CSE 403
Lecture 17

Usability Testing

Reading: *Don't Make Me Think!*
A Common Sense Approach to Web Usability
by S. Krug, Ch. 9-11

Handbook of Usability Testing, 2ed
by J. Rubin / D. Chisnell, Ch. 2-5

slides created by Marty Stepp
http://www.cs.washington.edu/403/

Usability testing

- **usability testing**: Evaluating a product by testing it on users.
  - usability has become a distinguishing factor for products (Apple)
  - focuses on individual usage, using the product to do something specific

- **focus group**: A group of people are asked about their perceptions, opinions, beliefs and attitudes towards a product, service, concept, advertisement, idea, or packaging.
  - focus group is a GROUP process; reactions; abstract; done early

Lack of usability testing

- Many companies don't usability test, or do it very little.
  - if done at all, often done with ~2 weeks left in development!

- Reasons given *not* to usability test:
  - not enough time
  - not enough money
  - no expertise in doing it
  - no lab or location in which to perform it
  - don't know how to interpret the results

- How do the authors respond to these criticisms?

Countering criticisms

- Why bother usability testing if we don't have time, money, or expertise to do very much of it?

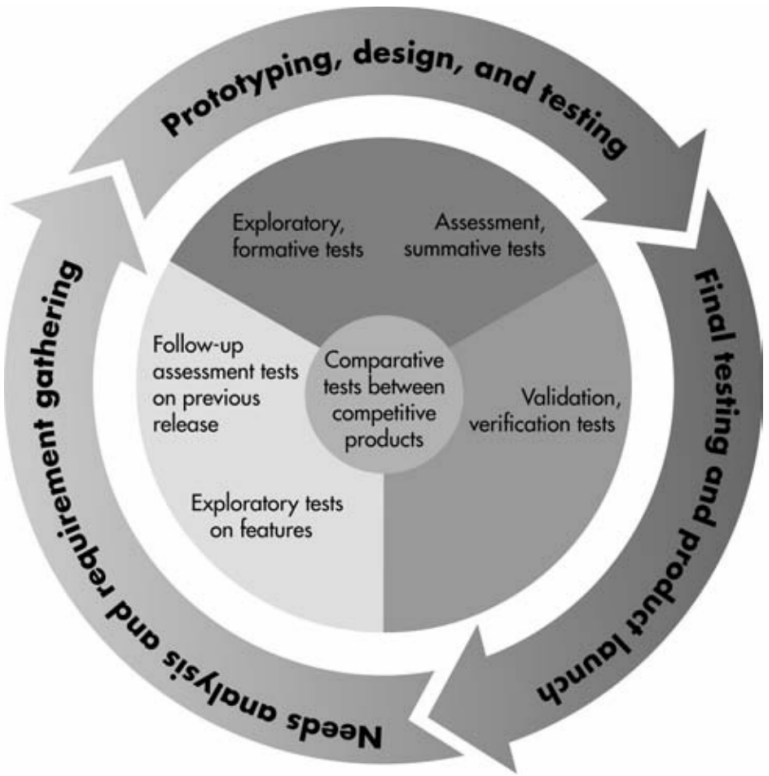
- Why can't the developers just test the product by using it themselves and seeing what does / doesn't work for them?
  - developer knows product too well; can't see it like a newbie
  - even limited testing is better than none
  - few early tests are better than many late tests
  - ideally, usability testing is iterative; done over and over

Inexpensive testing

	TRADITIONAL TESTING	LOST-OUR-LEASE TESTING
NUMBER OF USERS PER TEST	Usually eight or more to justify the set-up costs	Three or four
RECRUITING EFFORT	Select carefully to match target audience	Grab some people. Almost anybody who uses the Web will do.
WHERE TO TEST	A usability lab, with an observation room and a one-way mirror	Any office or conference room
WHO DOES THE TESTING	An experienced usability professional	Any reasonably patient human being
ADVANCE PLANNING	Tests have to be scheduled weeks in advance to reserve a usability lab and allow time for recruiting	Tests can be done almost any time, with little advance scheduling
PREPARATION	Draft, discuss, and revise a test protocol	Decide what you're going to show
WHAT/WHEN DO YOU TEST?	Unless you have a huge budget, put all your eggs in one basket and test once when the site is nearly complete	Run small tests continually throughout the development process
COST	$5,000 to $15,000 (or more)	About $300 (a $50 to $100 stipend for each user and $20 for three hours of videotape)
WHAT HAPPENS AFTERWARDS	A 20-page written report appears a week later, then the development team meets to decide what changes to make	Each observer writes one page of notes the day of the test. The development team can debrief the same day

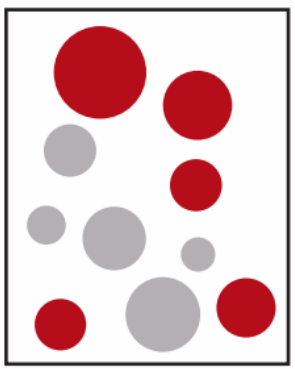
When to usability test?

