

# Developing a Deductive Coding Scheme Using Theory

ELMP Research Methods Seminar Series

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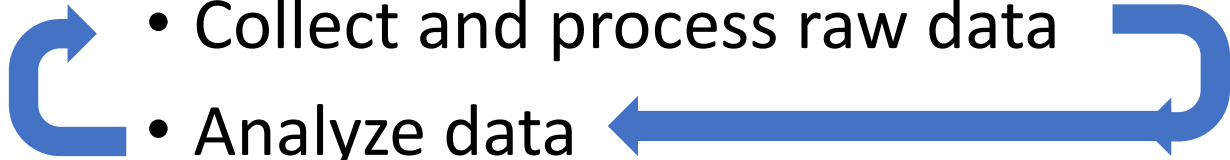
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# Qualitative Research Processes

- Conduct literature review and identify theoretical lens
- Develop research questions and design study
- Receive Institutional Review Board (IRB) ethics approval
- Collect and process raw data
- Analyze data
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# Learning Outcomes

- Understand the difference between inductive, deductive, and blended coding strategies
- Articulate benefits and limitations of inductive and deductive coding strategies
- See examples of deductive and blended coding strategies
- Increase preparation for independent qualitative research projects

# Presentation Structure

- Qualitative data analysis: the basics
  - Inductive, deductive, and blended coding procedures
- Mini coding exercise with interview excerpts
- Incorporating theory
- Resources for further reading and exploration





Imagine that you, a qualitative researcher, have collected data and have hundreds of pages of interview transcripts, participant observations, documents, etc. in front of you...

What's next?

Qualitative data analysis!

# Qualitative Data Analysis

- **Qualitative data analysis:** Systematically breaking down data into parts that can be used to make interpretations about what is observed (Jones et al., 2014)
  - Researchers must go beyond reporting data and make meaning of the data/provide an interpretation
- The goal of analysis is to answer your research question(s)

# Coding

- **Code:** A word or phrase assigned to a piece of data for the purposes of qualitative analysis
- Coding process:
  - Examine each sentence in your data and judge its meaning, determine whether it is relevant
  - Identify segments of meaning in your data and label them with code(s)
  - Sort data by codes to create higher-level categories
- Coding is a highly laborious, detailed process that requires strong organization
  - Qualitative analysis software can help organize this process, but the researcher always does the coding
- In coding, you will often notice things that you missed during data collection

# Coding Strategies

- **Inductive coding:** codes are developed directly from the data collected from participants
- **Deductive coding:** researchers use pre-determined codes and fit the data into these codes
- **Blended approach:** researchers use some combination of emerging (inductive) and pre-determined (deductive) codes

# Creating a Codebook

- Provide definitions for codes to maximize consistency and coherence
- Serves as a key reference for coders throughout analysis
  - Often evolves throughout the course of analysis
- A codebook should contain:
  - A list of codes
  - Definitions of codes
  - Rules for when to apply the code and not to apply the code, with examples
- **Inductive coding:** develop the codebook throughout analysis
- **Deductive coding:** develop an initial codebook before analysis
  - The initial codebook typically evolves during the analytic process

# Inductive Coding

- Inductive coding
  - Develop codes and codebook as you read data line-by-line
    - Researchers go back and forth between their data and codebook until a comprehensive set of codes is established
  - Strike a balance between a workable number of codes and capturing the complexity of data
  - You will likely end up with a long list of initial codes, some very precise
    - Linneberg and Korsgaard (2019) state that researchers may have 50-70 initial codes
  - In second-cycle coding, initial codes are combined to create higher-level categories and themes
- Pros: loyal to the data, captures complexity
- Cons: can be highly complicated, can lack focus



# Deductive Coding

- Deductive coding
  - A pre-defined list of codes is created before you start coding your data (also known as “a priori” codes)
    - Coding is focused on issues that are known to be important
    - Deductive codes are most often based on theory, but can also be based more generally on existing literature, or your research question(s)
    - Typically, only a small number of codes are used
  - Codes can be added or adjusted if differences emerge within any given code or if new ideas come up that are not captured by the existing codes
- Pros: this is generally an easier process due to greater focus, anchors the study in the literature
- Cons: may fail to capture new ideas and dynamics within your data

# Blended Coding Approach

- Combination of inductive and deductive coding approaches
  - This approach is very common
- The researcher chooses to start with either inductive or deductive coding:
  - Start with inductive coding: emphasizes the ideas within the data, codes from theory/literature are incorporated later
  - Start with deductive coding: give structure and theoretical relevance from the start, inductive codes later adds nuance
- Flexible application and theory based on the needs of the research questions and topic

# Mini Coding Exercise: Interview Excerpt

## 1. Inductive

- Code excerpt inductively

## 2. Deductive, with a theoretical framework

- Code the same interview excerpt deductively based on the framework

Research Question: How do undergraduate students decide where to attend college?

