Analyzing Existing Systems

Lecture 3: Media Computing Project

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Max Möllers

Where to evaluate: Lab

+ Equipment (A/V, see-through mirrors, special computers)

+ No disruptions, quiet

+ Controlled (no surprises)

− Natural environment missing

− Unnatural situation

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Where to evaluate: In the field

- Studies in the users' natural environment

  + More realistic (also *because* of disruptions)
  + Situations and behavior more natural
  + Better suited to long-term studies

  − Noise, task interruptions
  − Will still feel like a test situation

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Evaluation Techniques

Evaluating With Users

Qualitative

E5 Model Extraction

E6 Silent Observation

E7 Think Aloud

E8 Constructive Interaction

E9 Retrospective Testing

Quantitative

E10 Controlled Experiments

+ Interviews, questionnaires,...

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E5: Model Extraction

- Designer shows user prototype or screen shots
- User tries to explain elements and their function
- + Good to understand naïve user's conceptual model of the system
- − Bad to understand how the system is learned over time

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E6: Silent Observation

- Designer watches user in lab or in natural environment while working on one of the tasks

- No communication during observation

+ Helps discover big problems

− No understanding of decision process (that lead to problems) or user's mental model, opinions, or feelings

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E7: Think Aloud

Hmm, what does this do? I'll try it... Ooops, now what happened?

Saul Greenberg

- As E7, but user is asked to say aloud
  - What she thinks is happening (state)
  - What she is trying to achieve (goals)
  - Why she is doing something specific (actions)
- Most common method in industry
- + Good to get some insight into user's thinking, but:
  - − Talking is hard while focusing on a task
  - − Feels weird for most users to talk aloud
  - − Conscious talking can change behavior

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# E8: Constructive Interaction

- Two people work on a task together
    - Normal conversation is observed (and recorded)
    - More comfortable than Think Aloud
- Variant of this: Different partners
    - Semi-expert as "trainer", newbie as "student"
    - Student uses UI and asks, trainer answers
    - Good: Gives insight into mental models of beginner and advanced users at the same time!

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E9: Retrospective Testing

- Additional activity after an observation

- Subject and evaluator look at video recordings together,
user comments his actions retrospectively

- Good starting point for subsequent interview, avoids wrong memories

- Often results in concrete suggestions for improvement

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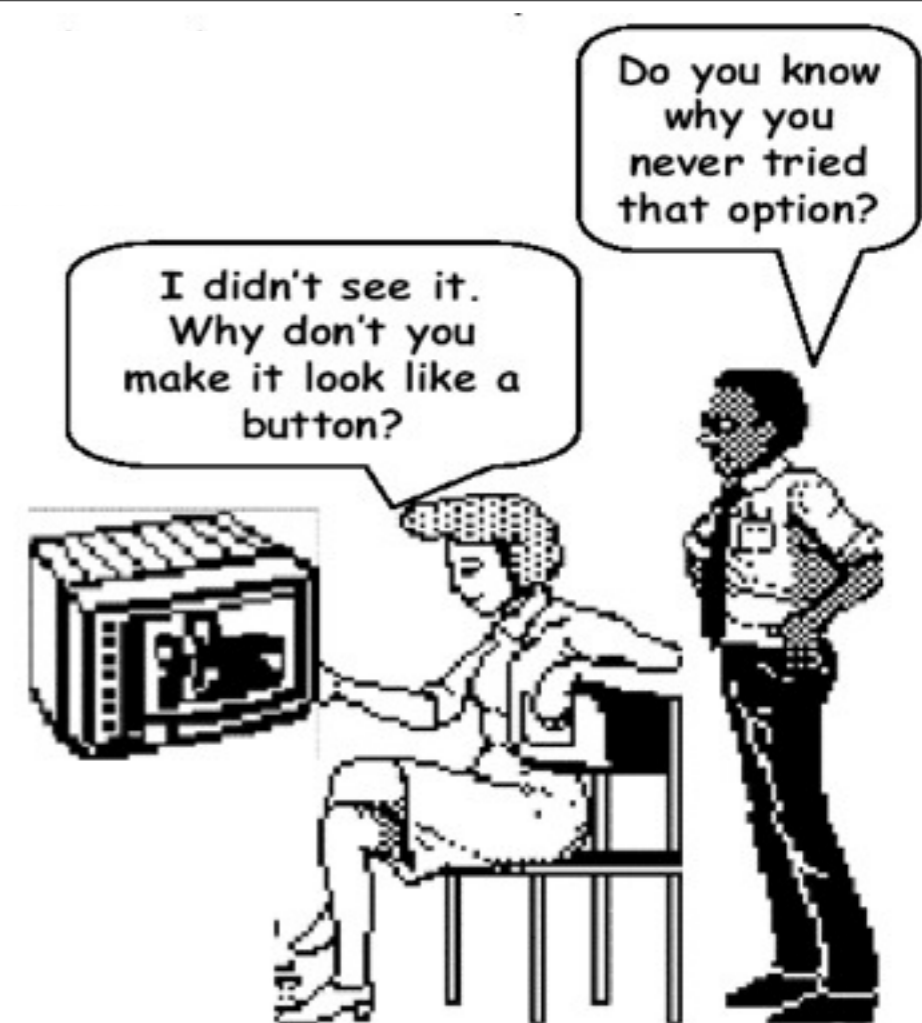
E10: Controlled Experiments

- Quantitative, empirical method

- Steps:

  - Formulate hypothesis

  - Design experiment, pick variable and fixed parameters

  - Choose subjects

  - Run experiment

  - Interpret results to accept or reject hypothesis

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Other evaluation methods

- Before and during the design, with users:

  - Questionnaires

  - Personal interviews

- After completing a project:

  - Email bug report forms

  - Hotlines

  - Retrospective interviews and questionnaires

  - Field observations
    (observe running system in real use)

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Assignment

- Conduct survey about the general usability of the existing system

- Perform user tests on at least 3 identified problems with at least 5 participants

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