Inductive analysis with focus group transcripts: Audit trails and tables in qualitative research

Presentation to ESP 10/19/16

Dr. Linda S. Behar-Horenstein
Distinguished Teaching Scholar & Professor, Education, Dentistry, Veterinary Medicine & Pharmacy
Director, CTSI Educational Development & Evaluation
Lsbhoren@ufl.edu
Session Objectives

1. What is inductive analysis?
   - Purpose and Process
2. Practice coding
3. Develop conceptual definitions
4. Create audit tables
5. Create tables
On the your living room, are 155 bits of data on small slips of paper that have been cut out from a 40+ page focus group transcript. Your job is to group them by *what looks and feels alike*.

Next, you’ll have you create rules for inclusion as you move these data bits into categories.

Some categories may merge into other categories, necessitating a revision of the category description; not all data bits will be moved into a category.

Where do you begin?
The qualitative data analyst persistently hunts for concepts and themes that provide the best explanation of “what’s going on” in an inquiry.
To discover the relationship between data bits, place the data into piles according to their look alike, feel alike qualities.
What is Inductive Analysis?

- Thematic analysis, a search for themes that emerge as being important to the description of the phenomenon.

- Involves the identification of themes through careful reading and re-reading of the data.

- A form of pattern recognition within the data, where emerging themes become the categories for analysis.
What is Inductive Analysis?

Coding involves recognizing (seeing an important moment and encoding it (seeing it as something) prior to a process of interpretation.

Encoding the information organizes the data to identify and develop themes from them. A theme emerges from a pattern in the information that at minimum describes and organizes the possible observations and at maximum interprets aspects of the phenomenon.

Although this is a linear, step-by-step procedure, the analytical process is iterative and reflexive.
Iterative, Reflexive - Defined

- Iteration, is not a repetitive mechanical task; it is **deeply reflexive** and is undertaken to spark insight and developing meaning.
- Reflexive iteration is revisiting the data and connecting them with emerging insights, progressively leading to refined focus and understandings.
Iterative, Reflexive - another perspective

- **Multiple rounds** of revisiting the data as additional questions emerge.
- **Making new connections** and more complex formulations through persistent re-reading and continuous analysis that yields a deepening understanding of the material.
The Coding Process in Inductive Analysis

Initial reading of text data - Many pages of text

Identify specific text segments related to objectives - Many segments of text

Label the segments of text to create categories - 30 to 40 categories

Reduce overlap and redundancy among the categories - 15 to 20 categories

Create a model incorporating most important categories - 3 to 8 categories
Primary purpose of inductive analysis

To allow research findings to emerge from the frequent, dominant or significant themes inherent in raw data, *without the restraints imposed by quantitative approaches or a-priori assumptions.*

In deductive analyses (experimental and hypothesis testing research) key themes are obscured, reframed, or left invisible because of the preconceptions in the data collection and analysis procedures imposed by investigators.
Procedural purpose of the general inductive analysis approach

- Condense extensive and varied raw text data into a brief, summary format
- Establish clear links between the research objectives and the summary findings derived from the raw data and to ensure that these links are both transparent (able to be demonstrated to others) and defensible (justifiable given the objectives of the research).
- Develop a model or theory about the underlying structure of experiences or processes that are evident in the text data.
Questions for inductive analysis framework

<table>
<thead>
<tr>
<th>Questions</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1: What are the data telling me?</td>
<td>Explicitly engaging with theoretical, subjective, ontological, epistemological, and field understandings</td>
</tr>
<tr>
<td>Q2: What is it I want to know?</td>
<td>What is it I want to know?</td>
</tr>
<tr>
<td>Q3: What is the dialectical relationship between what the data are telling me and what I want to know?</td>
<td>Refining the focus and linking back to research questions</td>
</tr>
</tbody>
</table>
Analytic Strategies

1. Evaluation objectives or research questions identify **domains and topics to be investigated**. Analysis is carried out through multiple readings and interpretations of the raw data, the inductive component. Although the findings are influenced by the evaluation objectives or questions outlined by the researcher, **the findings arise directly from the analysis of the raw data, not from a priori expectations or models.**
Analytic Strategies

2. Findings are shaped by the researchers’ or evaluators’ assumptions and experiences. For the findings to be usable, researchers/evaluators must make decisions about what is more important and less important in the data.
3. Different evaluators may produce findings that are not identical and that have non-overlapping components. This points out the importance of stating one’s positionality, beliefs, knowledge of and experiences with the phenomena that they are studying.
1. **Analytical strategies and questions**
   - Focus is on - What **are core meanings evident in text** are relevant to research/evaluation objectives?

