Design Thinking

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“Cognitive Engineering” (Don Norman, 1986)

Psychological versus physical variables

“Mental models”
- Design model
- User's model
- System image

Tradeoffs (e.g. info vs. time)

Separate the system and interface

Start with user's needs
Design Thinking

- Inspiration
  - Expect Success: Build implementation resources into your plan
    - What's the business problem? Where's the opportunity? What has changed (or soon may change)?
    - Look at the world. Observe what people do, how they think, what they need and want.
  - Build implementation resources into your plan
    - Involve many disciplines from the start (e.g., engineering & marketing).
    - Pay close attention to "extreme" users such as children or the elderly.
    - Make a project team: where you can share insights, tell stories.
  - Make the case to the next project - repeat
    - Expect success: build implementation resources into your plan
  - Put customers in the midst of everything; describe their journeys.
  - Are valuable ideas, assets, and expertise hiding inside the business?
  - Organize information and synthesize possibilities (tell more stories!)

- Ideation
  - Brainstorm
    - Make many sketches, concept scenarios
  - Build creative frameworks (order out of chaos)
  - Tell more stories (they keep ideas alive)
  - Apply integrative thinking

- Implementation
  - Make the case to the business - spread the word
  - Help marketing design a communication strategy
  - Prototype some more, test with users, test intensely
  - Communicate internally - don’t work in the dark

- Execute the Vision
  - Engineer the experience
  - Move on to the next project - repeat
Some Usability Engineering Methods
Additional topics

Needfinding
Visual thinking
Brainstorming
Group processes
Wicked problems
Creativity
Affordances
Forcing functions
Design Exercise

Task: Redesign the daily class time schedule at Stanford

Current system problems:
- peak time crowding
- double scheduling

Specify your redesign
Note the problems it solves
Note its advantages and disadvantages with respect to the current schedule

Explain why it is better