- When should a usability test be performed?
  - best done **early** in the software lifecycle
  - best done **often** / repeatedly
  - type of test may vary depending on how far along the process you are
    - *early:* paper prototype
    - *middle:* compare UI designs
    - *later:* verify UI's usability
  - can keep a historical record of usability results for each test



Benefits of multiple tests

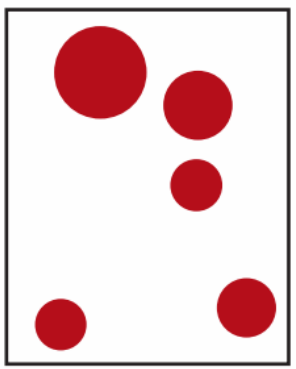
ONE TEST WITH 8 USERS



Eight users may find more problems in a single test.

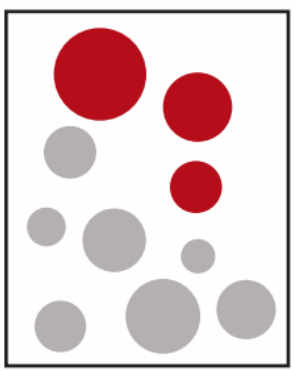
But the worst problems will usually keep them from getting far enough to encounter some others.

TOTAL PROBLEMS FOUND: 5



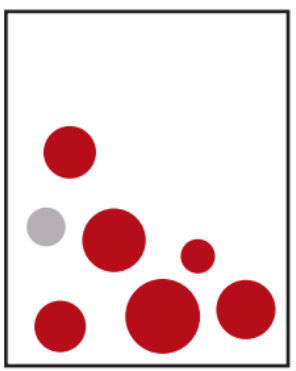
TWO TESTS WITH 3 USERS

First test



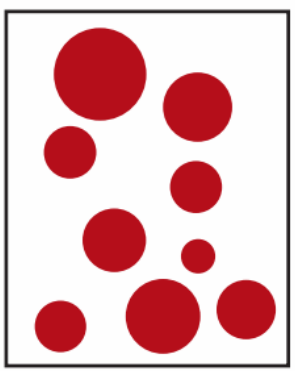
Three users may not find as many problems in a single test.

Second test



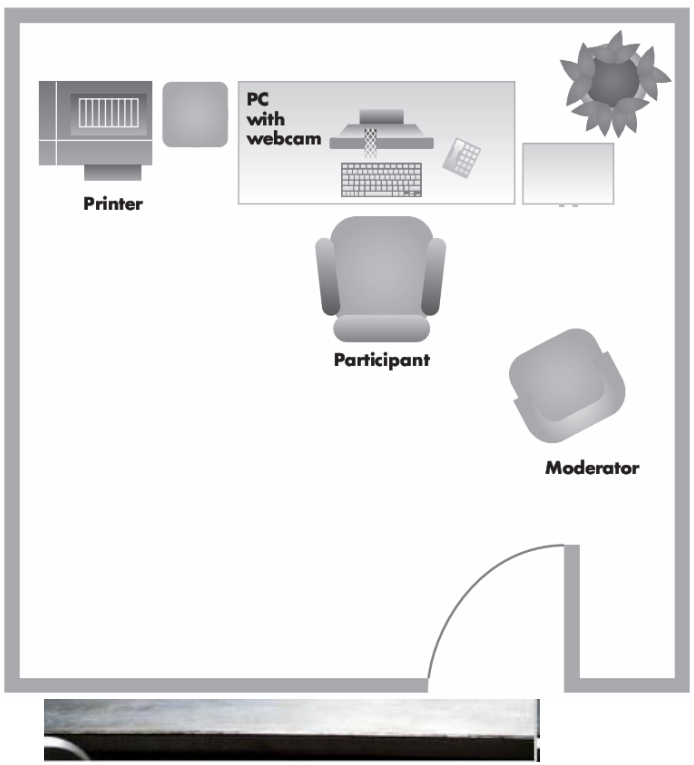
But in the second test, with the first set of problems fixed, they'll find problems they couldn't have seen in the first test.

