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A Guide to Peer Review

Training the next generation of Early Career Reviewers

Flora Logoz, Corinna Martarelli, Rachel Heyard

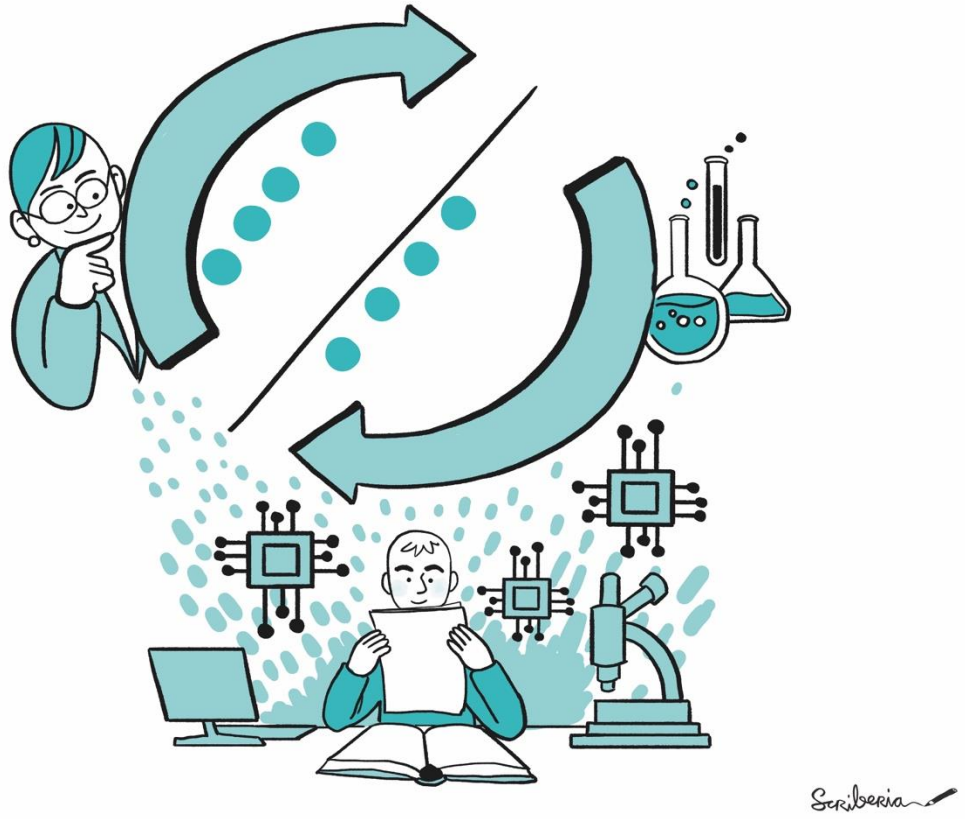

Fig 1: https://book.the-turing-way.org/

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Content

- Background
- The Project
- The Guide
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- Outlook

Background

“Replication Crisis“

Research Article

Measuring the Prevalence of Questionable Research Practices With Incentives for Truth Telling

Leslie K. John[1], George Loewenstein[2], and Drazen Prelec[3]

