Sketching

— Buxton, Sketching User Experiences

P. Lasseau. Graphic Thinking for Architects and Designers, 1980
Discount Usability Engineering

J. Nielsen

- Cost-cutting approach to evaluating usability “on the cheap”
  - Use lo-fi approaches
  - Sacrifice statistical significance (e.g., fewer participants)

Ingredients

- Scenarios reduce complexity
  - Horizontal prototype: Full UI with all features / reduced functionality
  - Vertical prototype: Partial UI with partial features / full functionality
  - Scenario: Partial features / partial functionality (whether on computer or on paper)
Discount Usability Engineering
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- Ingredients (cont.)
  - Simplified “Thinking aloud” protocol
    - Participant “thinks aloud” while using system
    - Experimenter takes notes instead of recording electronically for later analysis
  - Heuristic evaluation

Heuristic Evaluation
http://www.nngroup.com/articles/how-to-conduct-a-heuristic-evaluation/

- Evaluators (3–5) individually and systematically inspect the UI, comparing it with a set of general (and, optionally, domain-specific) evaluation heuristics
  - May need to document a specific task to evaluate and steps for performing it if evaluators are not familiar with the domain
  - Go through UI at least twice
  - Note each problem individually
- Observer may take notes
  - Eliminates note-taking burden for evaluator
  - Observer is similar to an experimenter, but
    - Records, rather than interprets (i.e., evaluator does the evaluation)
    - Provides help (especially if evaluator is not familiar with the domain)
Heuristic Evaluation

- Evaluators and observers may communicate afterwards, rate severity of problems found
  - Frequency of occurrence, user impact, persistence, market impact

- Evaluation heuristics
  - http://www.nngroup.com/articles/ten-usability-heuristics/
  - http://asktog.com/atc/principles-of-interaction-design/

Obtaining User Input

- During design ↔ After design
- In-person ↔ Remote
- Conscious user involvement ↔ Automated data gathering
Obtaining User Input: Interviews

- One-to-one (interviewer-to-interviewee)
  - Structured interview
    - Rigorously standardized questions and order
    - Easier to compare across participants
  - Semi-structured interview
    - Some questions planned in advance, but interviewer can develop new questions on the fly
    - Allows emphasis on interesting topics, exploration of unanticipated directions
  - Unstructured interview
    - Free-form

Obtaining User Input: Focus Groups

- One-to-many, several-to-many (moderator(s)-to-respondents)
  - Diversity of opinions, participants can feed off each other
  - Individuals can dominate or be intimidated
    - “We don’t do focus groups. They just ensure that you don’t offend anyone, and produce bland inoffensive products.”
      — Jony Ive, Apple CDO

http://www.pra.ca/en/focus-group-facility
http://www.macworld.com/article/1141509/jonathan_ive_london.html
Obtaining User Input: Surveys

- Document user demographics
  - Age, gender, experience, personality
- Capture subjective reactions to system
  - Likert scales (developed by psychologist Rensis Likert ["Lick-urt"])  
    | Strongly Agree | Agree | Undecided | Disagree | Strongly Disagree |
    |----------------|-------|-----------|----------|------------------|
    | Poor           | 1 2 3 | 4 5 6 7   |          |                  |
    | Excellent      |       |           |          |                  |
  
- Free-form comments

Typically use an odd number of choices to allow neutrality, but sometimes use an even number to cause forced choice.

Note potential problems of scale inversion and inconsistency with multiple questions

Treat as ordinal (not interval) data—can’t assume users consider values equidistant, but only that \( n+1 > n \). Note that middle is usually (but not always!) neutral.

Label text matters!
- Extremes
- Biases
- Label placement matters!

Example: QUIS (Questionnaire for User Interaction Satisfaction) [See S Table 5.1]

Overall reactions to the system:

- terribl e | wonderful
  | 1 2 3 4 5 6 7 8 9 | NA
- frustrating | satisfying
  | 1 2 3 4 5 6 7 8 9 | NA
- dull | stimulating
  | 1 2 3 4 5 6 7 8 9 | NA
- difficult | easy
  | 1 2 3 4 5 6 7 8 9 | NA
- ...

Feiner, COMS W4170, Fall 2018
Ethnographic Observation

- Observation of users, based on methods used by ethnographers in field studies of cultures
  - Understand users, tasks, tools, interactions
- Holistic approach
  - Observe in natural habitat (home or work)
  - May ask questions (interview), participate in activities
  - Acquire subjective/objective data
    - qualitative anecdotes ↔ quantitative reports
- Differences with classical ethnography
  - Shorter immersion periods (e.g., hours/days vs. weeks/months)
  - Culture is often closer to that of the observer
  - Emphasis on interface design, rather than cultural understanding

User-Centered Design (UCD)

- General name for design processes that place users’ needs at the forefront, from initial conception on…
- Consider users and involve users