Frame Search and Re-search: How Sociological Articles Change During Peer Review

(with Von Bakanic, College of Charleston)

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The gray box of peer review

Manuscript → Models → Assumptions → Decision 1 → Decision 2 → Decision 3 → Outcome
Research on Peer Review

- Is peer review fair?
- Is peer review reliable?
- Is peer review valid?
- Often data = grants
A Different Angle – Constructive Angle

- What about revise and resubmit?
- First round of reviews at ASR:

<table>
<thead>
<tr>
<th></th>
<th>ASR\textsuperscript{a} Referees</th>
<th></th>
<th>ASR\textsuperscript{a} Editor</th>
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</thead>
<tbody>
<tr>
<td>Both recommend</td>
<td></td>
<td>Immediate</td>
<td></td>
</tr>
<tr>
<td>acceptance</td>
<td>10%</td>
<td>acceptance</td>
<td>11%</td>
</tr>
<tr>
<td>Split</td>
<td>33</td>
<td>Revise and</td>
<td>24</td>
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<tr>
<td></td>
<td></td>
<td>resubmit</td>
<td></td>
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<td>Both recommend</td>
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<td>Immediate</td>
<td>65</td>
</tr>
<tr>
<td>rejection</td>
<td>100% (342)</td>
<td>rejection</td>
<td>100% (342)</td>
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</table>


- How “quality” is created
**Research Question, Significance**

- **Question:** When reviewers find that the fit between theoretical framing and data analysis is inappropriate, what does the author change?

  Different changes = different modes of peer review
  - "Question-centered mode"
    - Research question is central.
  - "Data-driven mode"
    - Data analysis is central.

- **Significance:**
  - **Self-understanding**
  - Is R/R useful
  - What should we instruct reviewers to do? ↩ little work on this
Empirical Approach: Typical Trajectory

- Research question formulated
- Exploratory analysis
- Comments from colleagues
- Etc.

(Not publically available)

Submission to journal

ASA presentation

Publication

Research Project

- Peer review
- Comments from colleagues
- Additional analyses
- Readability improvements
- Etc.
Empirical Approach: Approximation

(Often publically available!)

ASA presentation paper = Submission to journal

(Always available)

Published paper

Research Project

Peer review

Etc.
Data: Articles from ASR and SF

1. Find articles that mention “american sociological association annual meeting”
   - 15 articles from *American Sociological Review*
   - 15 articles from *Social Forces*

2. Match to previous versions in ASA online database
   - Did not use all search results.
     - Article not quantitative
     - Article not uploaded to ASA database
   - 40% of *ASR*, 65% of *Social Forces* search results suitable
Methods: Measuring Change

- **Qualitative**
  - Read a sample of article pairs line-by-line and noted all changes

- **Quantitative**
  - Text similarity between ASA and published, section-by-section
    - Calculated computationally
  - Changes in theoretical framing
    - Changes in references used in lit review/theory sections
  - Data analysis
    - Changes in variables used in data analysis
Results: Qualitative

Data sources: Rarely change

Article pair 1

- Theoretical framing expanded, data analysis similar
  - ASA paper
    - Is diversity good for business?
    - Theoretical framing: diversity, racial diversity
  - Published paper
    - Is diversity good for business?
    - Theoretical framing: diversity, racial diversity, gender diversity
    - Data analysis: gender variable added
Article pair 2

- Theoretical framing different, data analysis similar
  - ASA paper
    - What determines how much people volunteer?
    - Hypothesis: “female leaders will volunteer fewer hours per week than their male counterparts”
  - Published paper
    - What determines how much people volunteer?
    - Hypothesis: The gender of the leader will have a direct impact on weekly leadership effort such that female presidents will devote more time each week to the organization than male presidents”
Results: Qualitative, cont’d

Article pair 3
• Theoretical framing different, data analysis expanded
  o ASA paper
    ▸ Cultural vs political factors → amount of pollution
    ▸ “Races” 3 theories: modernization, political economy, institutional theory
  o Published paper
    ▸ Cultural vs political factors → amount of pollution
    ▸ “Races” 2 theories: political economy, institutional
    ▸ Data analysis: adds an important interaction effect
Results: Text Similarity

y-axis: similarity of text between ASA and published version
(higher number, better average sentence match)
x-axis: section
Results: Similarity of Theoretical Framing

