

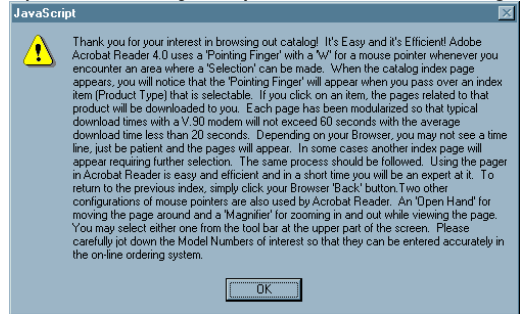
## Lecture 16: User Testing

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## UI Hall of Fame or Shame?

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If you can't read this, go to <http://uid.csail.mit.edu/6.831/L16.gif>



## Today's Topics

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- User testing
- Ethics
- Formative evaluation

## Kinds of User Tests

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- Formative evaluation
  - Find problems for next iteration of design
  - Evaluates prototype or implementation, in lab, on chosen tasks
  - Qualitative observations (usability problems)
- Field study
  - Find problems in context
  - Evaluates working implementation, in real context, on real tasks
  - Mostly qualitative observations
- Controlled experiment
  - Tests a hypothesis (e.g., interface X is faster than interface Y)
  - Evaluates working implementation, in controlled lab environment, on chosen tasks
  - Mostly quantitative observations (time, error rate, satisfaction)

## Ethics of User Testing

- Users are **human beings**
  - Human subjects have been seriously abused in the past
    - Nazi concentration camps
    - Tuskegee syphilis study
    - MIT Fernald School study: feeding radioactive isotopes to mentally retarded children
    - Yale electric shock study
  - Research involving user testing is now subject to close scrutiny
    - MIT Committee on Use of Humans as Experimental Subjects (COUHES) must approve research-related user studies

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## Pressures on a User

- Performance anxiety
- Feels like an intelligence test
- Comparing self with other subjects
- Feeling stupid in front of observers
- Competing with other subjects

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## Treat the User With Respect

- Time
  - Don't waste it
- Comfort
  - Make the user comfortable
- Informed consent
  - Inform the user as fully as possible
- Privacy
  - Preserve the user's privacy
- Control
  - The user can stop at any time

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## Before a Test

- Time
  - Pilot-test all materials and tasks
- Comfort
  - "We're testing the system; we're not testing you."
  - "Any difficulties you encounter are the system's fault. We need your help to find these problems."
- Privacy
  - "Your test results will be completely confidential."
- Information
  - Brief about purpose of study
  - Inform about audiotaping, videotaping, other observers
  - Answer any questions beforehand (unless biasing)
- Control
  - "You can stop at any time."

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## During the Test

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- Time
  - Eliminate unnecessary tasks
- Comfort
  - Calm, relaxed atmosphere
  - Take breaks in long session
  - Never act disappointed
  - Give tasks one at a time
  - First task should be easy, for an early success experience
- Privacy
  - User's boss shouldn't be watching
- Information
  - Answer questions (again, where they won't bias)
- Control
  - User can give up a task and go on to the next
  - User can quit entirely

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## After the Test

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- Comfort
  - Say what they've helped you do
- Information
  - Answer questions that you had to defer to avoid biasing the experiment
- Privacy
  - Don't publish user-identifying information
  - Don't show video or audio without user's permission

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## Formative Evaluation

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- Find some users
  - Should be representative of the target user class(es), based on user analysis
- Give each user some tasks
  - Should be representative of important tasks, based on task analysis
- Watch user do the tasks

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## Roles in Formative Evaluation

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- User
- Facilitator
- Observers

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## User's Role

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- User should think aloud
  - What they think is happening
  - What they're trying to do
  - Why they took an action
- Problems
  - Feels weird
  - Thinking aloud may alter behavior
  - Disrupts concentration
- Another approach: pairs of users
  - Two users working together are more likely to converse naturally
  - Also called co-discovery, constructive interaction

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## Facilitator's Role

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- Does the briefing
- Provides the tasks
- Coaches the user to think aloud by asking questions
  - "What are you thinking?"
  - "Why did you try that?"
- Controls the session and prevents interruptions by observers

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## Observer's Role

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- Be quiet!
  - Don't help, don't explain, don't point out mistakes
  - Sit on your hands if it helps
- Take notes
  - Watch for critical incidents: events that strongly affect task performance or satisfaction
  - Usually negative
    - Errors
    - Repeated attempts
    - Curses
  - May be positive
    - "Cool!"
    - "Oh, now I see."

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## Recording Observations

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- Pen & paper notes
  - Prepared forms can help
- Audio recording
  - For think-aloud
- Video recording
  - Usability labs often set up with two cameras, one for user's face, one for screen
  - User may be self-conscious
  - Good for closed-circuit view by observers in another room
  - Generates too much data
  - Retrospective testing: go back through the video with the user, discussing critical incidents
- Screen capture & event logging
  - Cheap and unobtrusive
  - Camtasia, CamStudio

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