Understanding the various meanings of ‘scientific integrity’

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Willem Halffman
Perceptions That Influence the Maintenance of Scientific Integrity in Community-Based Participatory Research

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Abstract
Scientific integrity is necessary for strong science, yet many variables can influence scientific integrity. In traditional research, some common threats are the pressure to publish, competition for funds, and career advancement. Community-based participatory research (CBPR) provides a different context for scientific integrity with additional and unique concerns. Understanding the perceptions that promote or discourage scientific integrity in CBPR as identified by professional and community investigators is essential to promoting the value of CBPR. This analysis explores the perceptions that facilitate scientific integrity in CBPR as well as the threats among a sample of 74 professional and community CBPR investigators from 25 CBPR projects in nine states in the southeastern United States in 2013. There were variations in perceptions associated with team member identity as professional or community investigators. Perceptions identified to promote and discourage scientific integrity in CBPR by professional and community investigators included maintaining scientific integrity: communication, trust, and cooperation; maintaining scientific integrity: confidentiality; maintaining scientific integrity: funding; maintaining scientific integrity: maintaining scientific integrity: support; maintaining scientific integrity: maintaining scientific integrity: integrity.
Research questions

How are the terms ‘scientific integrity’ and ‘research integrity’ used and understood in the scientific and public discourse?

How has this developed over time?

Descriptive study on the usage of ‘integrity’ in written documents
  • Scientists
  • Policymakers
  • (Newspaper) journalists
Definitions of integrity and misconduct differ in various dimensions:

- Narrow vs. Broad
- Value-based vs. Norm-based
- Components of research
Methods

Scientometric- and content analysis techniques to study large amounts of texts

• Word-counts
• Co-occurrence analysis
• Theme recognition and co-occurrence
Co-occurrence network

Research questions
Data
Theoretical framework
Results
Methods
Conclusion

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Data

Scientific publications
- Web of Science (637 articles)
- Science and Nature (49 articles)

English newspaper articles
- LexisNexis (53 articles)

Policy documents
- Temporal division (20 documents)
- Geographical division (36 documents)
Results: Timing

Scientific articles

Number of scientific publications

Year

Research questions
Data
Methods
Conclusion
Results: Timing

Scientific articles

- Plagiarism
- Scientific Fraud
- Fabrication
- Falsification
- Misconduct

Research questions
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Results: usage and understanding

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## Results: usage and understanding

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Conclusion

‘Integrity’ in science has not always been subject to debate – only for several decades.

- Attention is growing rapidly

The discourse on scientific integrity is different in the scientific and the public domain

- Major differences between scientists’ and policymakers’ approach
  Narrow ↔ Broad
  Value based ↔ Norm based
  Different components of research