I214 Conducting usability tests
Lab-based, remote, mobile

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UC Berkeley School of Information

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CONDUCTING LAB-BASED USABILITY TESTS

Method 1

Simple testing with mostly silent experimenter

Flickr photo © tripelle13

Method 2   Method 1 +
unobtrusive observation

1   1-way mirrors

2   Teleconferencing tools
(also good for remote)
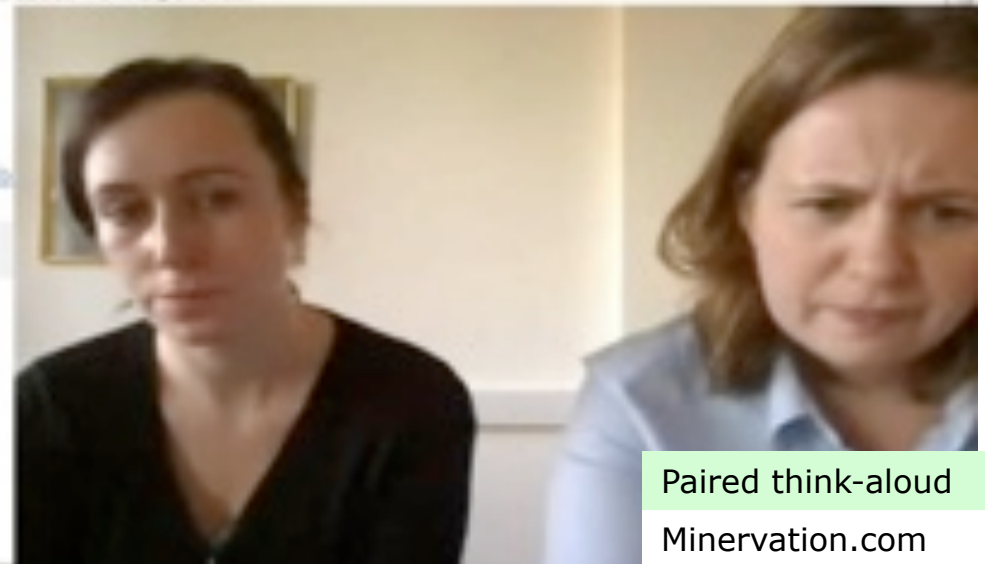
Paired think-aloud
Minervation.com

Method 3 Method 1 + Method 2 + Think-aloud protocol

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"Me Anto and George doing some usability testing in Accra Ghana"   Flickr photo © barbielynn_r

Method 4

Method 1 + Method 2 + Method 3 +

More relaxed observation and encouragement of participant comments during activity

…and… discount usability testing

Very few users – to try to find big problems fast

Expert evaluation – experts instead of users
Heuristics
Walk-throughs

What you record

Performance measures
Participants

System

Participants' behavior
Actions

Comments (from think-aloud)

Your own observations and interpretations
E.g., "several people seem to be confused at this point; they hesitate at this screen and then seem tentative in their choices"

Value of having same people conduct multiple tests: the experimenter as part of the data collection assemblage

Sample usability measures

Objective

Success
Time (is longer better or worse?)
Errors
Learnability
Number of steps, keystrokes,
    screens, etc.
Navigation/task sequence/
    efficiency

User Response

Ratings of:
    Frustration
    Satisfaction
    Enjoyment
    Ease of use
    Expectations
    Comparisons
Observations (verbal & nonverbal)
    Expressions of frustration etc.
    Expressions of pleasure etc.
    Instances of confusion
    Questions asked

Tester roles (if more than one person)

Monitor

Note-taker

Videographer (if necessary)

Time-keeper (if necessary)

Each person can perform only role at a time. Really.

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Tester deportment during test

Unobtrusive

Helpful in limited ways

> Assist when needed to keep participants on track
>
> Restrain yourself from helping otherwise

Respectful to participants

Relaxing...or at least, not anxiety-inducing

Skillful in deviating from the protocol

Data collection

Behavioral data

In-person observation, video, automated logs

Real time video, notes, screen capture, eye tracking, mouse tracking

From file transcribe and index videos

Participant reports

Interview

"Retrospective think-aloud" elicited by video or logs and more general responses

User questionnaire

(before and/or after)

Collect data from users as soon as possible after the test

The System Usability Scale

The SUS is a 10 item questionnaire with 5 response options.

1. I think that I would like to use this system frequently.
2. I found the system unnecessarily complex.
3. I thought the system was easy to use.
4. I think that I would need the support of a technical person to be able to use this system.
5. I found the various functions in this system were well integrated.
6. I thought there was too much inconsistency in this system.
7. I would imagine that most people would learn to use this system very quickly.
8. I found the system very cumbersome to use.
9. I felt very confident using the system.
10. I needed to learn a lot of things before I could get going with this system.

