

Lecture 2 - 3

Outline

- Readings discussion
- Introduction to qualitative research
 - Overview of observations, diary studies, field studies
 - Interviewing in detail
 - Interviews that are done incorrectly are lost data
 - Externalizing and analyzing data

Overall Impressions

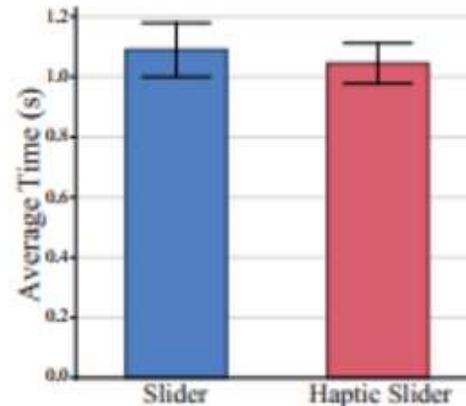
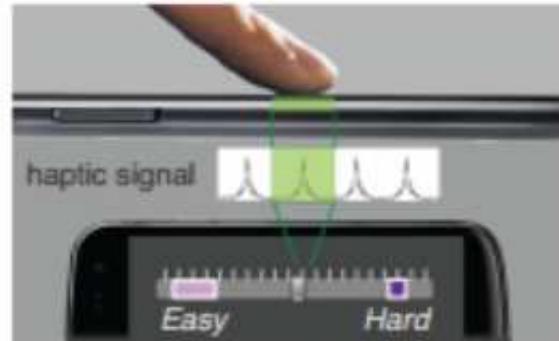
- Two very different papers
- Preferences:
 - Writing?
 - Topic?
 - Research depth?

Parallel Universes

- A note on alt.CHI papers ...
- Simulated running an experiment in multiple universes
 - Note: Really just ran the experiment eight times
 - Note: Actually just simulated the experiment eight times based on generic distribution of results drawn from a sample (see discussion).

Experimental Design

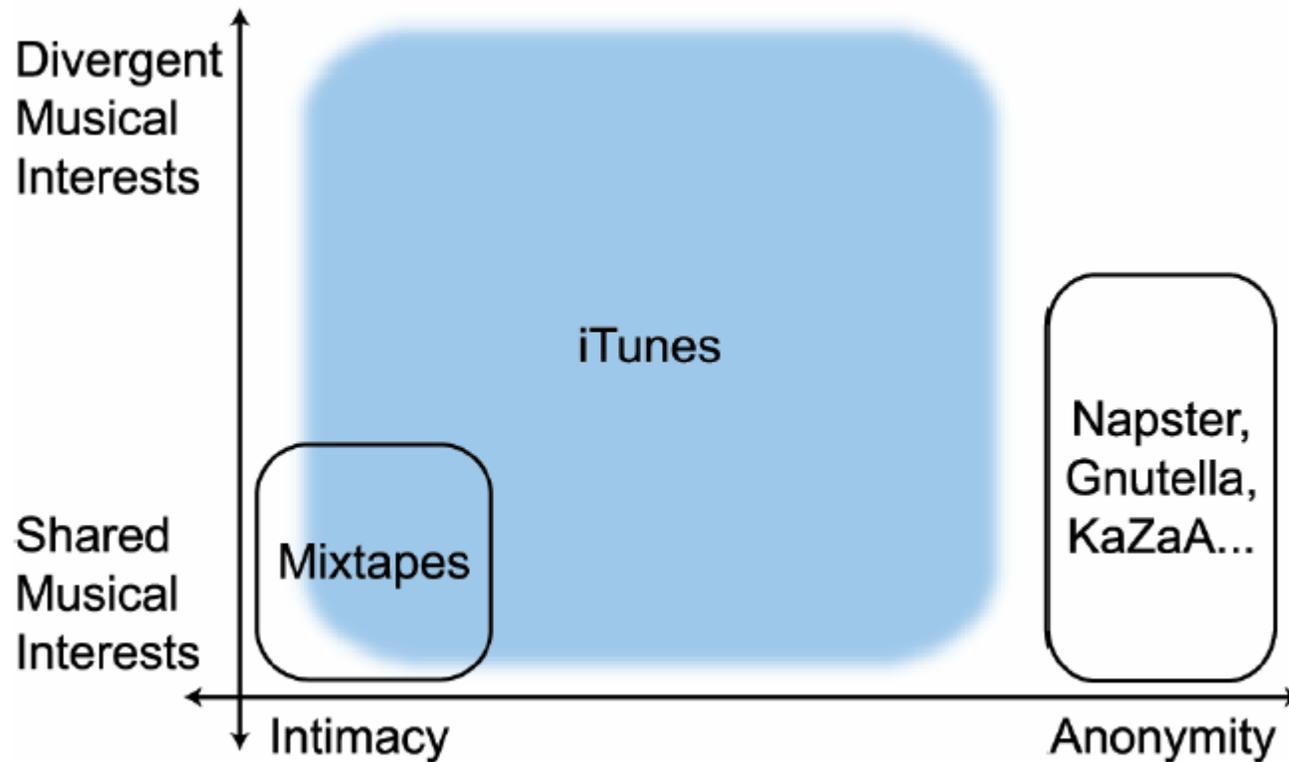
- A repeated measure full-factorial within-subject design was used.
- The factors were Technique = S=slider, HS=haptic slider, and Difficulty = Easy, Hard.
- Twelve volunteers (2 female) familiar with touch devices, aged 22-36, participated in the study. We collected a total of 12 Participant X 2 Technique X 2 Difficulty X 128 repetitions = 6144 trials with completion Time.