2. **Outcomes of analysis**
   - **Themes** or **categories** most relevant to research objectives are **identified**.
A Three Step Process

3. **Presentation of the findings**

   **Descriptions of the most important themes.** Summary or top-level categories are often used as main headings in the findings, with specific categories as subheadings. It is good practice to include detailed descriptions of categories and suitable quotations from the text to illustrate the meanings of the categories.
Coding Consistency Checks

To ensure the consistency of the findings the recommended approaches include:

- Independent parallel coding
- Check on the clarity of categories
- Member checks/Member checking
Independent parallel coding

1. Initial coder analyzes and develops a set of categories that constitute the preliminary findings.

2. A second coder is given the evaluation objectives and some or all of the raw text from which the initial categories were developed.

3. Without seeing the initial categories, the second coder creates a second set of categories from the raw text.

4. Second set of categories is compared with the first set to establish the extent of overlap.

5. Two sets of categories may be merged into a combined set.

6. When overlap between the categories is low, further analysis and discussion will be needed to develop a more robust set of categories.
Check on the clarity of categories

1. An initial coding of the raw data is completed. Second coder is given evaluation objectives, the categories developed, and descriptions of each category, without the raw text attached.

2. Second coder is given a sample of raw text (previously coded by the initial coder) and assigned sections of the text to the categories that have been developed.

3. The extent to which the second coder allocated the same text segments to the initial categories as the first coder is checked.
Check on the clarity of categories

4. Variation of checking the categories is to give a second independent coder both the initial categories and some of the text assigned to these categories.

5. The second coder is given a new set of text that has not been coded and asked to assign sections of the new text into the initial categories.
**Member checks/checking**

1. Allows participants to offer evaluation comment on or assess the research findings, interpretations, and conclusions to enhance the credibility of findings.

2. Participants comment on whether the categories and outcomes described in the findings relate to their personal experiences.

3. These checks may be carried out on the initial documents (e.g., interview transcriptions and summaries) and on the data interpretations and findings.

4. Checks by may be conducted progressively during a research project both formally and informally.
Practice coding

- Read Lines 8-12 in FG #1 and open code. Report out.
- Read Lines 17-19 in FG #1 and open code. Report out.
- Read Lines 27-37 in FG #1 and open code. Report out.
- Read Lines 49-52 in FG #1 and open code. Report out.
Practice coding

- Read Lines 12-19 in FG #2 and open code. Report out.
- Read Lines 23-28 in FG #2 and open code. Report out.
- Read Lines 38 in FG #2 and open code. Report out.
- Read Lines 43-49 in FG #2 and open code. Report out.
Develop conceptual definitions

See Table 4.
Constant Comparison Method

- Used to **group answers to common questions** and analyze different perspectives on central issues; Consists of four distinct stages:
  - **Compare** incidents applicable to each category,
  - **Integrate** categories and their properties,
  - **Delimit** the theory, and
  - **Write** the theory.
Constant Comparison Method

- These categories, while related to an appropriate analytic context, **must be rooted in relevant empirical material.** The analyst moves back and forth between logical construction and the actual data while searching for meaningful patterns.

- **Category meanings are bound up with the data bits to which it is assigned and to the ideas it expresses.**

- Resources useful to the process of category generation include inferences from the data, initial or emergent research questions, substantive policy and theoretical issues, imagination, intuition and previous knowledge.
After creating numerous piles, look at them and develop preliminary rules of inclusion. Write preliminary category names on the back of each data bit. After agreeing on a tentative list, articulate the rules of inclusion and the tentative category names on sheets of paper.
Refining Categories: First Stage

Next, mix data bits together, and place them into categories based on preliminary rules of inclusion. Checked to see if data bits that were not placed in their previously assigned categories. If this occurs compared the categories and agree on a placement that felt right at the time. Placed all unassigned data bits into an envelope labeled “miscellaneous.”