Sample:

First-year undergraduate students at a private, highly-selective institution.

HSPI= Highly selective private institution (masked institutional name)

Research Question: How do undergraduate students decide where to attend college?

Pause:

Reflect on your own positionality in regard to this topic. Think about: your own college-going decisions, the decisions of family members and children, of students you may work with, assumptions about the process.

Caveat: keep in mind that this is a very, very small amount of data for the purpose of this exercise

- Interviewer: So, describe for me how you choose to come to [HSPI]?
- Interviewee: Umm, you know, I was just applying to colleges. It's actually really funny. I was applying to all these different colleges and then like my mom, my mom had really been pushing me to go to [selective public university] so I like visited [selective public university] a lot. And then a couple days before the deadline I was like, hmm maybe I should apply to [HSPI]. I don't know. It sounds good. I looked at the essay prompts and I was like, oh these are sort of similar to some of what I've done. So, I threw in an application and somehow I got in. And then when I went and visited, I really liked it. So, I just chose HSPI.
- Interviewer: Do you remember what prompted you to think to apply to [HSPI]?
- Interviewee: Well, my college counselor had sorta recommended [HSPI] and similar colleges like [different highly selective private institution] or something like that. And, I don't know, I was sorta scrambling in December trying to think, like, oh I want to increase my chances to get in anywhere since I want a good college. All of a sudden [HSPI] just kinda popped in my mind. I was flipping through like a college book like something like that and I read up on it and I was like, oh, that sounds pretty cool.
- Interviewer: Alright, and what did you like about your visit to the campus?
- Interviewee: Well, I loved the campus. Umm, and it was right after we'd won the [major athletic tournament] so things were pretty exciting. In all the information sessions they'd like be like, oh and by the way we just won a national championship. So, it seemed like people were really proud to go to this school.

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## Working Codebook

**Multiple colleges:** deciding between more than one option (whether at application or decision phases)

**Influence of others:** other people affecting the decision process (parents, guidance counselors)

**Campus visits:** physical visits to college campuses and related experiences

**Application:** logistics, process, timeline related to applying to colleges

**Positive college attributes:** "good," prestigious, cool, exciting



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Research Question: How do undergraduate students decide where to attend college?

Now let's add a theoretical framework!

# The Iloh Model of College-Going Decisions and Trajectories

- Developed as a critical response to theories about college decisions that assume availability of “choice” and linear educational paths
- Highlights how diverse prospective students decide their higher education pathways
- Emphasizes 3 forces that shape students’ decisions to attend college, and where to attend:
  - **Information:** there is great variety in the quality and amount of college-going information that students have access to. Access to multiple sources of credible information leads to more informed decisions.
  - **Time:** social, educational, and historical events that have occurred in a person’s life to lead to a particular college decision or path (e.g., graduating high school, losing one’s job, driving by a billboard for a specific college everyday)
  - **Opportunity:** student’s perceived and real opportunity; a person’s identity, life experiences, family, educational history, geography, finances, technology, etc. all influence whether a prospective student believes college (or a specific college) is right for them, or attainable
- College-going decisions are an ongoing interplay of these three components



(Iloh, 2018, p. 236)

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Research Question: How do undergraduate students decide where to attend college?

The more data you have, the greater the differences would be between the inductive and deductive findings.



Now, let's think about how this applies in your work.

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# Role of Theory in Qualitative Research

- In the literature review, the researcher needs to explain how previous research and theory influences research design and methodology
  - “A theory might appear in a research study as an argument, a discussion, a figure, a rationale, or a conceptual framework, and it helps to explain (or predict) phenomena that occur in the world” (Creswell & Creswell, 2018, p. 95)
  - “The theoretical framework provides a grounding base, or an anchor, for the literature review, and most importantly, the methods and analysis” (Grant & Osanloo, 2014, p. 12)
- Provides a lens that shapes what is looked at, what questions are asked, how data are interpreted

# Role of Theory in Qualitative Research

- Theoretical and conceptual frameworks give focus to the study
  - Spotlight metaphor
    - Theories draw your attention to a part of an experience, shed light on relationships that might otherwise go unnoticed
    - Cation, by shedding light on some aspects, other parts will be left in the dark (no single theory can highlight all parts of an experience or phenomenon)
- Different theories give different perspectives on the same issue



# Finding Theories

- Read research related to your topic and note the theoretical and conceptual frameworks used
- Talk to experts in the field about important and emerging theories
- Other disciplines can be helpful:
  - If your unit of analysis is an individual, review psychology literature (e.g., decision making models)
  - If your unit of analysis is a group or organization, or focuses on individuals within a system, review sociological literature (e.g., institutional communication)
  - To study an economic issue, look at economic literature (e.g., college costs)
- Look for criticisms of the theories you choose (especially older theories!)

