Analyzing Qualitative Data

The purpose of coding qualitative data is to take an overwhelmingly large amount of words or artifacts and organize them into manageable chunks. Following the steps in this outline and reading chapter 5 in the *Living the Questions* book (Hubbard & Power, 1999) will help you do that.

1. Prepare Your Data
   a. Interview data:
      i. Type the words of the interview verbatim from the audio recording of the interview.
      ii. Create one word processing file for each interview.
      iii. Print the interview transcript.
      iv. Make a copy of each transcript for each member of your group. Never work from your originals!
   b. Video data:
      i. Create a log of what happens in the video and/or transcribe the audio portion of the video (see Figure 1).
      ii. Make copies of the logs or transcripts. Never work from your originals!
   c. Artifacts/Journal data:
      i. Make copies of your originals. Never work from your originals!

2. Review your research questions.
   a. Your research questions guided your research design. They should also guide your data analysis.

3. Read through the transcripts or video logs (look over the artifacts/journals) several times, making notes of patterns that you see in the data. Each member of the research team should do this individually (see Figures 2 and 3).
   a. This is part of coding:
      i. Coding is the process of translating raw data into meaningful categories for the purpose of data analysis. Coding qualitative data may also involve identifying recurring themes and ideas. (http://www.utexas.edu/academic/diia/assessment/iar/how_to/interpreting_data/interviews/evaluation.php)
      b. While you read through the data, write notes to yourself, listing ideas or diagramming relationships you notice, and watch for special vocabulary that participants use because it often indicates an important topic. Because codes are not always mutually exclusive, a piece of text might be assigned several codes. (http://www.utexas.edu/academic/diia/assessment/iar/how_to/interpreting_data/interviews/evaluation.php)
        i. “Codes are tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study” (Miles & Huberman, 1994, p. 56).
        ii. Some patterns/codes will be explicit in the data. Others will be implicit. The only way you can start to recognize patterns is to read through the transcripts several times, keeping the research questions in mind.
c. The patterns you look for should be consistent with the research questions.
   i. For example, if the research question were, “how do students use analogies to learn chemistry?” the patterns you would look for would be the different ways or reasons students have for using analogies to learn (i.e. several students say they use analogies to “remember information,” to “memorize information” or to “decide what’s important to the teacher”).

d. Although most of your patterns should correspond to the research questions, sometimes there are exciting and unexpected patterns you can find in the data that you didn’t anticipate when you wrote your research questions.

e. Last, eliminate, combine, or subdivide coding categories and look for repeating ideas and larger themes that connect codes. You may end this part of coding with larger, subdivided codes.

<table>
<thead>
<tr>
<th>Question: “What in this course has helped you the most?”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Response</strong></td>
</tr>
<tr>
<td>I appreciate how much the instructor encouraged us to</td>
</tr>
<tr>
<td>voice our opinions and to ask questions in class. As much as</td>
</tr>
<tr>
<td>possible, he took the time to respond to everyone’s</td>
</tr>
<tr>
<td>questions and opinions, to explain concepts, and then to</td>
</tr>
<tr>
<td>make sure everyone understood his answers. This</td>
</tr>
<tr>
<td>helped me because I felt like I was being heard and I became</td>
</tr>
<tr>
<td>more involved in learning the material.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Initial Coding</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Encouraging expression of viewpoint</td>
</tr>
<tr>
<td>Encouraging questions</td>
</tr>
<tr>
<td>Responded to questions</td>
</tr>
<tr>
<td>Explained content</td>
</tr>
<tr>
<td>Check for understanding</td>
</tr>
<tr>
<td>Student feels valued</td>
</tr>
<tr>
<td>Student feels involved in own learning</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Focused Coding</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Encouraging student participation</td>
</tr>
<tr>
<td>Presentation of content</td>
</tr>
<tr>
<td>Student empowerment</td>
</tr>
</tbody>
</table>


4. Meet with the research team and discuss the patterns you each saw in the transcript.
   a. Decide on the patterns that you will look for as a group (usually those you agree on). These are called “coding categories.”
   b. Coding categories should be given a name and a definition (i.e. for a statement to correspond to the coding category “A,” it should have the following characteristics).
5. Each individual member of the group should then re-read the transcripts, marking places that correlate with one (or more) of the categories.
   a. I suggest marking statements correlating to each individual coding category with different color highlighters or by placing a code next to the statements. Some statements in the transcripts will correspond to more than one coding category. (see Figures 3-4)

6. The research group then meets with their coded transcripts and negotiates until they agree on a group coding. The group coding is marked on a separate copy of the transcripts and is the basis for the discussion in the poster/paper.

7. Although we have described only the identification of patterns, themes, or codes in qualitative data, qualitative data (interviews, open-ended surveys, student artifacts, journals, etc.) can also be investigated quantitatively. It depends on what your original research questions were. If your research questions involve identifying patterns, you won’t need to do a quantitative analysis of the data. If your question involves, say, looking at how many times a student demonstrates a particular activity, you will need to analyze your qualitative data quantitatively. IT ALL DEPENDS ON YOUR RESEARCH QUESTIONS!
   a. There are two options, depending on your research question:
      i. If you already know what behaviors you are looking for, then you can count the number of times those behaviors are exhibited in the qualitative data (see Figure 5).
      ii. If you are not sure what behaviors you might see in your data, go through your data to identify codes (as described above) and THEN count the number of times those behaviors are exhibited in the qualitative data.

IF YOU ARE QUALITATIVELY ANALYZING YOUR DATA, PROCEED THROUGH STEP #5 BEFORE COMING TO THE DATA FESTIVAL.

