Qualitative Data Analysis

How do we analyze qualitative data?

Qualitative data like

- Interviews
- Surveys (open ended q’s)
- Observations
Grounded Theory & Open Coding

• A grounded theory design is a systematic, qualitative procedure used to generate a theory that explains, at a broad conceptual level, a process, an action, or interaction about a substantive topic.

• Open coding is the process of identifying common themes and elements from data.
Grounded Theory & Open Coding

• Develop descriptions & themes from the data
  – Assign a code word or phrase that accurately describes the meaning of the text segment
  – Multiple coders check for code validity
  – Identify clusters or themes
  – Reduce code set if possible

Reliability and Validity
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• Why does this matter?

• Why discuss this here and now?
Reliability and Validity

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• What is the difference between Reliability and Validation?

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![Diagram showing the relationship between reliability and validity](image)
Reliability and Validity

• Why does this matter?

• Why discuss this here and now?

• What is the difference between Reliability and Validation?

• What are acceptable community standards?

Reliability

• Reliability refers to the extent to which the instrument provides consistent results
  – Internal reliability
  – Test-retest reliability
  – Correlation amongst related factors
    • Cronbach’s Alpha
  – Rater agreement

• Redundant questions as the key to testing reliability
  – Min 3 questions
Cronbach’s Alpha

• Basic equation for alpha

\[ \alpha = \frac{n}{n-1} \left(1 - \frac{\sum Vi}{V_{test}}\right) \]

- \( n \) = number of questions
- \( Vi \) = variance of scores on each question
- \( V_{test} \) = total variance of overall scores (not %'s) on the entire test

How big an alpha is necessary?

What can affect the size of the Alpha?

Reliability Interpretation

-.6 = not reliable
.6 = OK
.7 = reasonably reliable
.8 = good, strong reliability
.9 = excellent, very reliable
>.9 = potentially overly reliable or redundant measurement – this is subjective and whether a scale is overly reliable depends also on the nature what is being measured
Validity

• In addition to factors we have discussed before...

• Do a pilot test to explore whether your questions:
  – Discriminate between populations
  – Answers scale
  – Identify redundant questions

Different ways of validating results

• Inter-rater reliability
  – Cohen’s Kappa (2 raters), Fleiss Kappa for more
    \[
    K = \frac{\text{Agreement}(\%) - \text{random chance}}{1 - \text{random chance}}
    \]
  – K=1 means perfect agreement
  – What is adequate agreement?
Different ways of validating results

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  – K=1 means perfect agreement
  – What is adequate agreement?
    • Depends on a number of factors:
      – # of categories/codes
      – Whether the codes are equiprobable

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    \[ K = \frac{\text{Agreement}(\%)}{1 - \text{random chance}} \]
  – K=1 means perfect agreement
  – What is adequate agreement?
    • K<0 -> no agreement
    • 0 – 0.20 -> slight
    • 0.21 – 0.40 -> fair
    • 0.41 – 0.60 -> moderate
    • 0.61 – 0.80 -> substantial
    • 0.81 – 1 -> almost perfect