# Summary: Steps to Deductive Coding

- Steps to the process: read, read, read!
- Based on your reading, identify a relevant theoretical framework
- Identify key concepts from the theoretical framework that relates to your topic and research questions
  - In addition to concepts from your theory, you might use key concepts from existing research that guides your work
- Develop a list of a priori codes
  - Create a codebook where codes are defined, and where you establish rules about application
- Systematically analyze your data to apply a priori codes



# Example Studies

- Hudson, T. D., Haley, K. J., Jaeger, A. J., Mitchall, A., Dinin, A., & Dunstan, S. B. (2018). Becoming a legitimate scientist: Science identity of postdocs in STEM fields. *The Review of Higher Education*, 41(4), 607-639. <https://doi.org/10.1353/rhe.2018.0027>
  - Why this example may be useful:
    - Researchers used theoretical principles (theoretical framework: Science Identity) to organize, present, and interpret findings
  - Limitation of this example:
    - Authors provide only minimal details about their analytic processes and do not explicitly say that they used deductive coding. However, the role of theory in the findings imply a highly deductive process.

# Example Studies

- Torres, A. S., Brett, J., Cox, J., & Greller, S. (2018). Competency education implementation: Examining the influence of contextual forces in three New Hampshire secondary schools. *AERA Open*, 4(2), 1-13.  
<https://doi.org/10.1177/2332858418782883>
  - Why this example may be useful:
    - Describes a blended coding strategy (inductive and deductive)
    - Authors include an appendix which includes their list of codes, where they differentiate between a priori codes and inductive codes
      - The appendix also includes interview protocols, which may be useful to see
  - Limitation of this example:
    - In this study, deductive coding is based on the main ideas from the research questions and the major tenets of competency education and implementation, not from the paper's theoretical framework

# References

- Azungah, T. (2018). Qualitative research: Deductive and inductive approaches to data analysis. *Qualitative Research Journal*, 18(4), 383-400. <https://doi.org/10.1108/QRJ-D-18-00035>
- Jones, S. R., Torres, V., & Arminio, J. (2014). *Negotiating the complexities of qualitative research in higher education: Fundamental elements and issues* (2<sup>nd</sup> ed.). Routledge.
- Linneberg, M. S., & Korsgaard, S. (2019). Coding qualitative data: a synthesis guiding the novice. *Qualitative Research Journal*, 19(3), 259-270. <https://doi.org/10.1108/QRJ-12-2018-0012>
- Saldaña, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). Sage.

# Additional Resources

- Qualitative data analysis and theory:
  - Bradbury-Jones, C., Taylor, J., & Herber, O. (2014). How theory is used and articulated in qualitative research: Development of a new typology. *Social Science & Medicine*, 120, 135-141. <https://doi.10.1016/j.socscimed.2014.09.014>
  - Crawford, L. M. (2019). Conceptual and theoretical frameworks in research. In G. J. Burkholder, K. A. Cox, L. M. Crawford, & J. H. Hitchcock (Eds.), *Research design and methods: An applied guide for the scholar-practitioner* (pp. 35-48). Sage.
  - Elliot, V. (2018). Thinking about the coding process in qualitative data analysis. *The Qualitative Report*, 23(11)5, 2850-2861.
  - Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: *A hybrid approach of inductive and deductive coding and theme development*. *International Journal of Qualitative Methods*, 5(1), 1–11.
  - Grant, C., & Osanloo, A. (2016). Understanding, selecting, and integrating a theoretical framework in dissertation research: Creating the blueprint for your “house.” *Administrative Issues Journal: Connecting Education, Practice, and Research*, 4(2), 12-26.
  - McKibben, W. B., Cade, R., Purgason, L. L., & Wahesh, E. (2020). How to conduct a deductive content analysis in counseling research. *Counseling Outcome Research and Evaluation*. <https://doi.org/10.1080/21501378.2020.1846992>
- To learn more about inductive coding, grounded theorists offer useful guidance:
  - Charmaz, K. (2014). *Constructing grounded theory*. Sage.
  - Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory*. Aldine Publishing Company.
  - Strauss, A., & Corbin, J. M. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Sage Publications, Inc.

# Other Resources

- Qualitative books that contain guidance on data analysis:
  - Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage.
  - Leavy, P. (2014). *The Oxford handbook of qualitative research*. Oxford University Press.
  - Miles, M. B., Huberman, M. A., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook*. Sage.
  - Merriam, S. B., & Tisdell, E. J. (2016). (2016). *Qualitative research: A guide to design and implementation* (4th ed.). Jossey-Bass.

# Upcoming Series Workshops

- April 30, 2021: Selecting and Implementing a Regression Model
- May 7, 2021: Coding Qualitative Data Using Dedoose
  - Atlas.ti software is now available for Seton Hall University students
  - Note: qualitative analysis software is an organizing tool, it will not code your data for you!