Usability Testing as a User-Centered Design Tool

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User-Centered Design

- Not just adding steps to an existing process—really rethinking design!
- New priorities in allocating and timing use of resources
- Front-loaded, both in time and money
- Data-driven decision-making

How Do You Do User-Centered Design?

- You start with user-centered issues and questions.
- You seek answers in a form that will support making design decisions
- You use methods appropriate to your issues/questions and your point in the development process (early contextual inquiry; usability testing; etc.).

Most Common Method: Usability Testing

- "Testing" is wrong word—exploratory more often than evaluative
- Like all of UCD, issue-driven
- Scalable—from "discount" approaches to large validation exercises
- Watching the user DOING stuff—immersion in the task is critical!

Eight Major Steps in a Usability Test

- Define the issues you want to investigate: what are your biggest threats to success regarding usability?
- Recast your issues as "testable" questions and again as user tasks
- Define the audience group you want to look at and plan to recruit ~5-7 end-user participants who match the criteria

Eight Major Steps con’t.

- Design the details of the tasks and activities that the end-user participants will perform
- Design your strategy for data collection and decide on keywords (make sure your data really will answer your questions!)
- Design and prepare test materials
Eight Major Steps con’t.
- Conduct the usability test sessions
- Analyze the data and plan the revision

Steps 1 and 2: Define issues, recast as testable questions
- Issue
  - Are our icons intuitive?
  - Closer to testable question (exploratory)
    - When we specify an action in a task, do users choose the right icon? What happens when they try? What problems do they have?

Steps 1 and 2: Define issues, recast as testable questions
- Issue
  - Are our icons intuitive?
  - Closer to testable question (evaluative)
    - When we specify an action in a task, do users choose the right icon on the first try at least 80% of the time?

Exploratory vs. Evaluative?
- Exploratory=early design “test drive,” problem identification (usually qualitative)
- Evaluative=“hit the mark,” meet the interim or release criteria (usually quantitative)
- What do you need at this point?
- Combinations can be very effective

Think like a user!
- Issue
  - Should our design include a tool bar?
  - Closer to testable question
    - Ask from user’s point of view:
      - What advantage to the user does a tool bar provide?
      - Then you can ask if the user gains that advantage

Example
- What advantage to users does a tool bar provide?
  - Identify and locate the specific action choices they want to use (visible palette)
  - Work faster (one-click selection)
- Then you can ask if the user gains that advantage
Step 3: Define audience group(s) and recruit
- Too vague
  - novice
  - guru
  - faculty
- Better
  - has never used x software, features
  - spends x hrs/wk and uses at least half of these features regularly each week
  - doing research in known area, using new software

Steps 4 and 5: Define Tasks, Data Collection Strategy
- Example sequence: a table with two columns
- Start with issues, testable questions
  - Are our icons intuitive?: "When we specify a task, do users choose the right icon? What happens when they try? What problems do they have?"
- Add columns for evidence, tasks, type of data, recording form element or other form needed

Rolling Example
- Issue
  - Is our "fill" icon intuitive?
- Testable question
  - When we ask users to fill a shape, do they choose the right icon? What happens when they try? What problems, if any, do they have?

Rolling Example con’t.
- Testable question
  - When we ask users to fill a shape, do they choose the right icon? What happens when they try? What problems, if any, do they have?
- Evidence
  - Success or failure on the first try
  - Steps they take
  - Places they have trouble and why

Rolling Example con’t.
- Task
  - "You have created a new box. Now make the box polka-dotted."

Rolling Example con’t.
- Task
  - "You have created a new box. Now make the box polka-dotted."
- Type of data
  - Performance data (they do it on the first try or they don’t)
  - Description (actions they take)
  - Interview or questionnaire (getting at the "why")
**Rolling Example con’t.**
- Type of data:
  - Performance data (they do it on the first try or they don’t)
  - Description (actions they take)
  - Interview or questionnaire (getting at the “why”)
- Recording form element or instrument:
  - a form-fill-in that gives you the task name/number and lets you check off success/failure
  - Space for open-format note-taking
  - Interview script with space for open-format note-taking and/or questionnaire instrument

**Caveat!**
- Notice that your whole test design derives from the way you ask your question
- Be sure to ask the question you really need to answer in order to support design decisions

**Step 6: Design and Prepare Test Materials**
- Design user profile questionnaire, task list, props, data collection forms, and any other materials you need
- Take care!—Edit them, try them out
- Make the final versions look as professional as you can (face validity)

**Step 7: Run the Study**
- Follow your script; focus on user problems (NOT design solutions)
- Take notes, collect other data according to plan

**Step 8: Analyze the Data**
- Reserve time for rolling group data analysis
- As a group, plan the design revision

**Questions and Answers**
- Ask me questions
- Share your war stories