



HCI and Design

SPRING 2016

Topics for today

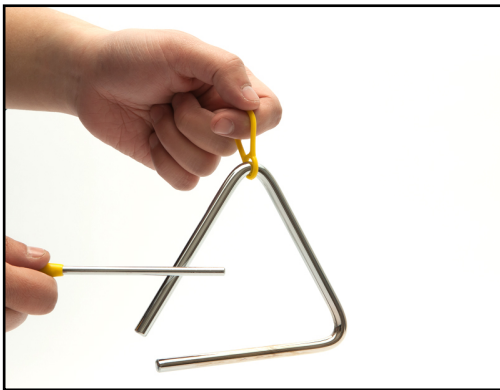
- What is usability?
- Lab-based usability studies

What is usability?

- ISO definition of usability:

"The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use."

- More than just “easy to use”.



vs.



Why do we care about usability?

What do you do if you go to a website that is difficult to use or confusing?

What do you do if you download an app that is confusing?

How much stuff would Amazon sell if people couldn't find the product they want?

(...you probably don't go and read the documentation)

Usability is important for everything: employee productivity, customer happiness, safety, making billions of dollars...

When to work on usability

DON'T WAIT until you have a completed design!

Consider usability at ***every stage*** of the design process.

Start early and iterate.

Usability *engineering* – part of the design process

Usability *testing* – evaluating a completed design

Usability tests are good for:

optimizing UI designs, work flows, understanding the voice of customer, understanding what customers really do.

Components of usability (Nielsen)

Learnability: How easy is it for users to accomplish basic tasks the first time they encounter the design?

Efficiency: Once users have learned the design, how quickly can they perform tasks?

Memorability: When users return after a period of not using it, how easily can they reestablish proficiency?

Errors: How many errors do users make, how severe are these errors, how easily can they recover from errors?

Satisfaction: How pleasant is it to use the design?

Utility: Does it do what users need?

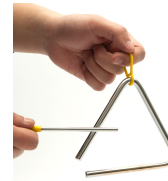
Learnability

One of the biggest objections to "usability" comes from people who fear that it will be used to create products with a low barrier to entry but that are not powerful enough for long, sustained use.

This is a big problem in HCI.

Keep in mind:

- Learning can go on for life of the product.
- People's willingness to learn depends on how much they need/want the product.



vs.



Efficiency

How quickly can people perform tasks?

- Metrics could be number of clicks, keystrokes, ‘time on task’, etc.

Important to define tasks from the user’s point of view (rather than what will make you or your product look good!)

- e.g., a search engine which gives out small snippets of information might appear to be very efficient if each retrieval is considered one task, but inefficient when the entire task of learning enough to answer a person’s question is considered.

Memorability

When users return after a period of not using it, how easily can they reestablish proficiency?

Make it easy to find things

Don't require people to remember anything

Take advantage of common practices/standards

Errors

Try to make errors impossible

Errors will happen!

- Product developers are human
- System failures, other disasters



So, make the design “error tolerant”

- Deal with errors gracefully
- Make it easy to recover from errors, easy to undo, give feedback, plan for the unexpected, don't blame the user, etc.

Satisfaction

- How pleasant is it to use the design?
- Increasingly important in today's techno-centric world
- Tradeoffs
 - Beauty, cost, functionality, human preferences/ differences



Usefulness

It's no good if something is usable but doesn't do what the user needs/wants

It's no good if the system can hypothetically do what the user wants, but they can't make it happen because it's too difficult to use