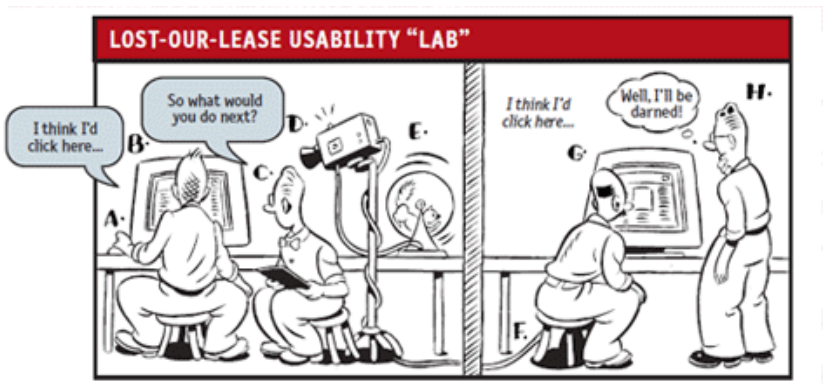
TOTAL PROBLEMS FOUND: 9



Usability study room setup

- preferred: a quiet room with a computer and 2-3 chairs
  - **participant** sits at computer and performs tasks w/ product
  - **moderator** / **facilitator** guides the user through the process
  - others on dev team observe user, either from the side or from another room (preferred)
    - web cam, one-way mirror, etc.
    - record the user and watch later





Identifying participants

- Can I make my mother test our app?
  Does it matter who the users are for a usability test?
  - An ideal test has at least 3-4 users who have not been told much about the app beforehand.
  - It doesn't matter much who you grab as your user; doesn't have to be just like a real user of the app.
  - Everyone's a beginner in a way.
  - It's bad to design a site that only experts can use.
  - Experts don't mind something simple enough for beginners, so testing with beginners is not bad.

  - UNLESS the app requires specific expert knowledge to use.

Facilitating a study

- Who is qualified to be a study facilitator? What things should / shouldn't a facilitator do?
  - Anybody with decent people skills can do it.
  - Be friendly.
  - Tell them it's okay to make mistakes; they aren't being tested.
  - Encourage them ask questions and to **think out loud**.
  - Don't lead the user or give them hints about what to do.
  - **Probe**; when they give feedback, ask for more details.
  - Don't appear to be concerned with note-taking or data gathering.
  - Don't be upset if the user fails or gets stuck.
  - Ask user questions when they get stuck.
    - "What are you thinking?" or "What are you trying to do now?"
  - *Tip:* Try taking the test yourself first.

Types of tests

- **"get it" testing**: Does user understand site's basic purpose?
  - "What do you think this page/site/app is about?"
  - "What do you think the ___ feature is for?"
  - Let them just click around for a while and play with the app.

- **"key task" testing**: Ask user to do a specific thing, and watch to see how they do.
  - "Your goal is to purchase a book about sailing for under $15."
  - "Change your buddy list preferences to block Amanda."

Another categorization

- **exploratory/formative** - high-level design concepts
  - Can user "walk up and use" it, and see value in the product?
- **assessment/summative** - lower-level operations (later)
  - user performs actual tasks, not vague goals; less moderated
- **comparison test** - match up different prototypes or designs
  - perf data are gathered for each design and compared
  - idea: test a competitor's site, see what they do/don't like
  - "best" design may turn out to be a hybrid of the available choices
- **verification test** - verifies that UI is okay or that a fix works
  - done with an actual product, not just a paper prototype
  - performance expectations are decided and measured

A usability test plan

	PLANNING	ROUGH SKETCHES	PAGE DESIGNS	PROTOTYPE	FIRST USABLE VERSION	"CUBICLE TESTS"
WHAT TO TEST	Competitors' sites	Sketch of Home page Names of top level categories and site features	Home page Second-level page template Content page template	As much as you have working	As much as you have working	Each unique page
FORMAT	Live site	Paper	Paper	HTML prototype	Live site	HTML page
HOW TO TEST	"Get it" Key tasks	"Get it" Names of things	"Get it" Basic navigation	"Get it" Key tasks	"Get it" Key tasks	Key tasks
WHAT YOU'RE LOOKING FOR	What do they like/love? How does it fit into their lives? What works well? How hard is it to do key tasks?	Do they get the point of the site? Does it seem like what they need?	Do they get the point of the site? Do they get the navigation? Can they guess where to find things?	Do they still get it? Can they accomplish the key tasks?	Do they still get it? Can they accomplish the key tasks?	Can they accomplish the key tasks?
SESSION LENGTH	1 hr.	15-20 min.	15-20 min.	45 min.-1hr.	1 hr.	5 min. per page
# OF TESTS	1	1-3	1-3	1-3	1-3	1 per page

