

Introduction to Qualitative Data Collection

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About Commerce Data Academy

- A data education initiative of the Commerce Data Service (CDS)
- Launched by CDS to offer data science, data engineering, and web development training to employees of the US Department of Commerce
- Course schedule and materials (e.g. slides, code, papers) produced for the Commerce Data Academy can be accessed on Github and at <https://dataacademy.commerce.gov/>
- Questions? Feel free to write us at Data Academy (dataacademy@doc.gov)



Class guidelines

- Feel free to ask questions at any time!
- Online Participants: work with your designated partners for practice exercises.
- Interested in learning more or sharing this topic with your team?
 - CDS can come to DOC bureaus to teach a workshop on any of the topics discussed today, including UX/UI design!

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What are **you**
interested in?



Class Goals

Together, we will discuss:

- Forming design questions
- Ways to use qualitative data
- Sampling and logistics
- Interviewing
- Conducting focus groups
- Observation
- Brief overview of analysis & other considerations



Qualitative Research

Methodologies

Ethnography

Case studies

Participatory Action Research

Photovoice

Grounded theory

Domain analysis

Decision analysis

And more!

Methods

In-depth Interviews

Focus Groups

Observation

Participant Observation

Free Listing/Pile Sorting

MultiDimensional Scaling

Think Aloud Protocol

And more!

Data Types

Verbal/audio

Written responses

Documents

Photos

Visuals

Maps

And more!

We will focus on applications to design

- Using qualitative data to inform design of systems, technology, products, policies, and programs
 - When and how to use qualitative data
 - Asking the right questions
 - Engaging users and stakeholders
- Build data collection skills in 3 staple methods:
 - In-depth interviewing
 - Focus group facilitation
 - Observation
- The skills are universal and transferable!

What is qualitative data?



Examples of qualitative data

Transcripts

Documents

Audio and video recordings

Field Notes

Photographs

Sketches

Maps

“Artifacts”

Qualitative data collection

“Techniques for exploring and elucidating content and structure in domains with unknown or uncertain baseline information, with a focus on discovery and organization, rather than quantification, parameter estimation, or hypothesis testing.”

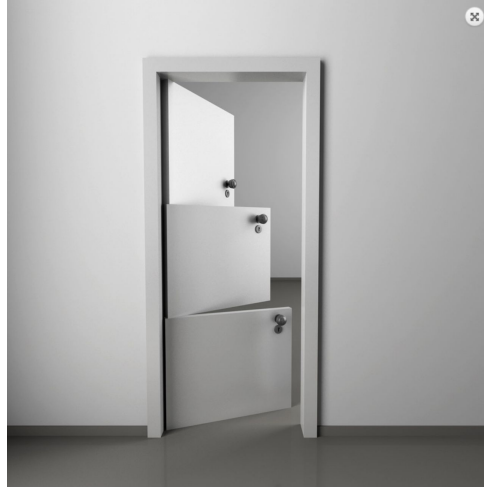
Nature of data produced is **textual, visual and contextual** rather than numeric

Focusing more on **why** and **how**, less on how much, how many

Why is qualitative data relevant to technology & policy design?



Relevance to technology & policy design



We value designing and delivering service to the public in a way that is human-centered

How does qualitative data add value?

Goal	Qualitative data can help you to:
Manage expertise within your organization	<ul style="list-style-type: none">● Capture workflows and institutional knowledge of unique technical positions● Understand how [workplace/community/service/policy] systems work● Model and simulate processes● Understand and document how experts think about/make a decision
Improve data accessibility and expand data reach to new stakeholders	<ul style="list-style-type: none">● User experience and user interface (UX/UI) design or redesign● Understand why people do or <i>don't</i> use/participate in X
Make products and policies more driven by external stakeholders than internal needs or tradition	<ul style="list-style-type: none">● Understand how (non-)users and stakeholders complete a task or use a tool● Identify root causes and underlying problems● Identify unintended consequences

Getting the most out of qualitative data

- Think beyond just asking users for feedback!
- Consider many approaches
- Useful parameters for understanding decisions and behavior (Example: designing a healthier supermarket)
 - Goals
 - Needs
 - Constraints
 - Problem space
 - Current process
 - Default options/current interface design

Exercise 1: ID uses for qualitative data

5-10 minutes

Brainstorm individually or with a partner:

- What are 3 challenges or problems in your current work where you could use qualitative data to help address a key issue?
- Remember to think in terms of how and why questions, seeking individuals' perspectives, process, and context.