Thoughts?

- Cecylia wanted more experimental design
- Aaron found it simple and gimmicky
- Both are fair comments, as it isn't really a published paper

iTunes Paper (Voida)



Contributions

- Results:
 - Adoption/Critical mass – ethos of sharing
 - Impression management
 - Concern about what your music says about you
 - Judgments about what others' music says about them
 - Dynamics of system
 - At work versus not, people leaving company
- Design space issues:
 - Gray area between intimacy and anonymity
 - Additional motivation to create sharing

Meta-Level Comments: Qualitative CHI Paper

- Common to see themes (3 or 4)
 - Get to this by iterating on data
 - Open coding
 - Axial coding to aggregate themes
- Common to see “Implications for Design”
 - Here inserted into themes
 - Sort of a “why should we care” section

Your thoughts?

My thoughts: Impression Management

- Do people really care what others think?
 - Anyone listen to last.fm?

Appendix – An Interview Question snapshot used by the authors

- What convinced you to initiate iTunes sharing on your subnet?
- Did you have any privacy concerns in deciding to share your music?
- How do you feel about the arrival of new collections on the network?
- How do you feel when a music library has disappeared from the network?
- How do you feel when you close your iTunes connection?
- What kind of identity do you portray through your music library?
- Have you tried to portray an identity through your own music library?
- Does your music library project an image of you to others sharing your music?
- Do you have any musical expertise that you would share through your library?
- Have you noticed other people changing the names of their libraries?
- How is your music library representative of yourself?
- How do others' music libraries affect your impression of them, if at all?
- How do you feel about users obscuring their own names?
- Would you like to be able to access libraries outside of your subnet?
- Has iTunes music sharing allowed your community to become more intimate?
- How do you feel when you have to cut someone off from your music without the ability to warn them?
- What kind of improvements can you imagine for the iTunes music-sharing feature?

Taken from <http://ccrma.stanford.edu/~sonian/220D/>

Qualitative Data Collection and Analysis

Qualitative Research

- How do we make qualitative results believable
 - What defines enough subjects?
 - What is evidence for qualitative results?

Collecting Qualitative Data

- Observations
- Diary studies
- Interviews

Observations/Field Studies

- Two different definitions of observational study that I use interchangeably
 - First is a field study: go out into the field and observe acts of interest
 - Second is closer to an experimental study, but with control punted.

Observations/Field studies

- Variety of formats for information
 - Handwritten notes
 - Drawings and sketches
 - Video recordings
- Format depends on level of detail and time available
 - Video takes significantly more time to set-up for and to analyze

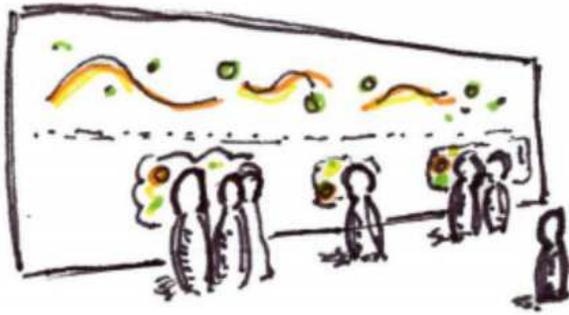
Observational Exercise is Posted

- Notes + photos as most basic instance:
 - Develop some shorthand for capturing information quickly
 - Take copious notes for first two or three observations
 - As you observe additional subjects you become more attuned to what is important
 - Make sure early data isn't lost forever
 - General rule of thumb: record everything you can see in extreme detail
 - More data is always better

