

Workshop: Reproducible Scientometrics Research Outcome of Working Groups

Working Group 1: Data (Rapporteur: Sybille Hinze)

- The data is foundational to what comes after, therefore, we need good data.
- Requirements:
 - Stability (as a precondition of reproducibility)
 - Need to be aware of the constraints of the data (need information about the data: transparency of data, their characteristics, processes and decisions made in data collection and data handling (cleaning,...); should be made in some appendix that comes with data)
- Need to be pragmatic, not make process too burdensome
 - Need to realize it for more traditional data sources
 - Huge problem for alternative data sources (face more black boxes than compared to traditional data sources)
 - Need to put same requirements on ourselves not just database vendors

Working Group 2: Computational Methods (Rapporteur: Ludo Waltman)

- Need clear standardized protocols for checks to make sure that the most standard errors are avoided
- Indicators need to be calculated at least two times to ensure correctness (especially when working with students or young researchers - some practical examples were given how some of us do it)
 - Issue, sometimes need to rely on data provided by others
- Need better explanations of what the tools used actually do; this is a requirement for both for developers and users
- Especially in applied scientometrics: How in detail have these indicators been obtained; importance of having discussions with clients
- Related: Journal publishing system could help improve: have some questions for reviewers (Do you believe this research could be reproduced?); perhaps for high stake research - provide incentives to replicate; consider open peer-review to increase quality of reviews; grant certificate to articles that provide reproducibility

- Audience suggestion: To provide authors with a check list for good method descriptions; and how they suggest others should go about replicating it
- Audience suggestion: Should journals not mandate deposit of software code? Ludo Waltman: Maybe the most complex and central pieces; otherwise may not be feasible the many different scripts
- Issue: if data is no longer available, then reproducibility is undermined; desirable for data vendors to make more (perhaps older) data available

Working Group 3: Statistical Methods (Rapporteur: Jesper Schneider)

- Over-reliance on statistical significance and statistical inference is a bad thing
- Garbage in, garbage out: obviously relates to data
- Concerned about value of scientometrics if dependent on these things
- Statistics as prime evidence for knowledge claims is problematic, other evidence needs to be used
- To do:
 - More openness, document better
 - If interesting, try to reproduce things
 - Journals have important role: they are the best place to put out best practices or at least requirements for making things more reproducible

Working Group 4: Interpretation (Rapporteur: Alesia Zuccala)

- Had trouble defining conceptual replication: what knowledge claim are you making, is it true for more than one case?
- Need to have a clear explanation of underlying concepts and assumptions, e.g. for policy recommendations
- Concepts versus how they are operationalized: in our field often operationalization is enough; problematic is fuzzy conceptualization
- Threat: The data drives how we conceptualize things