References in lit. review and theory sections:

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<tr>
<th></th>
<th>ASA version</th>
<th>Published version</th>
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</thead>
<tbody>
<tr>
<td>Mean</td>
<td>34.4</td>
<td>40.5</td>
</tr>
<tr>
<td>Min</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Max</td>
<td>73</td>
<td>85</td>
</tr>
<tr>
<td>Std</td>
<td>21.9</td>
<td>18.0</td>
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</table>

The percent of “old” references used in the “new” version of a paper is **31%** (sd = 0.21)
Results: Similarity of Data Analysis

Variables used in data analysis:

<table>
<thead>
<tr>
<th></th>
<th>ASA version</th>
<th>Published version</th>
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</thead>
<tbody>
<tr>
<td>Mean</td>
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<td>25.5</td>
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<tr>
<td>Min</td>
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<tr>
<td>Max</td>
<td>77</td>
<td>88</td>
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<tr>
<td>Std</td>
<td>15.7</td>
<td>16.2</td>
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</table>

The percent of “old” variables used in the “new” version of a paper is: **58.9%** (sd = 0.25).
Conclusion: Which Mode of Peer Review?

- **Question:** When reviewers find that the fit between theoretical framing and data analysis is inappropriate, what does the author change?

- **Answer:** Theoretical framing

**Implications:** is R/R useful?
• Now: second project.
• (Note to self: take a breath.)

- With Von Bakanic, College of Charleston
Research question: Do peer reviews predict short- and/or long-term citations?

Motivation

• What can reviewers realistically evaluate/predict?
  • Impact?
  • Truth?
  • Originality?
  • Conflict of interests?

Quality vs. recognition of quality

1. Plausible: Quality = a little bit old + a little bit new
2. Recognition of quality: innovation is disruptive?
  1. E.g. Strength of Weak Ties
The data

• **ASR 1978-1982**

• **Dataset #1**
  - 755 manuscripts
  - 234 published (130 so far)
  - Includes reviewers’ decisions

• **Subset**
  - 323 manuscripts
  - 52 published
  - Includes reviewers’ decisions and review texts
The diagram titled "Articles by Peer Review Outcome" shows the number of articles for different review outcomes. The outcomes are categorized as follows:

- 1 round: Consensus accept
- 1 round: No-consensus accept
- 2+ rounds: Consensus accept
- 2+ rounds: No-consensus accept

The number of articles is represented on the y-axis, ranging from 0 to 40. The bars indicate the following counts:

- 1 round: Consensus accept: 20 articles
- 1 round: No-consensus accept: 15 articles
- 2+ rounds: Consensus accept: 35 articles
- 2+ rounds: No-consensus accept: 15 articles
Citations (*median*) by Peer Review Outcome

![Cumulative Citations Graph](image)

- 1 round: Consensus accept
- 1 round: No-consensus accept
- 2+ rounds: Consensus accept
- 2+ rounds: No-consensus accept

**Y-axis:** Median citations

**X-axis:** Years since publication
Consensus vs No-consensus

Cumulative Citations

- Consensus accept
- No consensus

Median citations vs Years after publication

- Consensus shows a steady increase in citations over time.
- No consensus shows a slower, more erratic increase in citations.
What kind of model of individual choices is most likely?

- Model 1: Idiosyncratic preferences
  - Each reviewer judges on a different dimension
- Model 2: “Representative”
  - Each reviewer judges “as the community”

Intuition:
If model 1, some no-consensus articles should be high impact
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<td>SOCIAL-CHANGE AND CRIME RATE TRENDS - ROUTINE</td>
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<tr>
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<td>POWER, EQUITY AND COMMITMENT IN EXCHANGE NETWORKS</td>
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<td>212</td>
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What Does Journal Peer Review Accomplish in Quantitative Sociology? An Empirical Study

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