Observations: Strengths and Weaknesses

- Observational data is useful both for design and evaluation
- If analysis done immediately, can often be used as a first pass at insight
- Frequently augmented with other sources of information
 - Interviews
 - Diary studies
 - Video data

My experiences with observations



	Groups of 3	Photo	Mall	Movie
a.)		✓	✗	✗
b.)		✗	✓	✗
c.)		✗	✗	✓
d.)		✗	✓	✓
e.)		✗	✗	✓
f.)		✗	✓	✗

	Groups of 2	Photo	Mall	Movie
a.)		✓	✓	✓
b.)		✓	✓	✓
c.)		✗	✗	✓

	Groups of 3	Photo	Mall	Movie
a.)		✓	✗	✓
b.)		✓	✗	✗
c.)		✗	✓	✗
d.)		✗	✓	✗
e.)		✗	✓	✗
f.)		✗	✓	✓
g.)		✗	✗	✓

	Groups of 2	Photo	Mall	Movie
a.)		✓	✗	✓
b.)		✓	✓	✓
c.)		✓	✗	✗
d.)		✗	✓	✗
e.)		✗	✓	✗
f.)		✗	✓	✓
g.)		✗	✗	✓
h.)		✗	✗	✓

Diary Studies

- Rooted in psychology and anthropology research
 - Definitely over 100 years of work
 - Linguistic development in the mid-1800s
- Process
 - Explain purpose of study to participants
 - Provide participants with some means of recording salient information
 - Participants collect information
 - Researchers analyze information
- Advantages
 - Relatively low-cost
 - Flexible (can study almost anything)
 - But some extra-burden on participants

Approaches to diary studies

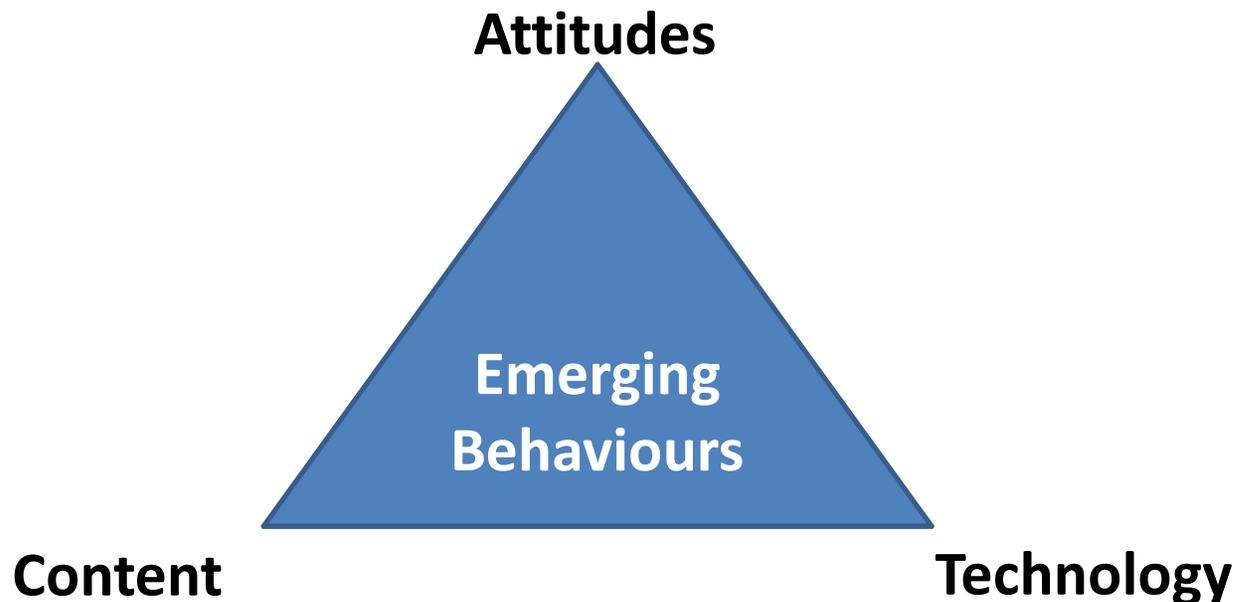
- Two approaches
 - Psychological style
 - Researcher identifies things to diary and subject diaries
 - Mobile device use
 - Task switching and interruptions
 - Anthropological style
 - Cultural probe
 - Subjects can submit anything of importance
 - Versus specific questions
 - Not limited to paper/written
 - Photos, video, audio, etc.
 - Common when researcher is interested in group but has little expertise