IF YOU ARE QUANTITATIVELY ANALYZING YOUR DATA, PROCEED THROUGH STEP #5 (IF APPROPRIATE) AND DO COUNTS OF YOUR CODES.
Videotape Cataloging Sheet

<table>
<thead>
<tr>
<th>Time Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Berkowitz (1997) suggests considering six questions when coding qualitative data:

- What common themes emerge in responses about specific topics? How do these patterns (or lack thereof) help to illuminate the broader study question(s)?
- Are there deviations from these patterns? If so, are there any factors that might explain these deviations?
- How are participants' environments or past experiences related to their behavior and attitudes?
- What interesting stories emerge from the responses? How do they help illuminate the central study question(s)?
- Do any of these patterns suggest that additional data may be needed? Do any of the central study questions need to be revised?
- Are the patterns that emerge similar to the findings of other studies on the same topic? If not, what might explain these discrepancies?

Bogdan and Biklin (1998) provide common types of coding categories, but emphasize that your central questions shape your coding scheme.

- **Setting/Context** codes provide background information on the setting, topic, or subjects.
- **Defining the Situation** codes categorize the world view of respondents and how they see themselves in relation to a setting or your topic.
- **Respondent Perspective** codes capture how respondents define a particular aspect of a setting. These perspectives may be summed up in phrases they use, such as, "Say what you mean, but don't say it mean."
- **Respondents' Ways of Thinking about People and Objects** codes capture how they categorize and view each other, outsiders, and objects. For example, a dean at a private school may categorize students: "There are crackerjack kids and there are junk kids."
- **Process** codes categorize sequences of events and changes over times.
- **Activity** codes identify recurring informal and formal types of behavior.
- **Event codes**, in contrast, are directed at infrequent or unique happenings in the setting or lives of respondents.
- **Strategy** codes relate to ways people accomplish things, such as how instructors maintain students' attention during lectures.
- **Relationship and social structure** codes tell you about alliances, friendships, and adversaries as well as about more formally defined relations such as social roles.
- **Method** codes identify your research approaches, procedures, dilemmas, and breakthroughs.
Figure 3. (from http://s142412519.onlinehome.us/uw/pdfs/G3658_12.PDF)

Example 2. Identify themes and label data.

Focus group interview, 10-02, North

Interviewer: What makes a quality program? What are the characteristics of a community-based program that you think is high quality?

**Respondent 1:** Availability. Any time you need a question answered, it's important that the staff be willing and able to answer questions and if they don't know the answers they get them for you quickly. With some services, you get routed 15 times before you get to the right person. When you call other offices if they don't know they will research it and they will get back to you so you don't have to worry whether you are on a wild goose chase or not. Local people want to talk to locals. They don't want to be pushed off. They want answers from their local staff and follow-up, too. I mean, they don't say OK I'll get back to you and 3 weeks later you still haven't heard anything.

**Respondent 2:** I know everyone is trying but being from the West side of the county, I don't feel like we're being served the way we could be and it seems the same people are being served over and over and over again; programs need to extend out.

**Respondent 3:** I guess it's all about the staff. They have to serve the community. Staff need to carry themselves in a professional manner and be attentive to any questions you have.

**Respondent 4:** I don't know if it's the program or the staff but it's gotten to the point that staff are wearing so many hats and they are stretched too thin. Programs have to prioritize and pick some of the most important things.
Inquiry starts with basic but focused question or problem that students are to answer, such as *why does diversity exist among life or our planet?* Through teacher guidance, students will come up with an answer. But before beginning the teacher will have students propose an answer. . . .

Thus the teacher acts as a guide in this project, not necessarily the provider of the answers to all questions posed by students.

The students’ role is to search out for answer to their questions, aided by activities which the teacher provides or (experiences) that the student may develop.

The classroom structure will involve guides teacher activities (for focus) to optimal ends activities developed by students.

Learning would take place outside the classroom as well. Students are encouraged to collect data/information that would aid… as are their ideas may change over time. Students would be expected to converse with one another.

Providing experience would depend on the subject. But in terms of discussing a teacher might present lesson that cover taxonomy or classification.

The goal or objective

Particular question would be to discover the role of evolutionary processes. In the end, students would come to take realization that diversity of life on the planet is a result of evolutionary process. That has been working for millions/billions of years and is still ongoing.
Figure 5. (from Hubbard & Power, 1999, p. 125)

<table>
<thead>
<tr>
<th>Name</th>
<th>Reading Journal Response Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Name</td>
</tr>
<tr>
<td></td>
<td>Feeling Only</td>
</tr>
<tr>
<td></td>
<td>Personal Connection</td>
</tr>
<tr>
<td></td>
<td>Feelings</td>
</tr>
<tr>
<td></td>
<td>Opinion</td>
</tr>
<tr>
<td></td>
<td>Asked Question</td>
</tr>
<tr>
<td></td>
<td>Text Connection</td>
</tr>
<tr>
<td></td>
<td>Character</td>
</tr>
<tr>
<td></td>
<td>Setting</td>
</tr>
<tr>
<td></td>
<td>Plot</td>
</tr>
<tr>
<td></td>
<td>Theme</td>
</tr>
<tr>
<td></td>
<td>Moral Lesson</td>
</tr>
<tr>
<td></td>
<td>Author's View</td>
</tr>
<tr>
<td></td>
<td>Genre</td>
</tr>
<tr>
<td></td>
<td>Predictions</td>
</tr>
<tr>
<td></td>
<td>Author's Quest</td>
</tr>
<tr>
<td></td>
<td>New Learning</td>
</tr>
<tr>
<td></td>
<td>Illusion</td>
</tr>
<tr>
<td></td>
<td>Real</td>
</tr>
<tr>
<td></td>
<td>Text</td>
</tr>
</tbody>
</table>
References