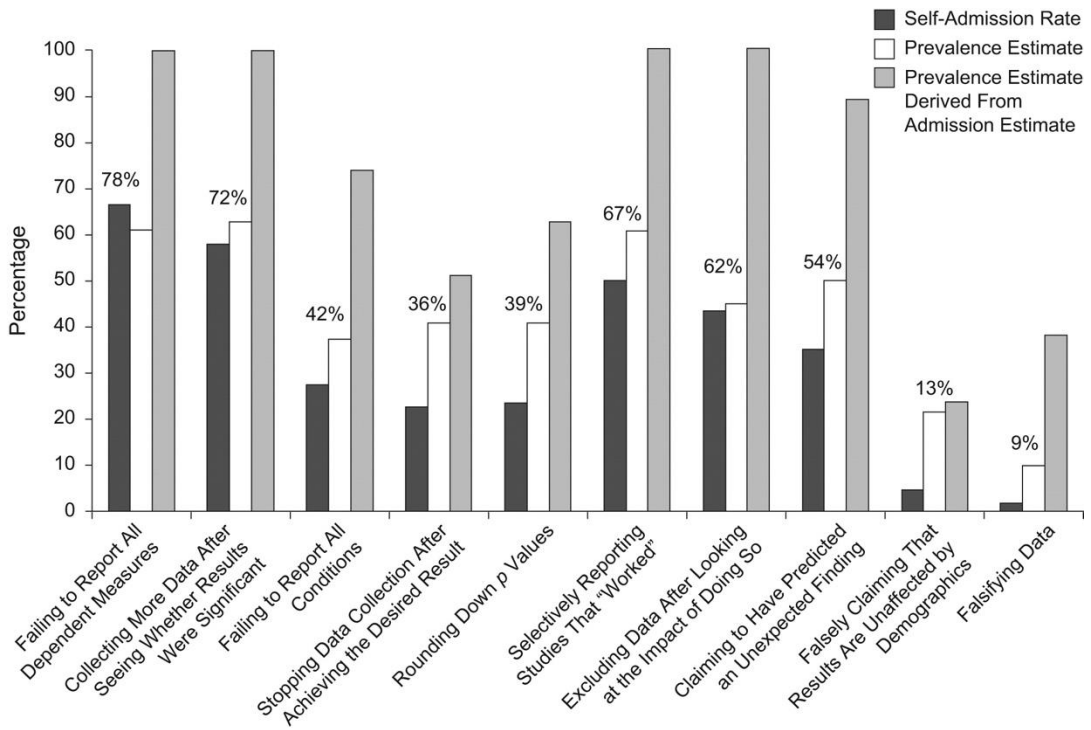
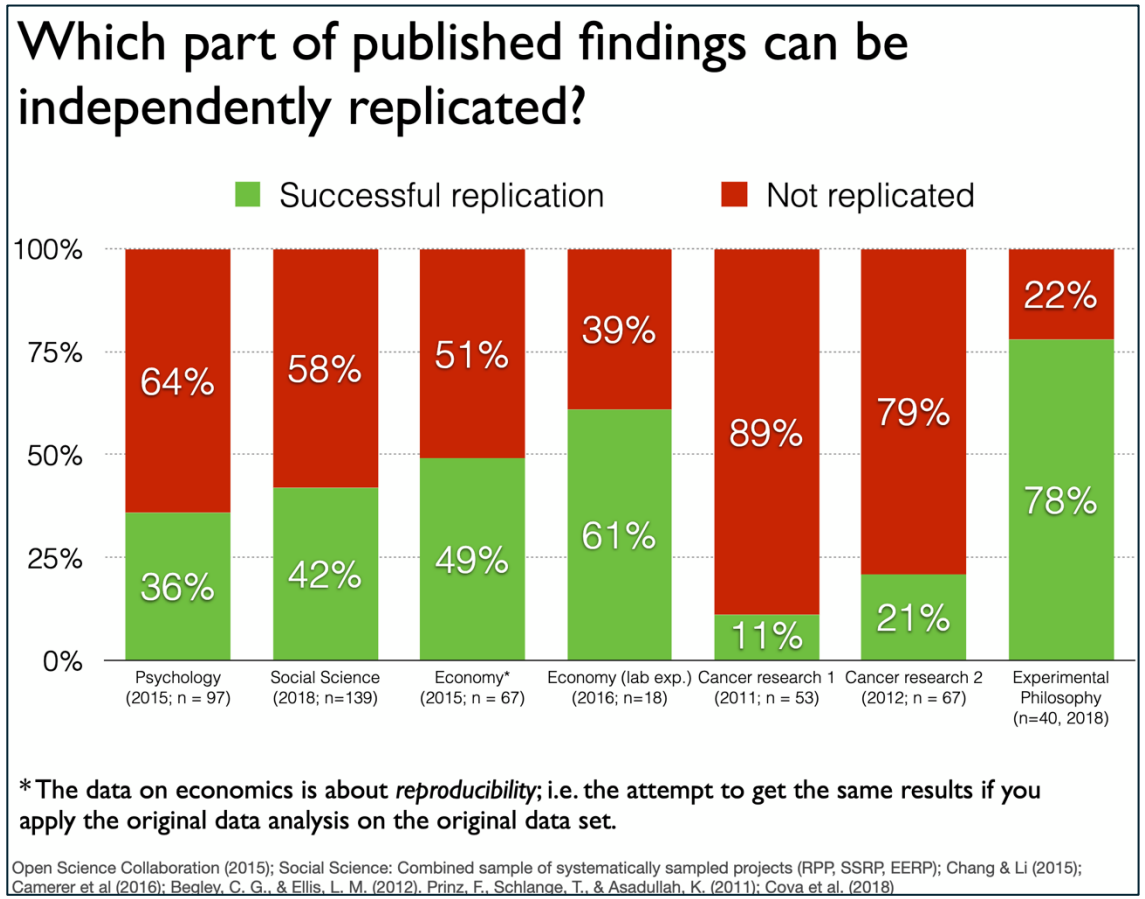