Utility + Usability = Useful

Lab-based usability testing

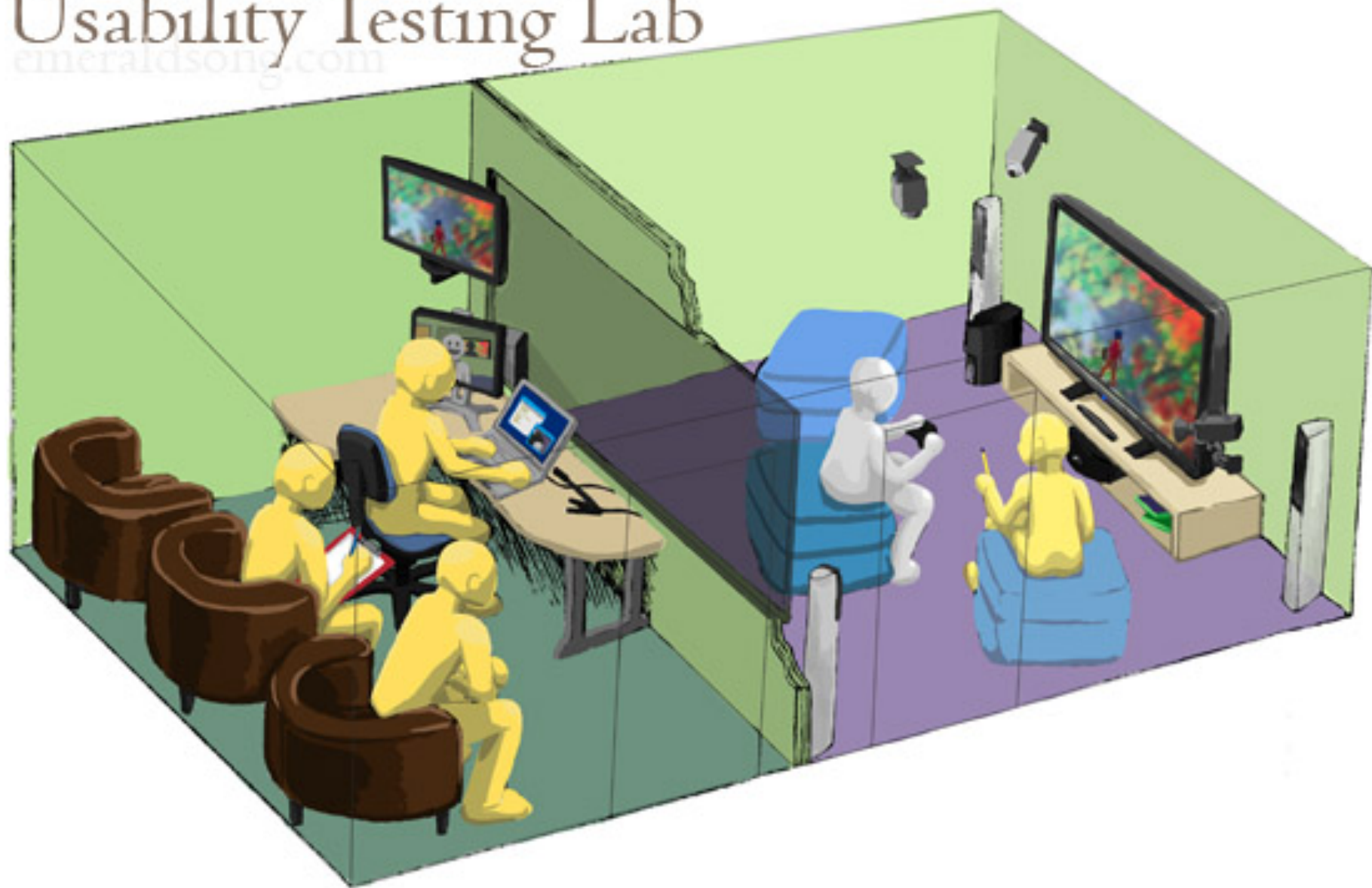
- Lab-based usability tests measure a user's ability to complete a task or set of tasks using a website/software/product.
- Each task has a specified goal, with specified effectiveness, efficiency and satisfaction.
- Tests can be conducted with live version of the product, beta versions, digital or paper prototypes.

