Workshop

Reproducible Scientometrics Research: Open Data, Code, and Education

Wuhan, Oct 17, 2017
ISSI 2017
Welcome

On behalf of the workshop organizers: Sybille Hinze, Jason Rollins, Jesper Schneider, Theresa Velden, Ludo Waltman (in absentia: Katy Börner & Andrea Scharnhorst)

Workshop Goal: Identify challenges to the reproducibility of research in the field of scientometrics and infometrics and key actions to improve reproducibility
1:30 - 3:00 PM Presentations & Discussion
3:00 - 3:30 PM Coffee Break (sponsored by Clarivate Analytics)
3:30 - 4:30 PM Discussion Groups
4:30 - 5:00 PM Plenary: Discussion & Conclusion
Agenda

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3:30 - 4:30 PM Discussion Groups
  • Data
  • Methods (Software, Statistical Analysis)
  • Interpretation & Knowledge Claims
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3:00 - 3:30 PM Coffee Break *(sponsored by Clarivate Analytics)*
3:30 - 4:30 PM Discussion Groups
4:30 - 5:00 PM Plenary *(chaired by: Sybille Hinze)*
  • Discussion: Key Challenges to Reproducibility in Scientometrics & Key Actions
  • Conclusion
Introduction to Workshop

Terminology & Motivation

Sybille Hinze & Theresa Velden
Terminology & Concepts
- Scope of reproducibility -

A. Technical reproducibility $\rightarrow$ verification of result
   • Can the result be repeated with the given procedure?
   • Level of re-use affects visibility of issues with exact replicability

B. Conceptual reproducibility $\rightarrow$ robustness of interpretation
   • Can the knowledge claim be corroborated by an alternative approach?
   • Level of re-use & interdependency and intensity of research affect visibility of issues with conceptual replicability
When is irreproducibility problematic?
Reproducibility 'Crisis'

= Concern about reliability of published research, in particular in biomedicine and psychology

> 50% of studies published in preclinical research not reproducible (equivalent to $28 billion research investment)

Freedman et al., PLOS Biology, 2015

Replication study of 100 studies found only 36% of significant results, and largely reduced effect sizes.

Open Science Collaboration, Science 349(6251), 2015
Reproducibility ‘Crisis‘
Practices undermining reproducibility

fraud
error
questionable methods
overselling (interpretation)
publish bias

robustness of a knowledge claim
(correct conceptual reproducibility)

correctness of a result
(exact reproducibility)

P practices undermining reproducibility
Reproducibility 'Crisis'
Proposed *open science* measures

- Pre-registration of trials *(quality control of methods and study design, address publication bias)*
- Open code/scripts *(quality control of methods & implementation)*
- Data sharing *(quality control of data analysis & interpretation)*
- Open peer-review *(quality control of methods & interpretation)*
- ...

Workshop Motivation

Issues vary with the specific epistemic practices in a field - how about scientometrics?
Questions for this Workshop

• What threats to the reliability of scientific knowledge in scientometrics exist & why bother?

• Should we be more concerned about exact or conceptual reproducibility? (Why?)

• Through what measures can these threats be addressed?
Agenda

1:30 - 3:00 PM Presentations & Discussion

1. Introduction (Theresa Velden & Sybille Hinze)
2. Reproducibility in Scientometrics - Data Enclaves, Open Code, and Open Education (Katy Börner - video)
3. Reproducibility in Scientometrics Through Quality Assurance (Sybille Hinze)
4. A Vendor’s View on Reproducibility - Datasets, Tools, & Partnerships (Jason Rollins)
5. Reproducibility in Scientometrics - A Journal Editor’s Perspective (Ludo Waltman)
6. Reproducibility - Principles and Challenges (Jesper Schneider)
7. Reproducibility & the Performativity of Methods (Theresa Velden)