

Open Science in the Research Process

“The Big Overview”

Caveat! (1)

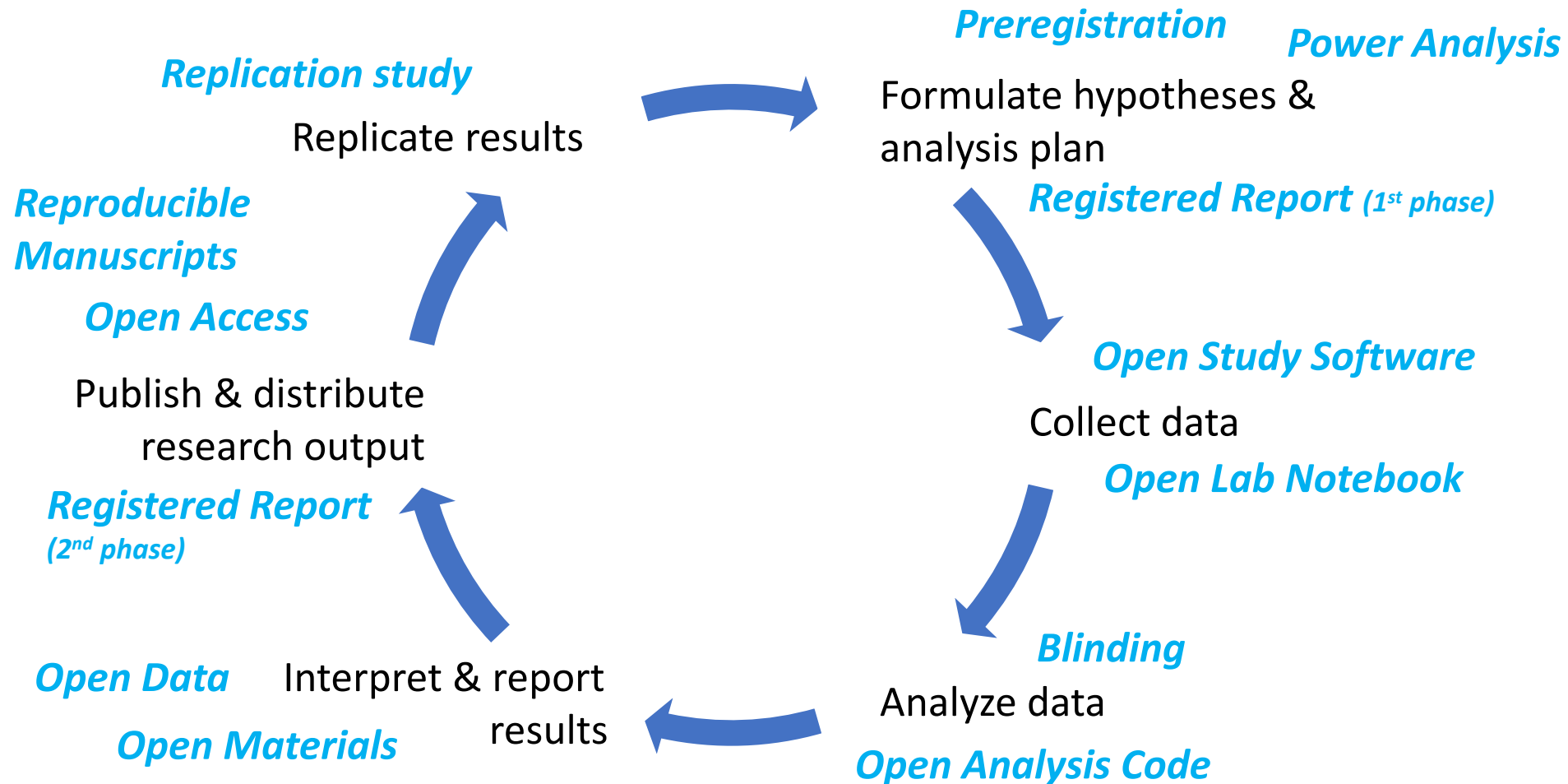


Caveat! (2)

This overview is not exhaustive.