Fig. 2: John et al. (2012)

Excerpt of „From Crisis to Rennaisance“, a Power Point Presentation by Felix Schönrbodt (2022)



Schönrbodt (2022)

Contributing Factors:

- **Questionnable Research Practices:** HARK-ing, p-hacking, selective reporting
- **Publication Bias** thowards Significant Results
- **Researcher Degrees of Freedom:** Stopping criteria, exclusion of observations, comparisons and combinations of conditions, choice of covariates etc. (Simmons et al., 2011)

Peer Review

- **Gate-keeping function:** A tool to prevent erroneous research to be published
- **Quality control:** Ensure that published papers meet certain standards (e.g., reporting, data patency, …)

→ Empower authors to make the best out of their manuscript

„ the goal (…) is to ensure that the valid article is accepted, the messy article cleaned up, and the invalid article rejected“
(Weller, 2001)

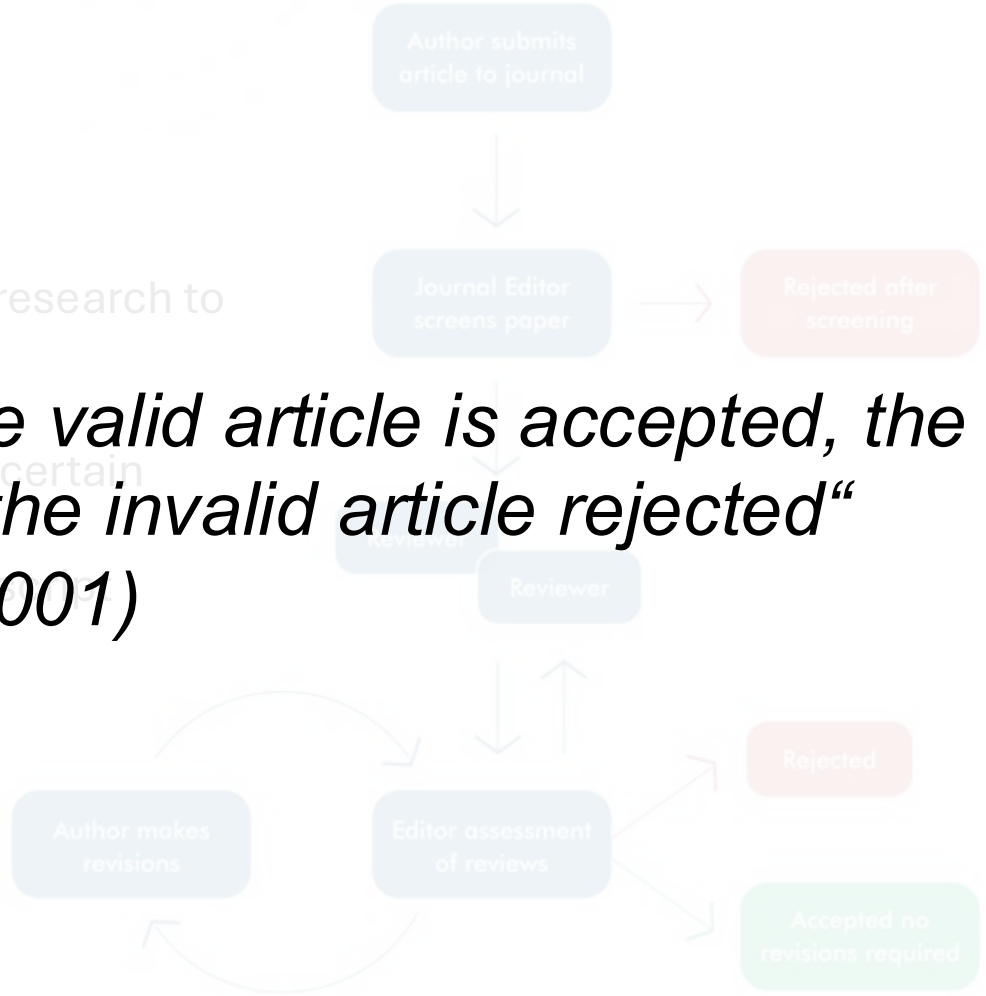


Figure 3: https://www.j-psp.com/home/peer-review-process

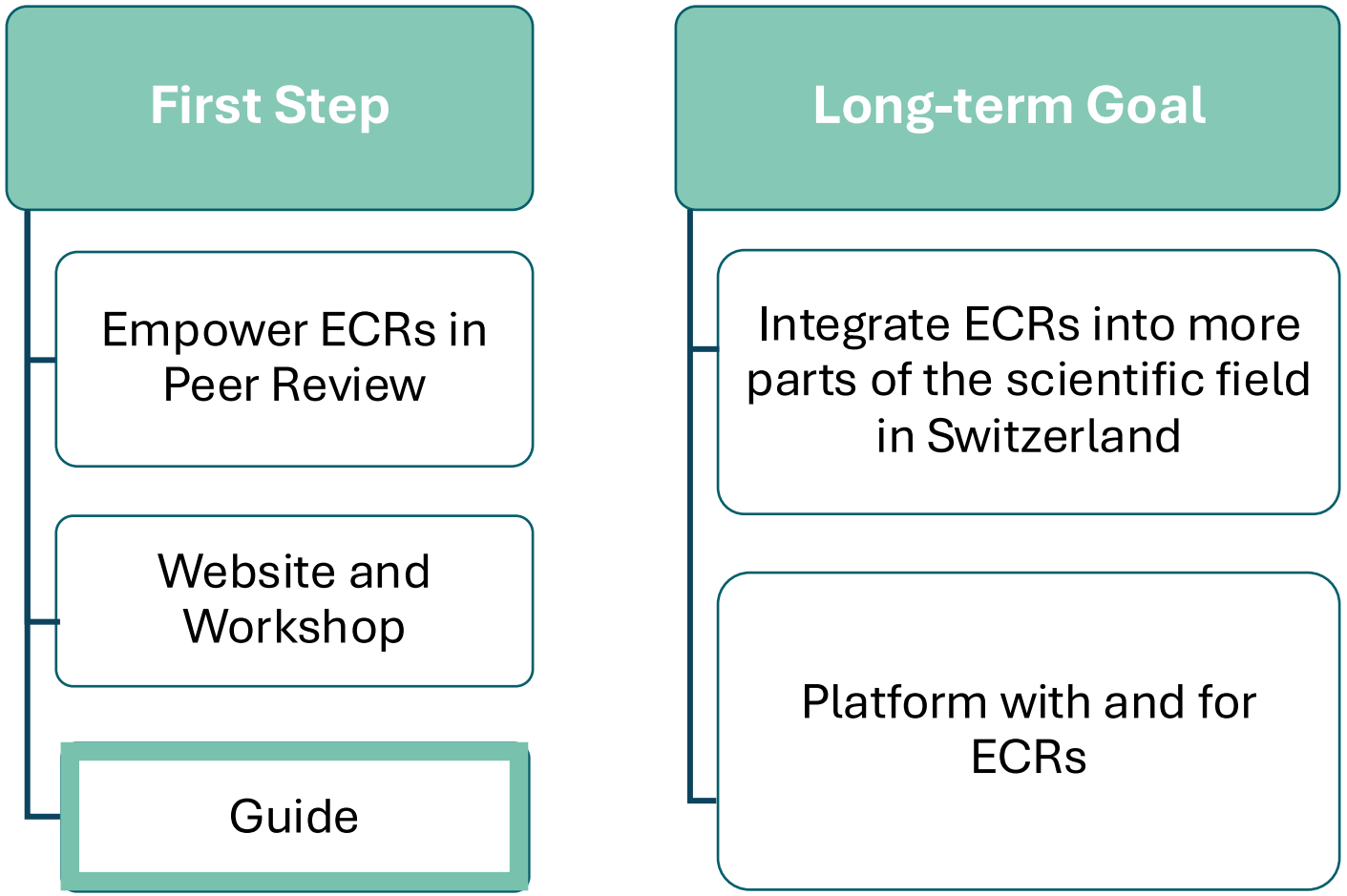
Early Career Researcher (ECR):
Early doctorate to early post-doc