Conducting Diary Studies

- Make decision about approach
 - Are there specific data you want? Or are you interested in what might be important to participants
 - How much leeway in data you receive is tolerable?
- Structure data collection for maximum convenience
 - In psychology style, be explicit in data you want collected
 - Use semi-structured format for data
 - Too much or too little structure harms data completeness
 - In anthropological style, encourage creativity
 - In both, design a convenient mechanism for data collection
 - Also, provide alternatives
- Have a specific time frame for study
 - Let participants know what to expect
- Follow up with detailed interview
 - Use diary studies as prompts during interviews to elicit additional information

My experience with diary studies

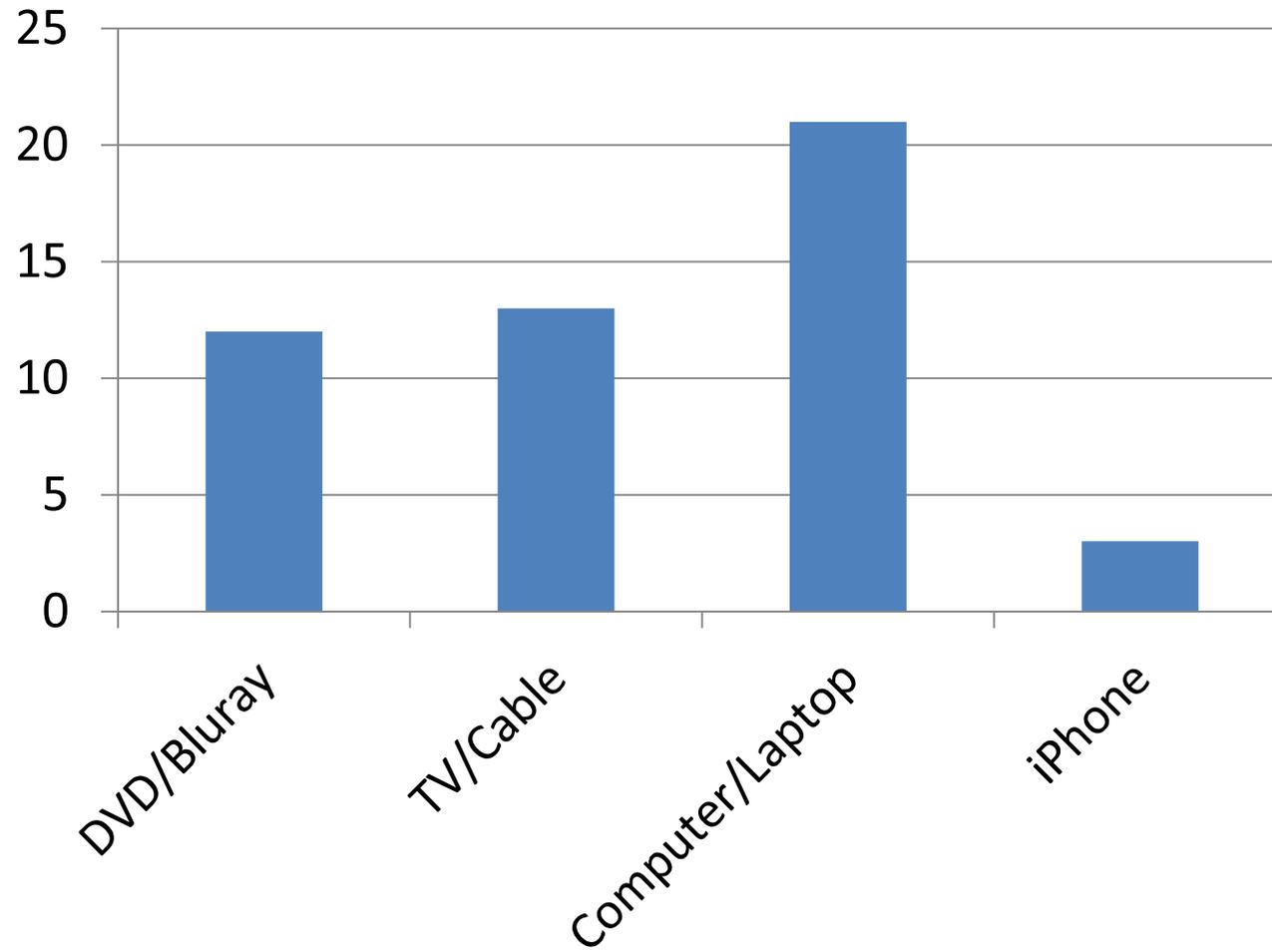
- Diary study to understand impacts of technology on video content consumption
 - What behaviours emerge from new technologies?