Lab-based usability testing

- Tests are typically held in a specially-designed room called a **usability lab**
- The lab is split into two rooms that are divided by a one-way mirror
 - Allows observers to watch the test without being seen by the participant
- Tests are conducted by a UX expert + note taker(s).
- Key stakeholders (e.g., business owners, developers, engineers) observe
- Typically 8-12 participants are sufficient

Usability Testing Lab

emeraldsong.com



Lab-based usability testing

As the participant works, the note-takers and observers:

- Observe
- Take notes
- Measure task completion (success)
- Length of time it takes
- Different steps taken by the participant (e.g., clicks, keystrokes)
- Video record the session for later review and viewing by others

Moderators limit interactions to providing task instructions and prompting participant to explain their actions.

Moderators are non-judgmental!

Lab-based usability testing



Phases in a usability test:

1. Preparation
2. Conduct the test
3. Analyze the data
4. Follow up

1. Preparation

- Identify the specific tasks to test
 - e.g., *How easy it is for our customers to return product or request a replacement?*
- Create scenarios for the participant
 - e.g., *You ordered a camera from us. When you got the box it was missing a lens cap. You would like to contact the company for help. What do you do next?*
- Identify what success looks like
 - e.g. *found the correct page on the support site, followed the link, filled out a request, and hit submit.*
- Identify and recruit participants
 - e.g., *new users, existing users, people who shop at competitors sites etc.*
- Do dry runs with someone internal to test and refine your plan.

2. Conduct the test

- Welcome participants and orient them to the environment.
 - *“You are here at our company and there is a mirror and people are watching you and we are recording this and you can do no wrong so don’t worry and relax .”*
- Have participants read the tasks aloud. Make sure they understand the task / scenario.
- Ask participants to keep think aloud.
- Participants perform the tasks.
- Stakeholders pay attention, observe, take notes.
- The moderator can ask follow up questions to get more clarity
 - But be careful not to give out answers and watch your own verbal and non verbal clues
- Thank the participant and compensate them (if you can).

3. Analyze the data

- As soon as possible, debrief all observers
 - Share all thoughts, notes, and observations
- Come up with common trends and patterns
- Tally up successes and failures for each task
- Identify root causes for failures based on observations
 - *e.g., The Contact Us link was not apparent and hidden*
- Make recommendations to fix the problems
 - Focus on improving customer experience
 - Categorize recommendations into priorities
 - (e.g., urgent, important and nice to have)