Another usability test plan

1. type of test
2. purpose/goals/objectives
3. participant characteristics
4. task list

   (possibly have users try same tasks in different orders)
5. test environment / equipment
6. moderator's role
7. evaluation metrics and data to be collected
8. report

Observing a test

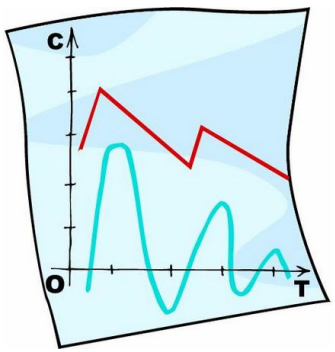
- Should be out of view/room if possible.
- What should observers look for?
  - Does the user "get it"?
  - Can they find their way around the site?
  - How long (time, number of clicks) does it take them?
  - Do they do any "head-slapping" or shocking things?
  - What do the users like and dislike most about the experience?
  - Watch what users do when they get stuck.
    - Do they look for help?
    - Do they re-read the page carefully?
    - Do they go back?
    - Do they just stop and look at the moderator?
    - Do they start wandering the app looking for the feature?

Gather and interpret data

- Observers write down usability test notes.
  - Team looks over notes and decides what to change.
  - *Tip:* Value the user's actions and explanations over opinions.
  - *Tip:* Don't always listen to user suggestions for new features.
  - It can be hard to figure out HOW to fix problems.
- Small changes (tweaks) are often better than huge changes.
  - Often removing or simplifying is better than adding.
  - First fix things that are easy or get the most bang for the buck.

Possible data to collect

- Number/percentage of:
  - tasks completed correctly with/without prompts or assistance
  - tasks completed incorrectly
- Count of:
  - incorrect selections (errors)
  - errors of omission
  - incorrect menu choices
  - incorrect icons selected
  - visits to the help file, index, table of contents, etc.
  - negative comments or mannerisms
- Time required to:
  - access information in online help
  - recover from error(s)
  - complete each task



Performance goals

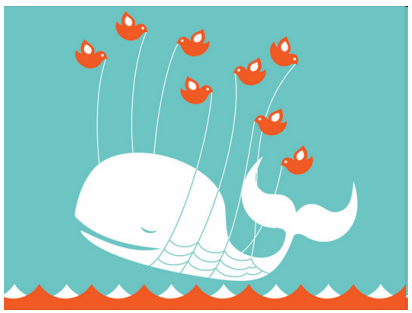
- Some tests have specific performance goals.
  - Decide **specific goals** you want users to achieve.
    - "At least 2/3 of users will be able to find and change their Network Settings in < 5 minutes."
    - "Every user will be able to find/use the navigation bar."
  - In these tests, moderator offers less guidance and fewer hints
  - Less emphasis on "thinking out loud"
    - Thinking out loud slows users down; they may not finish in time.
  - Alternatives to thinking out loud:
    - Replay steps with user after the test is over.
    - Get them to talk about what they did and why they did it.
    - Hook up electrodes to their brain and measure the current. (no)

Goals and objectives

- bad goals:
  - Is the product usable? *(too vague / nebulous)*
  - Is it ready for release? *(users can't determine that)*
  - Is this a good product? *(too subjective)*

- better goals:
  - Can users tell what is / isn't clickable?
  - Where do users go to search the site?
  - How easily do users find new products on the site to purchase?
  - Do users use the toolbar at the top of the screen?
  - What do users click to find help when they are stuck?

Users fail



- Typical ways users fail in usability tests:
  - Don't understand the point of the site.
  - They use different vocabulary than you, so they can't find a word for the action to do.
  - Their notion of how to categorize is different.
  - Site is too busy / cluttered.
  - Not clear what the options are on the screen.

- If user momentarily gets stuck or goes astray, that CAN be okay.
  - A "kayak" problem; the boat can right itself.
  - Give them a chance to temporary fail and then recover.

Limitations of usability tests

- Somewhat artificial
- Test results don't prove that a product/design/UI "works"
- Testing may not be the best use of your time.
  - Maybe have a usability expert look at it, to find gross violations.
- It's possible that a UI has an initial learning curve, but is then very powerful/usable. A usability test doesn't measure that.
- Doesn't tell you if the market wants/needs a product like yours.
  - A focus group or survey would be better for that.