Qualitative Methods & Sampling



Tools of the trade

Talking to people

In-depth interviews

Focus groups

Observing people

Observation

Direct, participant, structured

Structured, task-based methods

Pile sorting

Free listing

Think Aloud Protocol

Cognitive Task Analysis

Which people and how many?

- Select a general approach based on what you need to learn
 - What is the problem? What do you need to know? Who has that information?
- Sampling
 - Random sampling can work but is not necessary
 - Saturation: How many is enough?
- Allow your questions to evolve as you go
- Finding people to participate
 - Use existing lists as sampling frames
 - Snowball sampling
 - Referrals
 - Key informants, gatekeepers
 - Partner or collaborator organizations



In Depth Interviewing



Skills of a qualitative data collector

- Empathy
- **Humility**
- Patience
- Reflexivity - you are the data collection instrument
- Listening without analyzing
- Comfort with silence
- Using adjectives



Exercise 2: Baseline interview skills

10 minutes

Before we dive into in-depth interviewing, we will start with an intro exercise to test out your skills, how comfortable you are with interviewing and what is challenging.

- With your partner(s), take **5 minutes each**
- Gather information on grocery shopping

DEBRIEF:

- What was difficult?
- What kinds of questions did you ask?



In-depth interviews (IDI)

- What is an IDI?
 - Not a survey
 - Not a casual conversation
- Everyone is an expert: You are there to learn from them
- Let the context inform how you interact
 - Some people are experts, but don't know it. Demonstrate interest, ask them to explain.
 - Highly technical professionals know they are experts. Use their terms, do due diligence.
 - Everyone is an expert, but not everyone is a good talker.

What to do before the interview

1. Find someone with expertise
2. Work around them – they're doing you a favor!
 - Travel to them if at all possible
3. Prepare – guide, topics, questions, background
4. Focus on the task
5. Logistics – recorder, notes/pen/paper, safety

What to do during the interview

1. Set the stage
 - You know what an interview is and how you want it to go – explain it to them! People want to be good interviewees
 - Reiterate why you want to interview them and what you want to learn from them.
 - Build rapport
2. Ask permission to record, and provide information about how data will be used and confidentiality as appropriate
3. Use your guide, don't let the guide use you
 - **Not every interview will include the same questions**
 - Think of it as a list of topics to cover, not a series of questions to get through
 - Get out of the way – transcript should be 90% interviewee (aim for “thick description”)
 - Let the interviewee drive the discussion

Question types

Ask open-ended questions!

Descriptive questions	Use <i>tell me about, describe, explain</i> “What else would you like to add?”
Typical day questions	“Tell me about a typical day.” “What is a typical day like here?”
Grand tour questions	“Walk me through how you ____.” “Walk me through the whole process of ____.”
Eliciting stories and examples	“Give me an example of ____” “Tell me about a time when ____” “Tell me about <i>the last time</i> ____”

Question types

Ask questions to reveal domains and how informants organize knowledge.

Structural questions	What are all the different types of X?
Listing questions	<i>Ask the same question multiple ways, especially when eliciting a list.</i> “What are others that you can think of?” “What else is ____?”
Contrast questions	“What’s the difference between X and Y?” “Can you tell me about when you’d use/do X and when you’d use/do Y?”

Example: structural questions

I: Okay. I want to ask you what you think about healthy eating. Tell me what you think about healthy eating. What are some things that you consider healthy?

P: Something that's healthy that you can eat?

I: Mm-hmm.

P: Vegetables. Fruit. Them the only two healthy things I know.

I: What else would you consider healthy besides fruits and vegetables?

