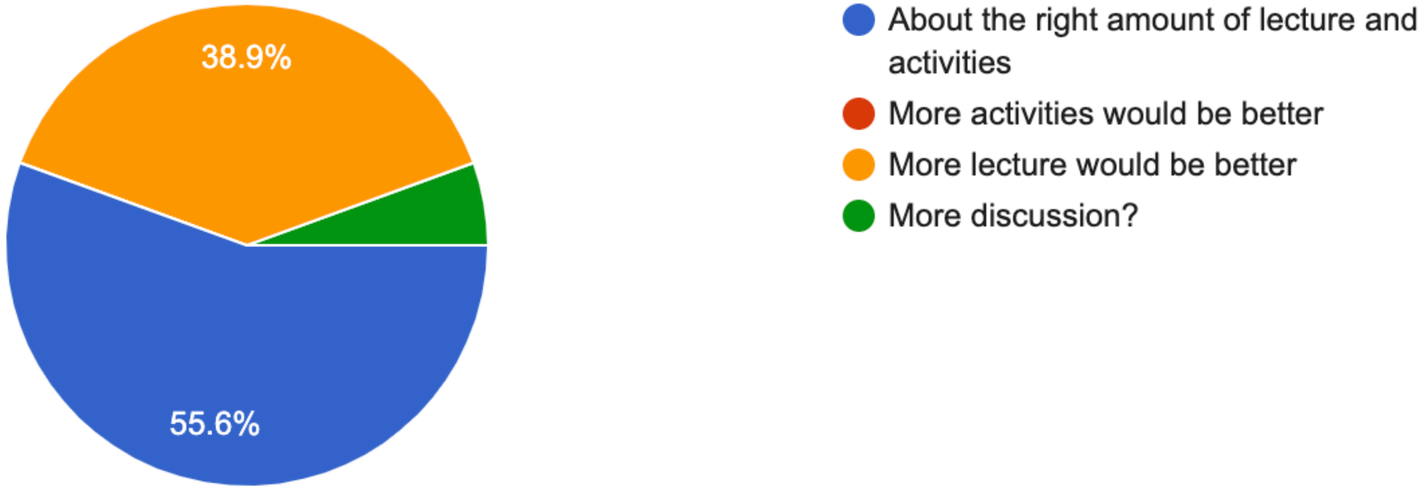
Qualitative Formative Research

Course Check-In



Other feedback…

Anything mentioned 2x or more makes it on the list…

- Loving:
  - Breaks :)
  - Breakout rooms
  - Discussions (both in and out of breakout rooms)
  - Takeaways from readings
- Not loving:
  - Longer or skimming readings
- Interested in having:
  - More idea of what other students in the class are working on
  - Discussion of what's happening in PL-HCI at Berkeley or inside scoop on a paper
    - Q: AMA? Paper + AMA? Brief tour through Berkeley faculty + AMA? Something else?

Other feedback…

Also: More structure around final, which we'll be building into the day-to-day from this point forward.

Discussion after lecture? We'll be playing around with this starting today, to see how it works.

Takeaways from readings…

User-Centered
language design
on easy mode

User-Centered
language design,
the full experience

User-Centered PL: Easy Mode

Motivation:
I think programming languages and programming tools are for humans. I want to make PLs that useful and usable. But I don't care about contributing to generalizable human-centered programming knowledge.

Approach:

- Before implementation, make slides or other documents showing worked examples for multiple approaches and discuss them with users. (Think what Andrew showed on Tuesday.)
- Throughout implementation, regular think-alouds with current prototype.

User-Centered PL: The Full Experience

Motivation:
I think programming languages and programming tools are for humans, and every part of my process from deciding what need to tackle to deciding how to tackle it to refining my PL will be driven by understanding users.

Approach:

- Contextual inquiry and ethnographic studies for need finding
- Formative studies and thorough prototyping (see prior slide, plus add the option of formal formative studies during prototyping)
- Usability studies play a role in evaluation

Qualitative Research Takeaways

…qualitative research helps us understand:

- Behaviors, attitudes, and aptitudes of potential product users
- Technical, business, and environmental contexts — the domain — of the product to be designed
- Vocabulary and other social aspects of the domain in question
- How existing products are used

About Face: The Essentials of Interaction Design, Cooper et al.

Qualitative Research Takeaways

To get the really exciting stuff from qualitative studies:

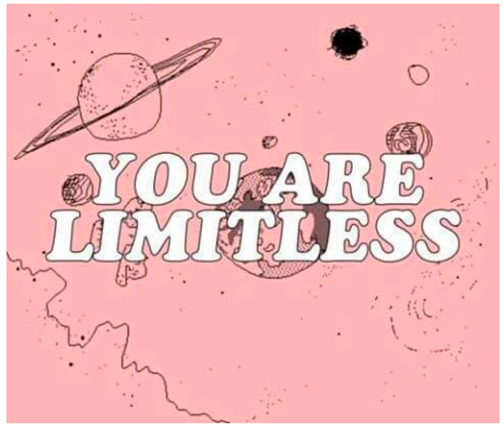
- Interview where the interaction happens
- Avoid a fixed set of questions
- Focus on goals first, tasks second
- Avoid making the user a designer
- Avoid discussions of technology
- Encourage storytelling
- Ask for a show and tell
- Avoid leading questions

About Face: The Essentials of Interaction Design, Cooper et al.