Data Collection

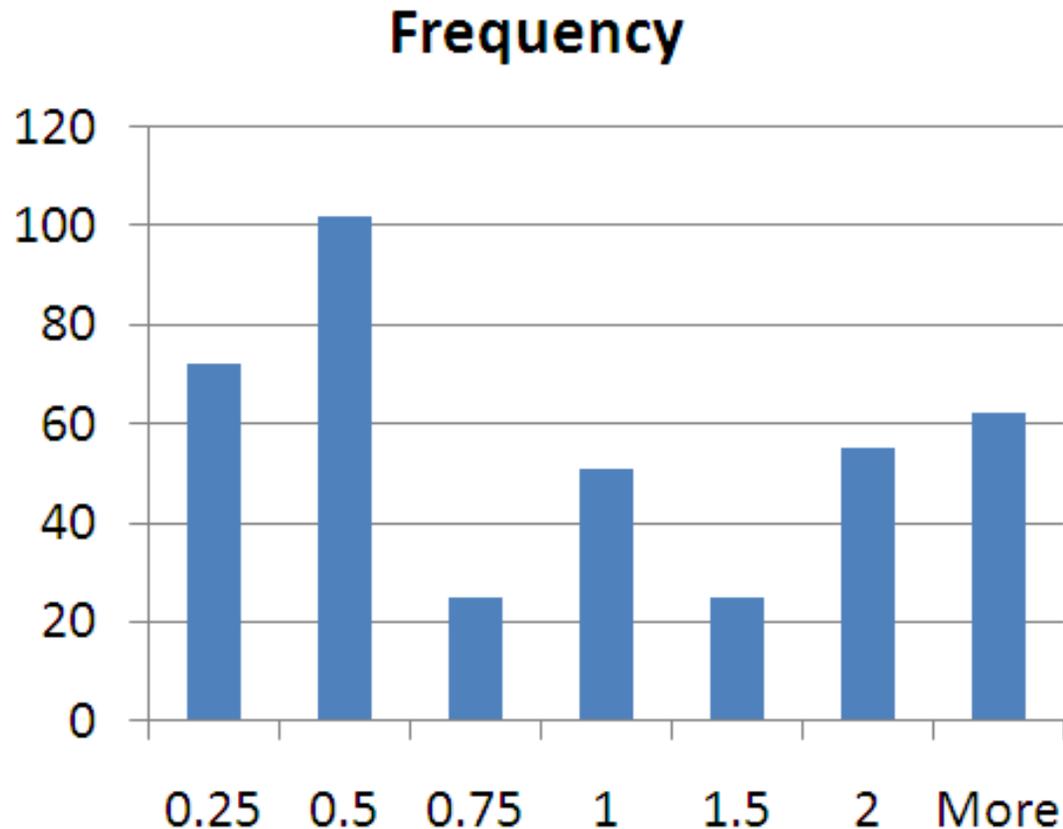
- Primary deliverable is a data set exploring modern digital video consumption
- 25 participants
 - All early adopters of technology
- Procedure
 - 7-day diary of video consumption
 - Exit survey to verify representative nature of data
 - Prompted exit interview using diary data

Diary Study – Equipment Used



Diary Study – Session Length

- About 3 hours per day on average of viewing across all participants



Selection Methods

advertisements available blockbuster boyfriend cable
channel chose COM comedy decided dvd email episode
facebook fan followed found friend girlfriend
guide heard internet link list looked
mailing movie netflix news offered online originally
posted program recommended referral
schedule search selected series social
suggestion tv via video walking watch
website years youtube

Diary Study: Strengths and Weaknesses

- Information accuracy
 - Good and bad.
 - Would I really want someone to know I watched TV show X with my wife?
 - However, on-going data recording.
- What, not why, not attitudes
 - I downloaded this vs why I downloaded this

Diary/Observations: Problems

- Both diary and observations take time
 - Time to collect data in diary studies
 - Time to observe tasks that you seek to understand with naturalistic observation
- One way to focus and compress time required to observe tasks or capture observations is to interview
- Special interviewing technique captures tasks in detail:
 - “contextual interview”