P: V8 juice, Splash, whole-wheat bread, Wonder bread, Blue Ribbon bread. That's some healthy stuff. And potatoes, they healthy. And that's about it. That's all I know.

I: Okay. What else do you think people can do to be healthy? What does healthy eating or being healthy mean for you?

P: Go and have a nice diet, eat like a salad or some grapefruit juice or drink some grapefruit juice. A lot of people, to make them healthy, they need to do exercise mostly every day or every night, drink plenty of water, drink some juice or something, eat healthy, like don't eat too much greasy food, eat raw food or baked food, you know, things like that.

Probe types



Essentials	Neutral/silent probe: mmmm, nod “Tell me more about that.” (TMMAT) “You mentioned ____, can you TMMAT?” Echo probe: repeat back what the interviewee says
Native language probe	<i>Use context to understand what insider terms mean, rather than asking about every new term</i> “You mentioned X, can you explain what that means?”
Structural probe	You mentioned X and Y -- is X a kind of Y?
Cover-term probe	How are X, Y, and Z related?
Divergence probe	Does it always work like that? Can you give me an example when it was different?

5-Minute Break



Now try it out!



Exercise 3: Interviewing

Challenge: You're working to design guidelines for helping supermarkets increase sales of healthy foods. Interview your partner(s) about their experience as supermarket consumers.

1. **Develop 5 IDI questions (10min).** Remember to ask open-ended questions, and use a combination of descriptive and structural questions. Add a list of possible probes with each question.
2. **Feedback (5min).** Share questions and provide feedback.
3. **Interview your partner (20-25min total).** Now move into interviewing your partner, using those questions and others based on their responses.
4. **Debrief (10min).** What worked well? What didn't? Did you take notes?

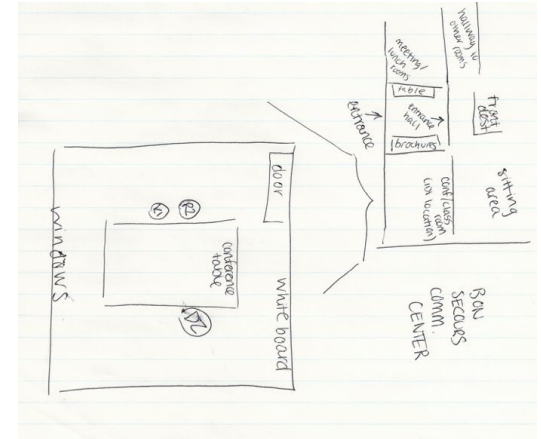


Pro tips

- Find what works for you
 - Taking notes vs. going “paperless”
 - Following threads vs. probing in order
 - Double barreled questions
 - Always seek information on “why,” but don’t ask why/why not directly
- What not to do
 - Don’t ask closed questions
 - Don’t introduce terms or ask leading questions
 - Don’t insert your opinion or judge the responses!

What to do after the interview

1. Ask for follow up and referrals
2. Audio record field notes and reactions right away
3. Expanded field notes
 - Statement of aim
 - Sampling, how you found this person
 - Detail about the interviewee, setting, context
 - Was this person a good informant?
 - What would you ask with more time or in a follow up interview?
 - Observations/initial analysis
 - Reflexivity
4. Draw a map if applicable
5. Transcript if needed



Other Methods



Focus Groups

- Facilitated discussion among a group of individuals on topics supplied by the moderator, with emphasis on “group interaction to produce data and insights that would be less accessible without the interaction found in a group”
- When to use
 - To gauge consensus, understand how people talk with each other about a topic
 - To triangulate interview data
 - To examine what people discuss with each other vs. individually
- Technical Considerations
 - Not a group interview
 - Optimal size varies, but aim for 4-8 people
 - Be mindful of mixing groups, reporting chains
 - Your role is to facilitate: Help people break in and keep the discussion on track, establish ground rules, get participants talking, encourage them to respond to each other

Exercise 4: Focus Group Facilitation

Challenge: You're working to design guidelines for helping supermarkets increase sales of healthy foods.

Using the same challenge from our interview exercise, shift to a focus group format and facilitate a discussion on the same topics.