Open Science in the research process



Preregistration

- Templates: What to include in your preregistration
 - <https://osf.io/zab38/wiki/home/>
- Examples for good preregistrations
 - <https://osf.io/e6auq/wiki/Example%20Preregistrations/>

Power Analysis

- How to determine a “reasonable” effect size as a basis
 - [From existing literature \(! overestimate, corrections don't work\)](#)
 - [Safeguard power](#)
 - [Smallest effect size of interest](#)
 - [Bayes: Prior Elicitation / Distribution as an underlying effect size](#)
- How to conduct a power analysis
 - [G*Power](#)
 - [R package pwr](#)
 - [Power für Strukturgleichungsmodelle: R package simsem](#)
 - [For Bayesian sample size planning: R package BFDA](#)

Registered Reports

- Current overview of journals and FAQ: <https://cos.io/rr/>

Open Study Software

- Programming experiments:
 - [PsychoPy](#)
 - [PsyToolkit](#)
 - [Open Sesame](#)
 - [lab.js](#)
- Born Open Data (upload data automatically to a repository during your experiment)
 - Rouder, J. N. (2016). The what, why, and how of born-open data. *Behavior Research Methods*, 48(3), 1062–1069.
<https://doi.org/10.3758/s13428-015-0630-z>

Open Lab Notebooks

- How to pick a lab notebook:
 - <https://www.nature.com/articles/d41586-018-05895-3>
- Broader perspective: How to organize a lab in times of Open Science
 - <https://psyarxiv.com/gxcy5>

Blinded Analyses

- How do blinded analyses work?
 - Dutilh, G., Sarafoglou, A., & Wagenmakers, E.-J. (2019). Flexible yet fair: Blinding analyses in experimental psychology. *Synthese*. <https://doi.org/10.1007/s11229-019-02456-7>

Open / Reproducible Analysis Code

- Open Statistical Software
 - R (for programming): <https://www.r-project.org>
 - JASP: <http://jasp-stats.org/>
 - Jamovi: <https://www.jamovi.org>
- Ensuring the reproducibility and replicability of your analysis
 - General: Epskamp, S. (2019). Reproducibility and Replicability in a Fast-Paced Methodological World. *Advances in Methods and Practices in Psychological Science*, 2(2), 145–155. <https://doi.org/10.1177/2515245919847421>
 - Well documented / readable code: <https://style.tidyverse.org/index.html>
 - Version control with Git: <https://github.com/jstbcs/ReproducibleWorkflowWorkshop#how-to-prepare>
 - Clear code structure and package dependencies: R Projects / Packages <http://r-pkgs.had.co.nz>
 - For experts: Document your whole programming environment with Docker <https://ropenscilabs.github.io/r-docker-tutorial/>

Open Materials / Data

- Publish FAIR data
 - <https://www.go-fair.org/fair-principles/>
- Working with trusted data repositories
 - <https://www.psychdata.de>
 - <https://help.osf.io/hc/en-us/articles/360019737894>
- License your study materials
 - <https://creativecommons.org/licenses/?lang=de>
- Document your data using a codebook
 - <https://rubenarslan.github.io/codebook/>
- Comply with the GDPR:
 - <https://gdpr-info.eu>

Open Access

- Publish your work in an open thesis repository
 - <https://thesiscommons.org>

Reproducible Manuscripts

- Writing reproducible manuscripts with Rmarkdown and Papaja:
 - Intro to Rmarkdown:
<https://github.com/jstbcs/ReproducibleWorkflowWorkshop#how-to-prepare>
 - Intro to Papaja:
https://crsh.github.io/papaja_man/introduction.html
- Using Open Citation Software that allows you to share your references
 - <https://www.zotero.org>

Replication Studies

- Why should we conduct replication studies?
 - Pashler, H., & Wagenmakers, E. (2012). Editors' Introduction to the Special Section on Replicability in Psychological Science. *Perspectives on Psychological Science*, 7(6), 528–530. <https://doi.org/10.1177/1745691612465253>
- Which studies should we choose?
 - Field, S. M., Hoekstra, R., Bringmann, L., & Ravenzwaaij, D. van. (2019). When and why to replicate: As easy as 1, 2, 3? *Collabra: Psychology*, 5(1), 46. <https://doi.org/10.1525/collabra.218>