

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.

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 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

Systems

- 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

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 (afb Bailey@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

This is an image of the cool thing we did

This is an image of that thing we need feedback on

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)