- **Select a moderator & adjust questions (5min).** Take 2-3 minutes to discuss how your questions and focus should shift.
- **Facilitate a mini-focus group discussion (10min).** Remember to focus on comparison, consensus, and interaction among participants.
- **Debrief (5min).** What worked well? How did you adjust questions and topics? What was challenging?



Observation

- Observing people, processes, interactions, and environments.
- When to use
 - To observe actual vs. reported behavior
 - To examine work processes, organizational norms and behaviors
 - To learn how people interact with a product, system or environment or one another
 - To learn how people use a product or tool, and identify work-arounds and derive
- Key types
 - Direct, unobtrusive observation
 - Participant observation
 - Narrated (e.g., usability assessment, cognitive task analysis)
- Technical considerations
 - Scripting before developing a structured guide or form
 - Separate the “etic” from the “emic,” and your assumptions from concrete observations
 - You are there, and that has an effect
 - Be conscious of work-arounds, exceptions – e.g., “follow the sticky notes”

Structured and task-based methods

Observation while interviewing

- Cognitive Task Analysis
- Think Aloud Protocols

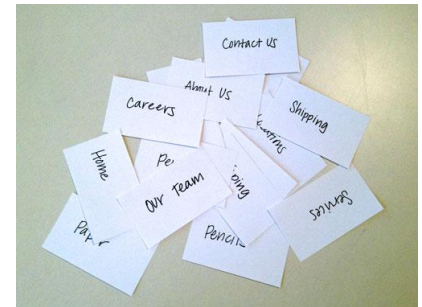
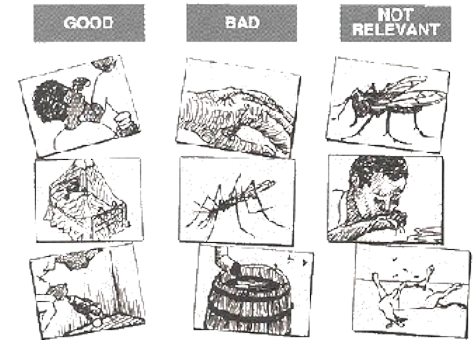
Interviewee completes a task (and explains)

- Cognitive/Cultural Domain analysis
 - Free listing, Pile sorting, Multidimensional Scaling

Structure data gathered through interviews

- Social/Communication Network Analysis

Card set on the control of malaria



Exercise 5: Observation

10 minutes: Watch the following video online and record your notes in a scripting observation

[Senate rules debate](#) video.

You may want to consider:

- Describe the setting and participants
- How people interact
- Tone, dynamics, norms
- Terms used
- *Distinguish concrete observations from reflections*
- *Be as descriptive as possible*

Debrief:

- What did you notice?
- What would you want to follow up on during an interview?



Field tips

- Logistical constraints
 - IRB/ERB
 - Paperwork Reduction Act
 - “Not research”

- Managing data
 - Storage, backup
 - Confidentiality/privacy

Analysis



What to do with the data

- What do the data look like?
 - Transcripts, field notes, audio recordings, artifacts
- Ways to analyze
 - Read and listen, many times
 - Coding, manual and software-based
 - Identify themes, typologies
 - Create personas
 - Model processes, decisions, etc.
- Software: Anthropac, Atlas.ti, NVIVO, many statistical programs
- Translating into structured and quantitative models

Additional Resources

Books

- [Spradley](#), *The Ethnographic Interview*
- [Creswell](#): *Qualitative Inquiry & Research Design*
- [Becker](#): *Tricks of the trade*
- [Bernard](#): *Analyzing Qualitative Data*
- [Maxwell](#): *Qualitative Research Design*
- [Morgan](#): *Focus Groups as Qualitative Research*

Online Resources

- [Sampling](#)
- [Cognitive Task Analysis](#)
- [Think Aloud Protocol](#)
- [Systematic Data Collection: Free Listing, Pile Sorting, Multidimensional Scaling](#)
- [Human Factors & Ergonomics Society Webinar on Qualitative Research](#)

