Cognitive Walkthrough

Discount formative evaluation technique for learnability

This material has been developed by Georgia Tech HCI faculty, and continues to evolve. Contributors include Gregory Abowd, Jim Foley, Diane Gromala, Elizabeth Mynatt, Jeff Pierce, Colin Potts, Chris Shaw, John Stasko, and Bruce Walker. Modified by Valerie Summet, 2011. Permission is granted to use with acknowledgement for non-profit purposes. Last revision: March 2011.
Agenda

Questions

Cognitive walkthrough
  Motivation
  Process
  Live exercise
Cognitive Walkthrough

- “Discount Evaluation Technique”
- Evaluates a design for ease of learning
  - especially via exploration
- Requires fairly detailed description of prototype
- Analogy to code walkthrough in software engineering
Caution

- Cognitive walkthrough originally developed by cognitive psychologists
- Assumes more cognitive psychology than any single computer scientist has.
  - Can lead to "muddling" through rationale and understanding of cognitive process
- Still a useful technique if conducted as a strong, diverse group.
CW Procedure

1. Define inputs
2. Walk through “action sequences” for task
3. Record critical information
   - believability story
Inputs

- Users
  - what knowledge & experience

- Prototype
  - Mockups, descriptions, etc
  - More detailed == better

- Interaction tasks

- Action sequences (scenarios) for tasks.
  - must know how interface looks for each step
Doing the walkthrough

• Idea: The participants (designers) walk through (discuss) the tasks with respect to the interface (mockups) and action sequences (scenarios); they try to tell a credible story.

• How?
  • Address each step of task sequence in turn
  • Formulate a believability story
    • answer 4 questions
Question 1

Will the user be trying to produce whatever effect the action has?

- Gets at user intention
- Principle of Rationality applies here
  - There is a reason why people do things
  - Will user intent match intent for action?
Common supporting evidence

- It is part of their original task.
- They have experience using the system.
- The system tells them to do it.
No supporting evidence?

- Construct a failure story.
  - Have reasons, not just “hunch”
  - Provide evidence.
Question 2

Will the user be able to notice that the correct action is available?
Common supporting evidence

- Known through experience
- Visible device/interaction, such as a button
- Visible representation of an action, such as a menu entry
Question 3

Once the user finds the correct action at the interface, will she know that it is the right one for the effect she is trying to produce?

- Note that this step relies heavily on knowledge of cognitive process.
Common supporting evidence

- Experience

- The interface provides a prompt or label that connects the action to what she is trying to do.

- All other actions look wrong.
Question 4

After the action is taken, will the user understand the feedback given?

- Two parts:
  - Will there be feedback?
  - Will feedback be linked to actions (from user perspective)?
Common supporting evidence

- Experience

- Recognizing a connection between a system response and what she was trying to do.
CW Process

- Record the critical information
  - Credible success or failure story
  - Assumptions (about task or user's experience)
  - Problems & suggested solutions
- Scribe or recorder who doesn't participate
Believability story

1. Will the user be trying to produce whatever effect the action has?
2. Will the user be able to notice that the correct action is available?
3. Once the user finds the correct action at the interface, will she know that it is the right one for the effect she is trying to produce?
4. After the action is taken, will the user understand the feedback given?
Live Example: Booking a Flight