While combining tentative categories that look and feel alike, you will create some sub-categories and revise the rules of inclusion.
Refining Categories: Second and Third Stage

- Category refinement is an ongoing process throughout the data analysis. While examining the relationship between categories, certain categories may become subsumed under others, some be be sub-divided further.

- As refinements became more focused, some of the data bits will not fit a category's rules of inclusion. Sometimes those will need to be reviewed and modified. When this was done, examine the category's data bits to insure that they still fit.
Refinement Result

- After reading and re-reading the interview transcripts and slicing the data into smaller bits, researcher may find that most of the emerging data relates to one overarching theme.

- There should be a minimum of three overarching themes, but if there is only one overarching theme, there should be several subcategories.
The Audit Trail
What is an audit trail?

A transparent description of the research steps taken from the start of a research project to the development and reporting of findings. These are records that are kept regarding what was done in an investigation.
Audit trail explains researcher’s movement

- Selected text segments
- Themes
- Open codes
- Category
Example of an audit trail

<table>
<thead>
<tr>
<th>Text segment</th>
<th>Open codes</th>
<th>Category</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>“…then being in clinics where the doctors, a lot of the doctors let us take over the conversation”.</td>
<td>“LETTING US TAKE OVER CONVERSATION”</td>
<td>Fostering clinical readiness</td>
<td>Faculty-dependent development</td>
</tr>
</tbody>
</table>
Creating tables in qualitative research

- **Purpose of tables**
  - Provide evidence of researcher analytical process and decision-making

- **Types of tables**
  - Focus group questions
  - Initial coding
  - Audit Trial
  - Themes and Conceptual Definitions
Caveats in inductive analysis

- **Simplicity of the inductive framework should not be confused** with the controversies that surround in qualitative analysis such as the lack of generalizability or challenges for determining the credibility.

- For example, if a researcher studies a culture in which she lacks affiliation or background, or the language spoken analytical issues arise. To address this issue, the notion of research positionality has to be addressed.
Caveats in inductive analysis

The researcher needs to explain whether she is an insider, and share the characteristic, role, or experience under study with the participants, or an outsider to the commonality shared by participants, the personhood of the researcher, including her or his membership status in relation to those participating in the research.

For researchers there is no neutrality, only greater or less awareness of one’s biases.
Caveats in inductive analysis

- Neglecting to appreciate the force of what you’re leaving out, means that as a researcher you are not fully in command of what you’re doing.

- Critique of researchers’ roles emerged as social scientist developed greater consciousness of situational identities and their awareness of relative power accorded to researchers.
Caveats in inductive analysis

- An inductive approach is not considered to be as strong as other analytic strategies for theory or model development.
- Its advantage lies in its simple, straightforward approach for deriving findings.
Caveats in inductive analysis

An inductive analysis should result in an **easily used and systematic set of procedures** for analyzing qualitative data that can produce reliable and valid findings.
Helpful Tips

- **Consider how the analysis feels** and whether your writing about the analysis reflects this. It might offer a way to write yourself into the narrative without being self-indulgent or distracting from the purpose of research.

- **Be critical** about this and other frameworks for analysis. Do they fit how analysis feels to you, your stance, aims, purposes, and experiences?

- **Adapt the framework** to your own contexts.
Inductive analysis - the patterns, themes, and categories that emerge out of the data rather than being imposed on them prior to data collection and analysis.
Driven by **what an inquirer wants to know** and **how the inquirer interprets** what the data are telling according to subscribed theoretical frameworks, subjective perspectives, ontological and epistemological positions, and intuitive field understandings.
Summary

• Rather than an objective analysis, the process is highly reflexive.
Inductive analysis with focus group transcripts: Audit trails and tables in qualitative research

Presentation to ESP 10/19/16

Dr. Linda S. Behar-Horenstein
Distinguished Teaching Scholar & Professor, Education, Dentistry, Veterinary Medicine & Pharmacy
Director, CTSI Educational Development & Evaluation
Lsbhoren@ufl.edu