Human Coding & Interrater Reliability In Content Analysis

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2012 SMA Annual Meeting
Human Coding

We have computers, why on Earth use human coding?

1. When the meaning of the variable resides within source/receiver interpretation
   - Attributions (Lee et al., 2004)

2. When context matters
   - Socio-cognitive variables (King et al., 2011)

3. When concepts are not easily identified by particular words or phrases
   - Strategic actions (Zavyalova et al., 2012; Lamin & Zaheer, 2012)

4. To identify grounded or emergent variables
Measurement Issues

M = t + e

(measure = true score + error)

• Sources of error = Humans
  – Coder misinterpretation, poor scheme, inadequate training, inattention/fatigue, recording error, rogue coder!

• Thus, we need *reliability* – the extent to which a measuring procedure yields the same results on repeated trials
  – More specifically, *interrater reliability* – the amount of agreement or correspondence among two or more coders
Why Reliability?

• Validity of coding scheme
  – Results are not the idiosyncratic to rater subjectivity
• Allows for the use of multiple coders
• Replication over time

_Reviewers are going to ask for it!_
Reliability Flowchart
(Neuendorf, 2002; Weber, 1990)

Write Codebook
   (Variable Definitions)

Coder Training

Practice Coding
   (Together)

Revisions

Pilot Coding

Revisions

Practice Coding
   (Independent)

Reliability Check

Final Coding

Final Reliability
   (Cross Fingers!)

Revisions
   (Until Sufficient Reliability)
## Reliability Measures

[http://dfreelon.org/utils/recalfront/](http://dfreelon.org/utils/recalfront/)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Type</th>
<th>Best for</th>
<th>More than 2 coders?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent Agreement</td>
<td>Agreement</td>
<td>Nominal</td>
<td>No</td>
</tr>
<tr>
<td>Holsti’s Method</td>
<td>Agreement</td>
<td>Nominal</td>
<td>No</td>
</tr>
<tr>
<td>Scott’s Pi</td>
<td>Agreement (w/chance)</td>
<td>Nominal</td>
<td>No</td>
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<tr>
<td>Cohen’s Kappa</td>
<td>Agreement (w/chance)</td>
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<tr>
<td><strong>Krippendorff’s Alpha</strong></td>
<td><strong>Agreement (w/chance)</strong></td>
<td><strong>Any</strong></td>
<td>Yes</td>
</tr>
<tr>
<td>Spearman Rho</td>
<td>Covariation</td>
<td>Ordinal</td>
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<tr>
<td>Pearson Correlation</td>
<td>Covariation</td>
<td>Interval/ratio</td>
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</tr>
<tr>
<td>Lin’s Concordance</td>
<td>Covariation</td>
<td>Interval/ratio</td>
<td>No</td>
</tr>
</tbody>
</table>
Other Thoughts

• Codebook and form - make the set so complete and unambiguous as to eliminate individual coder differences

• At least 2 coders, 10% overlap ranging between 50-300 observations depending on sample size

• Reliability can be low when coding subjective into objective, thus cut-offs can be lower (.67-.80)

• Blind coding is preferable

• Consensus needed when training/building, but not in final coding

• What to do with variables that are not reliable?
  – Redefine variable, split variable, re-train coders, drop variable, drop coder, integrate non-content analytic data

• Need separate reliability for each measure

• With CATA, reliability always = 1, but validity still an issue
Tips

• Habits & Routines
  – Code daily, but avoid fatigue

• Spend time up front
  – Familiarize self with content texts and theory
  – Invest in training!

Revise early and revise often!
References


