Getting Started on a Research Project

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CS197 Section 3
Today

- Research Methods in HCI
- IRB for your Project
- Sections moving forward
- Activity
Research Methods in HCI
The High Level

- Quantitative: generate numerical data that can be used to answer a problem with statistics
- Qualitative: generate non-numerical data to understand reasons, opinions, motivations, etc.
- Systems and Design: creating a novel technical system as a problem solution or undergoing to design process to reframe a problem itself
Quantitative Methods
To Consider

- **Study population and sampling**: where did the data come from, how representative is the sample
- **Data collection**: how is the data gathered, what limitations exist in this data gathering method
  - Survey responses (e.g., Likert scales)
  - Lab study data (e.g., durations, counts, responses, etc.)
  - Usage analytics (e.g., daily active users)
- **Data analysis**: how did you process and analyze the data, what statistical methods did you use

A note on MTurk: We do have a *limited* MTurk budget (with strict oversight) for this course. Participants should be paid at a rate of $15/hr.

https://libguides.usc.edu/writingguide/quantitative
Example Method: Controlled Lab Study

- Controlled environment: everything stays the same except a single variable of interest
- Variations in data can be attributed to changes in that variable

Process:
- Study design and scripting: what do participants do, what the experimenter say
- Piloting to improve study design: what’s wrong with this initial procedure
- Data collection: determine a sample size and collect necessary data
- Data analysis: analyze data with appropriate statistical tools
Qualitative Methods
To Consider

- **Study population and sampling**: where did the data come from, how representative is the sample

- **Data collection**: how is the data gathered, what limitations exist in this data gathering method
  - Survey responses (e.g., short answer)
  - Interview data (structured, semi-structured, or unstructured format)
  - Observational data (e.g., annotations of actions, behaviors, etc.)

- **Data analysis**: how did you process and analyze the data (e.g., grounded theory)
Example Method: Grounded Theory

- Used to analyze interview, survey, observational, or other data
- Iteratively built from a question or hypothesis

Process:
- Interview/survey design and scripting: what questions to ask
- Piloting to improve design: what data is missing, what do participants misunderstand
- Data collection: collect necessary data
- Data analysis: continuously re-review and tag repeated main ideas with “codes,” group codes into concepts, group concepts into categories
When conducting and evaluation, your project team should:
- develop a procedure
- pilot that procedure
- collect data
- analyze data
Systems and Design
The process of developing a technical system as a research method in and of itself
- Creating a novel system to tackle an existing problem or show new capabilities of technology
- Often necessitates some process of design, development, and iteration
Design as Research

- combine models and theories with technical opportunities
- active process of ideating, iterating, and critiquing potential solutions to continually reframe the problem while attempting to make the “right” thing
- output: concrete problem framing and a series of artifacts that contributed to it—models, prototypes, products, and documentation of the design process

Zimmerman et al. 2008
IRB for your Project
To Do

● If your team wants to submit this project as a late-breaking work to CHI (deadline: January 6, 2020 at noon)

1) Come speak to me first

2) Email Adam F. Bailey, Non-medical IRB Manager (**afbailey@stanford.edu**) and CC me:
   ■ We are doing a class project for CS197
   ■ Our class project will involve human subjects because _____
   ■ Data collection needs to occur this quarter in order to complete the assignment on time
   ■ If the project goes well we may later choose to submit a poster to a conference, although the immediate goal of this work is completion of course assignments
   ■ Can we proceed with the project or should we set up a time for a call to discuss whether or not an IRB is needed for this work?
Sections Moving Forward
Section Format

- Each team will have 10ish minutes to give an update on their project
- Update will be based on the check-in assignment (submission of an update slide)
- Goal: get the feedback you need to keep making progress
Names of Team Members

Context: high level project goal

This week we...
- Did this cool thing
- Were working on that other thing
- Have been thinking about ABC
- Got stuck on XYZ

Next week we....
- Will finish that other thing
- Will start applying ABC

We need feedback on....
- How to best approach XYZ
Activity

(after any questions about Assignments 2 or 3)
Starting on Introductions

- One sentence bullet point outline (~10 min)
- Share outline w/ another group for feedback (~5 min)
- Give feedback (~5 min)