The SUS uses the following response format:

Strongly Disagree 1	2	3	4	Strongly Agree 5
○	○	○	○	○

http://www.measuringusability.com/sus.php

Picture-in-picture capture

Eye-tracking

Résultats de l'analyse d'eye tracking sur Facebook. © OneUpWeb

Résultats pour une recherche concernant Pepsi sur Facebook. © OneUpWeb

Mouse tracking as heat map

The problem of external validity

What are some potential limitations to classic lab-based usability testing?

Limits to classic usability testing

Unrepresentative conditions in lab

Unrepresentative tasks?

Limited to kinds of tasks amenable to testing

Short time period

Unrepresentative users?

Limited number, range of users

Often novice users (e.g., for a new interface)

Testing effects: people do their 'best' when being observed

Not authentically interested

Not tested at moment of interest

Limited observation opportunity

Can get at certain kinds of information and not others

Labor-intensive for researchers

Labor-intensive for users!

A very, very brief introduction to

REMOTE RESEARCH

Remote Testing

Experimenter and subjects not co-located

Moderated audio conversation with screen capture

Automated onscreen directions guide participant

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REMOTE RESEARCH
Real Users, Real Time, Real Research

Rosenfeld

by NATE BOLT and TONY TULATHIMUTTE

Remote research benefits

Makes "time-aware" recruiting possible

Access to larger number of people
Especially those who cannot travel to your site

Lower cost

No need for special facilities

Often results in an easy record of test

Problems with remote research

Challenges to observation and data collection
Non-verbal cues harder to observe
Less opportunity for interaction with participants

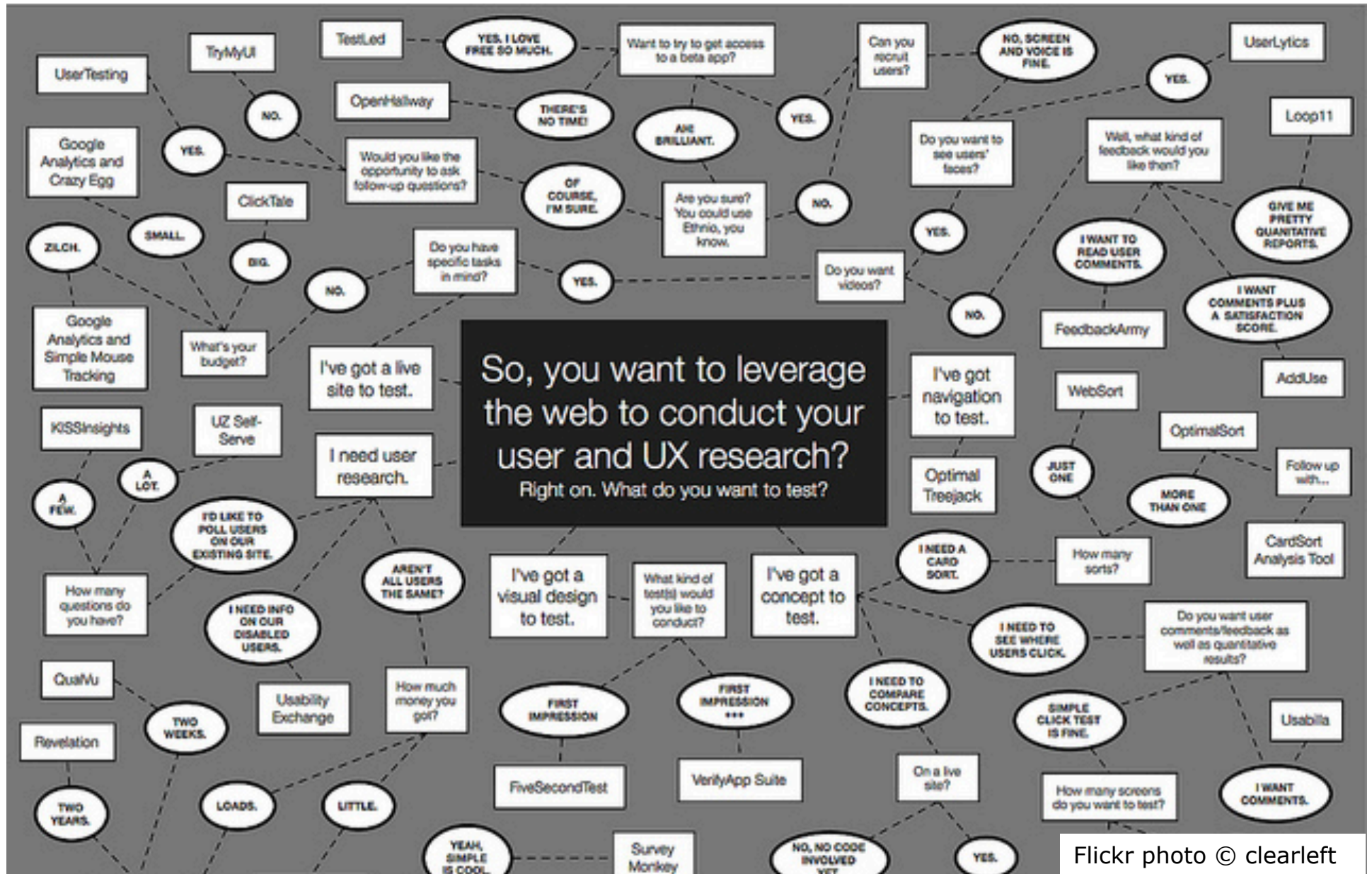## Less control over test conditions

Very technology-dependent
Recruiting and recording require special software
→ Can bias recruiting towards high-speed Internet users