Useful Resource

- Robert Weisz, *Learning from Strangers: The Art and Method of Qualitative Interview Studies*
- Most of my qualitative research has used interviews + grounded theory approach
- Also common in 449, where we teach a form of *rapid ethnography*

Interviewing: Setting the Stage

- Try to interview them in a meaningful environment
 - If about work, at work, etc.
 - No always possible (e.g. the paper, your exercise)
- Explain what you are doing in their language
- Ask their permission
 - If in formal component of course, give them consent form and let them read it
 - Give yourself busy work
 - Revisit consent form with them to answer questions
- Try to record interview
 - Will need their permission to use recording devices

Types of Interviews

- Structured
 - Specific list of questions
- Unstructured
 - No set topics at all
- Most common interview is semi-structured
 - Depends on project, though
 - Semi-structured means
 - Have a group of themes and example questions
 - Will use these questions when necessary to refocus
 - Are free to ask follow-up questions, or to continue down an unanticipated line of reasoning
 - These slides focus on this process

Set the stage

- Get acquainted
 - Ask:
 - What they do
 - How long they've done it
 - What their job entails
 - Do NOT use a check list of items

The Grand Tour

Could you walk me
through ...

Walkthroughs

- These are a reconstruction, not remembering
- Concrete versus general with natural ordering
 - Cause and effect becomes more apparent
- Recent is better
- Details naturally emerge
 - Avoids the tendency to summarize
 - As details emerge, you should continue to look for more details
- Examples
 - Walk me through your day
 - Walk me through arranging your last catering event
 - Walk me through a typical training day
 - Walk me through some recent mathematical problem solving you did

Contextual Interviews

- Walkthroughs transition naturally to contextual interviews
- People will point to artifacts
 - Bring these in
 - Can ask for a live demo, or a walkthrough of creating and using the artifact
- If they reference a tool, a message, etc., ask to see it
 - Tools, messages, sheets of paper, etc. help them remember details.
- Where possible, shoot photos of the artifacts and ask for samples if they can let you have them

Asking questions

- Don't ask leading questions
 - Any question that suggests an answer is bad
 - Wording, intonation, or syntax
- Avoid closed questions
 - Do you like this interface versus can you walk me through how you use this application, describing what you're doing as you do it?

Asking questions (2)

- Ask
 - When you don't understand something
 - When terms arise
- Avoid interrupting, though
 - Keep a notebook
 - We encourage our students to develop shorthand
 - Question marks in margins as they take notes, etc.
- Avoid generalizations
 - If they say “Typically you ...”
 - You say: “What was a recent example of this? Can you walk me through what you did?”
- Indicate understanding, not agreement
 - “Mmm-hmm” versus “totally”

Asking questions (3)

- Be attentive
- Be well-dressed (but not formal)
- Enunciate
- Look at the person
- Sit or stand reasonably close, but respect personal space
 - If person moves away you are too close
- Limit what you bring
 - Folio with notebook (and consent forms if project)
 - Recording device (if project)

End the Interview and Deal with Data

- End the interview
 - Summarize with them what you learned
 - Thank them and **smile**
- Transcribe the interview
 - You get the details externally recorded
 - You begin the process of data analysis

Things to Avoid

- NO checklists of questions
- NO closed or leading questions
- NO questions that encourage generalizations (especially after get acquainted)
- NO focus on a specific system
- DO NOT interrupt
- DO NOT correct the person or try to teach them something you know
- DO NOT look away from the person, yawn, etc.

Data Analysis

Qualitative Research

- Definition:
 - Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world view, turn the world into a series of representations, including fieldnotes, interviews, conversations, photographs, recordings, and memos to the self. Qualitative research involves an interpretive, naturalistic approach to the world. Qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them.
 - Creswell, page 36.