Qualitative Research Takeaways

You've already seen what you can learn from qualitative research in the context of need finding

But we're not limited to need finding activities!



Qualitative **Usability** Studies

…which brings us back to think-aloud studies

- Minimal planning — pick a task
- Easy and fast to run a session
- Useful at any stage of brainstorming or implementation
- Shockingly informative
- Shockingly persuasive to others

Qualitative Usability Studies

Already saw a lot of details on what this can look like in Andrew's talk, so we'll keep this light.

Usability testing is especially effective at determining:

- **Naming** — Do section/button labels make sense? Do certain words resonate better than others do?
- **Organization** — Is information grouped into meaningful categories? Are items located in the places customers might look for them?
- **First-time use and discoverability** — Are common items easy for new users to find? Are instructions clear? Are instructions necessary?
- **Effectiveness** — Can customers efficiently complete specific tasks? Are they making missteps? Where? How often?

About Face: The Essentials of Interaction Design, Cooper et al.

Qualitative Usability Studies

Programming languages, to the extent that they require even more time and effort to learn than traditional user interfaces, exacerbate some of the existing problems of usability studies (both qualitative and quantitative).

focused on assessing the first-time use of a product. It is often quite difficult (and always laborious) to measure how effective a solution is on its 50th use — in other words, for the most common target: the perpetual intermediate user. This is quite a conundrum when one is optimizing a design for intermediate or expert users. One technique for accomplishing this is the use of a *diary study*, in which subjects keep diaries detailing their interactions with the product. Again, Mike Kuniavsky provides

About Face: The Essentials of Interaction Design, Cooper et al.

Quantitative Formative Usability Studies

If you're thinking of going quantitative instead:

- Can you actually measure the thing you're trying to measure?
- Will the particular experiment you're planning succeed in measuring it?
- If you measure it successfully, will it actually help you improve your design?

If any "no"s, head back to qualitative.

Qualitative Usability Studies

Even though qualitative usability may be more flexible, easier for you to adapt in the moment, you don't completely escape the need to plan the design!

- Am I interacting with the right users?
- Do I know what kinds of information I'm seeking? (So that I can watch the right tasks, design the right tasks, ask the right questions?)

Personas Takeaways

- Personas are **based on research**
- Personas are represented as individual people
- Personas **represent groups of users**
- Personas explore ranges of behavior
- Personas must have motivations

> Personas are user models that are represented as specific, individual human beings. They are not actual people but are synthesized directly from observations of real people. One of the key elements that allow personas to be successful as user models is that they are *personifications*.[2] This is appropriate and effective because of the unique aspects of personas as user models: They engage the *empathy* of the design and development towards the human target of the design.

About Face: The Essentials of Interaction Design, Cooper et al.

Personas Takeaways

- What personas are and aren't
  - Many people will claim they're using personas. If someone tells you this, make sure they've actually done their research

- You've probably all used n = 1 personas when you've designed for your own preferences or the needs of a particular user you've discovered
  - This experience probably gives you a sense of why personas are so powerful and effective
  - But ideally we want n > 1 ! Thus the research that precedes persona creation

Final Project Chat!

IRB

If you intend to publish the findings from your interactions with users/potential users, bear in mind that the IRB approval process typically takes 2 weeks.

- Submit at: https://eprotocol.berkeley.edu/userLogin.do
- For support:
    - https://cphs.berkeley.edu/eprotocol_faqs.html
    - Slack—your fellow students are experts!
    - Me

For figuring out if you need IRB approval: https://cphs.berkeley.edu/review.html

- Scroll to “Activities that Generally Require Review” and “Activities that May Not Require Review”

IRB

Even if you do *not* intend to publish the findings from your interactions with users/potential users, make sure you've carefully analyzed any risks to your participants. **If you identify any risks higher than the risks of day-to-day computer use, please come talk to me.**

Roadmap

A roadmap for the next few class sessions:

- **Today/this week's HW**: coming up with the tasks that motivate your project
- **Tuesday**: building on those tasks, coming up with task walkthrough stories for 3 alternative designs
- **Thursday**: sharing Tuesday's output/design critique/getting to know what your classmates are up to!

Today

- If you're working alone…
- 5-10 minutes discussing how the lessons you've learned from the readings and from Andrew's guest lecture can shape your project
- **Today/this week's HW**: coming up with the tasks that motivate your project
- Brainstorm your tasks
- Start the writeup if you have time
- Call me over if there are elements of your final project design that you want to discuss!