Makes cross-cultural research seem deceptively easy

Why, FYI, I will not be discussing specific remote research tools in class

Remote UX tools

LEARN
Mobile
Automated
Moderated

JUST DO IT
Tools
Samples
Events

INFO
About
Ethnio

Remote Usability and UX Research Tools

Tools for doing functional, soulful user experience, interaction, and usability research. If it's related to behavior, it's on here. We've assembled this over the years from our own use, UX Booth, Liz Bacon's list, Craig Tomlin's list, and magic. None of these companies have paid us for this placement. Yell @ethnio or comment to get updated or placed. No guarantees.

Our Picks

This represents our workflow and the tools we use right now. We'd like to write about how we use them together. Soon.

Tool	Price	Participant Options	You Provide	How it Works	Deliverables
Silverback	free trial or $69 (10% goes towards saving gorillas!)		Tasks and instructions for ... +	Okay this isn't *technically* ... +	Quicktime video composite ... +
Ethnio	free - $299/month	Intercepts visitors to ...	Add JavaScript to whatever ...	"Ethnio worl displaying ...	

A work in progress:
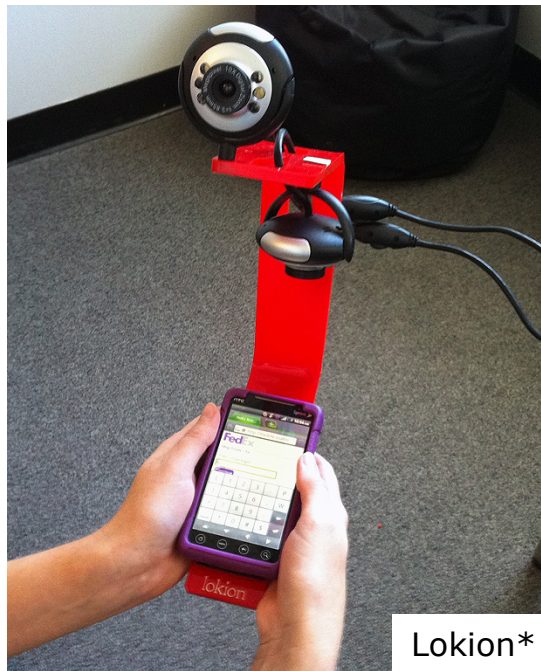
MOBILE USABILITY

The challenges

Screen capture
Gesture capture
Capture-on-the-go

Solutions for mobile devices in-lab

Suzanne Ginsburg

Test paper prototypes to catch big problems early

Lokion*

Screen + gesture video with a DIY "sled"

spsu.edu

Fixed-placement document camera

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* Instructions for making a similar rig at: http://www.lokion.com/nimble/mobile-usability-testing-open-source-evolution-call-to-action/.

PHLOY

Out of the lab: worth it?

Remember

Identify your purpose

Have a solid plan

Be flexible

Prepare test materials and setting

    Scripts for testers, monitors

    Tasks, scenarios, etc.

    Prototypes if needed

    Equipment

Pre-test
your testing plan

Pre-test
your analysis plan

Pre-test
your equipment

Oh, and one last question to consider:

Usability as inherent system quality vs emergent effect?

Cockton, Gilbert (2013): Usability Evaluation.
In: Soegaard, Mads and Dam, Rikke Friis (eds.). *The Encyclopedia of Human-Computer Interaction,* 2nd Ed.
http://www.interaction-design.org/encyclopedia/usability_evaluation.html

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Comparing the methods

	Internal validity	External validity	Tech required	Sample size
Lab-based	Easier to control	Often low – lab is not like everyday setting	Test platform and video camera	Medium
Remote	Hard to control	Medium→ high – users are where they are comfortable	Reliable, high-speed Internet. **Moderated only**: Audio connection. Screen sharing and capture software.	**Automated**: large **Moderated**: small-medium
Mobile	Depends on how test is run	Low in lab, high in field	"Sled" for video cameras	Small

Resources

Templates
http://www.usability.gov/templates/

Sample usability questionnaire
http://www.measuringusability.com/sus.php

Mobile usability sled
http://www.mrtappy.com/

Remote research tools
www.remoteresear.ch
http://www.flickr.com/photos/clearleft/4931570875/

Think-aloud protocols

Concurrent: during test
Paired: two participants talk to each other
Retrospective: after test