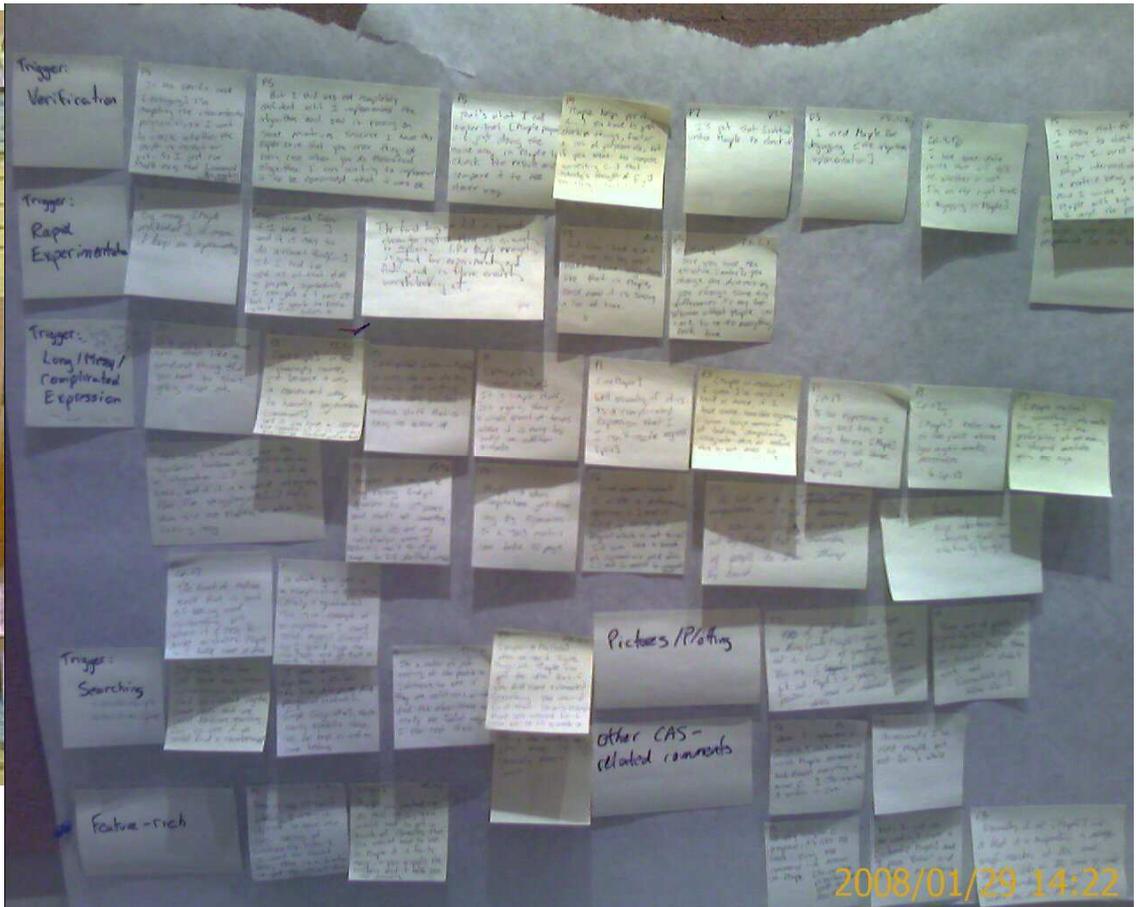
Two Views

- In the narrow
 - Getting data organized, externalizing data
 - Coding and clustering
- In the broad
 - Grounded theory and three-level coding of data
 - Strauss: Open/Axial/Selective
 - Glusser: Open/Selective/Theoretical
- In HCI

Analyzing data

- Qualitative data needs to be organized to be of use
- Use external representations of data: serve three purposes
 - Manage complexity of the data
 - Single digit versus six digit multiplication
 - Externalizes the data so that it is collectively owned
 - Model focuses interaction around data
 - Breaks the initial propensity to see data “in the small”
 - Need to find themes that generalize across users
 - Examining data via its external representation allows this
- One common approach is affinity diagrams
 - Other artifacts exist for additional details

Affinity Diagram



Externalizing Data

- Distributed Cognition
 - A theory of psychology from mid-80s
 - Developed by Edwin Hutchins
 - Uses insights from sociology, cognitive science and activity theory
 - Emphasizes social aspects of cognition
 - Framework that involves coordination between individuals and artifacts
 - Two key components
 - Representations that information is held and transformed
 - Process by which representations are coordinated
 - E.g. Affinity diagram with post-it containing any and all possibly relevant data

