Does not specify any **ordering of activities**
- Activities highly **interconnected** – can move from any activity to any other, but must always **first go through evaluation**

  -> Evaluation is central to model

- Flexible start point:
  – Requirements gathering
  – Evaluating an existing situation
  – Analyzing existing tasks, etc.

Simple interaction design model

Interaction Design: Beyond Human Computer Interaction
Preece, Rogers & Sharpe, 2002

Four components

1. **Identify needs/establish requirements:**
   – Core to design process – know thy user!
2. **Developing alternative designs**
   – Includes both conceptual design and physical design
3. **Building interactive versions of the designs**
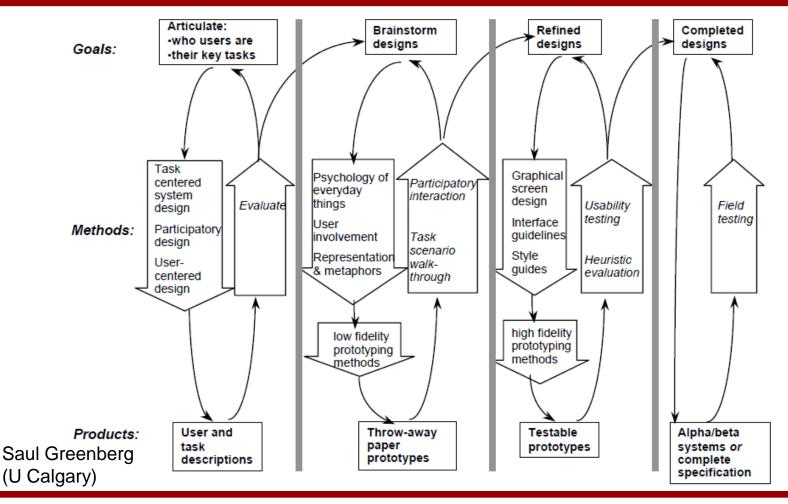   – Not necessarily software: create prototypes (including simple mock-ups) that can be evaluated by users
4. **Evaluating designs**
   – Ideally involving users at every stage, feeding evaluations back into the design process
   – Much easier to do if clear usability and user experience goals have been identified up front

Interface Design and Usability Engineering

Saul Greenberg
(U Calgary)

Some comparisons of the models

- Models
  - Descriptive vs. prescriptive
  - Flexible vs. rigid
  - Abstract vs. concrete
  - Level of detail of activities

All models begin with
  - Identifying the users, and
  - Establishing their needs/requirements

"Users": more broadly, Stakeholders

Bowing to reality

- What makes it hard to follow the "ideal" process?
  - Deadlines
  - Budget
  - Access to appropriate users
  - Involvement late in design cycle
  - Valuation of HCI input by other parts of the organization

What do you do then?

Stakeholders

Stakeholder = anyone who has some reason to care about the interface
- Can be lots of them!
- Needs may conflict

- User: convenience, functionality, …
- Boss: price, worker efficiency
- Developer: ease of development - deadlines, budget
- Manufacturer: cost of production
- Advertiser: visibility
- … more

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How to figure out who your stakeholders are

- Who will ask for it?
- Who will use it?
- Who will decide whether to use it (or if someone else will use it?)
- Who will pay for it?
- Who has to make (design / build) it ?
- Who has to make a profit from it?
- Who will otherwise make your life miserable if they don't like it?
- ???

roadmap to evaluation types

pre-design

ethnography

interviews, focus groups

questionnaires, surveys

early design

interviews, focus groups, observation

questionnaires, surveys

contextual inquiry & work modeling

task analysis, task / cognitive walkthroughs

participatory design

heuristic evaluation

mid-late design

observation, interviews, questionnaires *using advanced prototototypes*

heuristic evaluation

formal performance / usability testing

→ *evaluation material (prototype) evolves* →

pre design   **early design**   **mid-late design**

Goals:

| Articulate:
 •who users are
 •their key tasks | Brainstorm designs | Refined designs | Completed designs |

Methods:

Task centered system design

Participatory design

User-centered design

Evaluate

Psychology of everyday things

User involvement

Representation & metaphors

Participatory interaction

Task / Cognitive scenario walk-through

Graphical screen design

Interface guidelines

Style guides

Usability testing

Heuristic evaluation

Field testing

low fidelity prototyping methods

high fidelity prototyping methods

Products:

| User and task descriptions | Throw-away paper prototypes | Testable prototypes | Alpha/beta systems *or* complete specification |

Points on which methods vary

No users ↔ Users as subjects ↔ Users as design partners

early design ↔ late design
individual users ↔ users in groups
structured ↔ unstructured
focused on user ↔ focused on task
performance ↔ subjective impressions
…

Important things for today

- Design is an iterative process
  - Evaluation is key!
- There are several HCI design models
  - Choose one? Adapt one?
- Identifying stakeholders
  - Vital since they are the ones that **care**.

Next: Evaluation methods

Resources

1. Kellogg S. Booth, Introduction to HCI Methods, University of British Columbia, Canada
http://www.ugrad.cs.ubc.ca/~current-term/