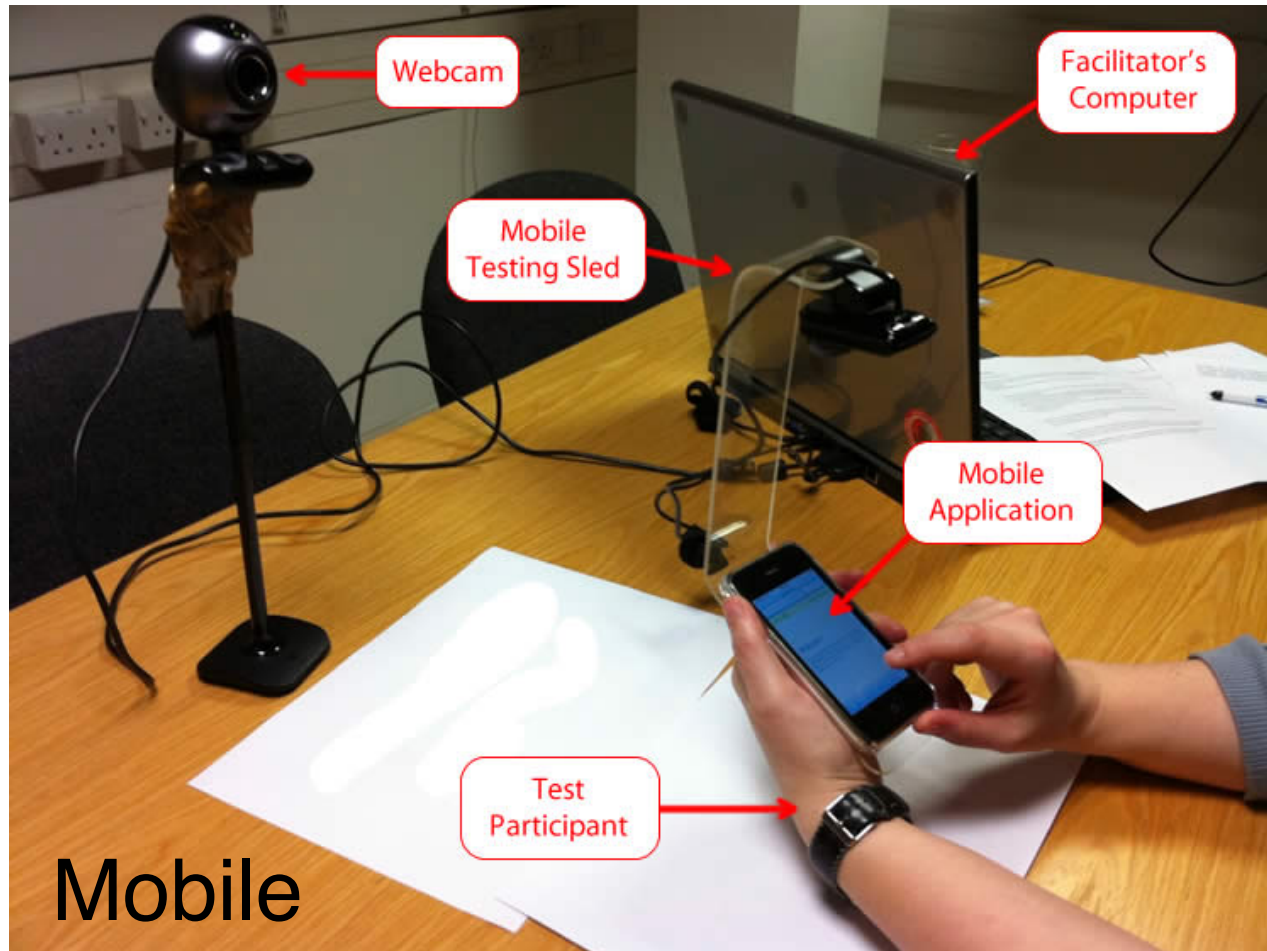
4. Follow-up

- Make sure the problems get fixed!
- Make sure the feedback is followed / incorporated
- Measure success post implementation:
 - What was the outcome?
 - Did you make more money?
 - Were customers satisfied?
 - Do you have lower abandonment rates?

Lab-based usability testing



Lab-based usability testing



Tips on lab usability tests

- Make sure you tell the participants that you are testing the website/product/software and NOT testing them.
 - People tend to blame themselves, stress it is not their fault.
- Don't rely on what people say, focus on their behavior
 - People often report experiences very different from how they experience them.
- Don't tell participants how to do something.
 - Try things “if this were at your home what would you do next?”
- Watch your body language
 - Don't give participants subtle clues.

Benefits of lab usability testing

Great at getting close to a customer, observing them, and interacting with them.

Great way to get customer feedback early in the process to identify big problems and save time, money, energy and sanity.

Great way to identify what is working and what is not.
Especially if you are completely stumped by your clickstream data (which happens a lot).

Great mechanism to generate ideas to solve customer problems.

Challenges with lab-based usability testing

Time consuming

Expensive

Small sample size

Target population may be difficult to find

There are alternatives... we will learn some...

Activity (in pairs)

Plan a lab-based usability test for a travel website

- Pick any popular (existing) travel website
- Identify specific task(s) to test
- Create scenarios for the participant
- Describe what you expect participants to do
- Identify what success looks like (i.e., metrics)
- Identify all the types data you would record/collect to measure success/failure
- Discuss how you would analyze the data into take-aways