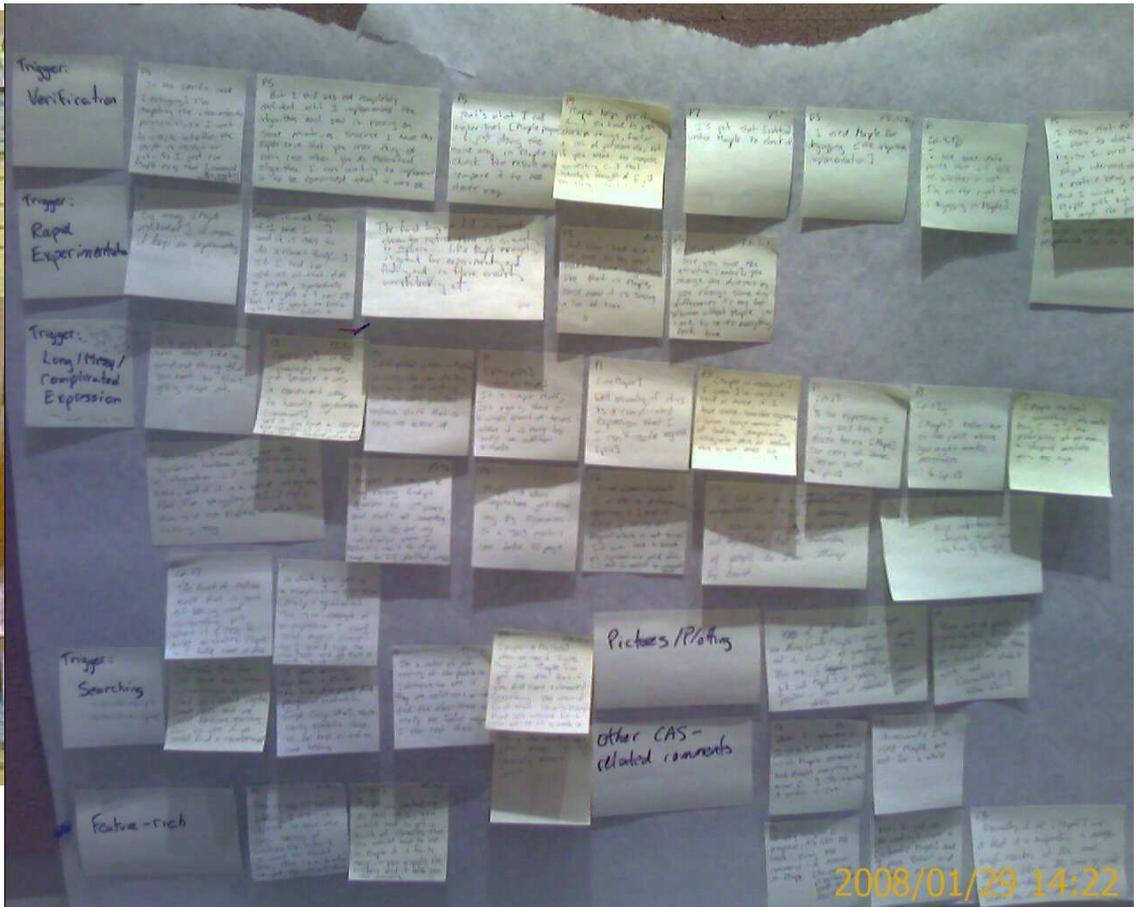
Coding

- Formalizes any interview data, diary data, observations, etc.
 - Ideally a three-step process, involving more than one person
 - Separately develop categories by watching, reading, etc.
 - Separately populate those categories by watching, reading, etc.
 - Aggregate categories by combining like information from multiple researchers

Affinity diagram

- Organizes notes and data captured from your sources
- Data from sources should be in some externalized format
 - Transcripts
 - Photos
 - Handwritten notes
 - Any additional data you can get your hands on
- Goal is to combine all data in one place
- Information is combined as a hierarchy
 - All data relevant to a theme is shown together
- Uses post-it notes
 - Always
 - Yes

Affinity Diagram



Affinity diagram

- Affinity diagram is a diagram built from post-it notes
- Affinity is built bottom-up
- No starting categories, instead start with individual notes
 - A quote, an idea, a work process, a requirement, a need, an observation, a task, a problem, etc.
 - Put up one note
 - Look for notes that go with it
 - No justifying why a note goes with another
- The affinities you look for are notes that focus on similar intents, problems, or issues
- Called *open coding*

Affinity diagram

- When a group of notes gets large enough, add a label to the group
- Try to express affinities in language of users
 - Sourcing fresh vegetables is essential
 - Parents care about details
- Also form groupings of groups
 - Post-its allow frequent repositioning, which is essential to effective affinities
- Discuss placement and differing ideas if you are part of a group, or with your partner if you work alone
- Police your notes
- When misunderstandings occur, go back to data
- Try to put aside sufficient time to complete affinity
 - May take several hours

Presenting Data

- “Walking” the affinity is a good start
 - “Three main themes emerged from our analysis of interview data ...”
 - “We structured our observations around two themes: ...”
- Issues may appear where you need additional detail
 - Good to be able to follow-up with participants in initial data collection
 - Allows validation of hypotheses that emerge from the affinity