- ECRs at the forefront of Open Science and Good Scientific Practices
- However, ECRs are still underrepresented in important parts of academia, e.g., admission panels

Peer Review : Quality control for science dissemination

- Number of journal submissions grows faster than number of experts in the respective field
- Editors increasingly reach out to ECRs for peer review (PR)
- PR is “learned on the job”: ECRs receive no formal training on PR

The Project


First Step
Empower ECRs in Peer Review
Website and Workshop
Guide
Long-term Goal
Integrate ECRs into more parts of the scientific field in Switzerland
Platform with and for ECRs

The Guide

- This guide is the essence of a workshop and website on PR

- Aim: **Empower ECRs** in conducting **methodologically rigorous PR**

- Content: What is a “good” PR? How to review the methods? What are good research practices?

- Target group: Non-statistician ECRs in empirical and quantitative research fields

(e.g., bio-medicine, psychology, political science)

ECR Reviewers Platform

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Welcome

About this Project

The reproducibility crisis affects all of published research, in and outside of Switzerland. Early career researchers (ECRs) have been among the strongest advocates for transparency, reproducibility, and good scientific practices. However, their voices are still underrepresented in many parts of the academic field. At the same time, there is a growing demand for ECRs to peer review scientific papers. As the number of submissions of manuscripts to journals grows disproportionately faster than the number of new researchers, journal editors increasingly reach out to junior reviewers. However, peer review is still learned "on the job" which makes it especially challenging to ECRs. Our project aims, in a first place, at empowering junior reviewers and equipping ECRs with the necessary skills to conduct methodologically rigorous peer review. In the long term, we want to build a platform with and for ECRs to increase their representation in scientific expert boards and research evaluation panels in Switzerland.

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  - About this Project
  - Aim of this Guide
  - Structure of this Guide
- Acknowledgements

Structure of this Guide

1. **Asked to PR?**
   - ❖ When (not) to accept

2. **How to conduct Peer Review**
   - ❖ What to consider beforehand
   - ❖ Reviewing the different parts of the manuscripts

3. **How to write the Peer Review Report**

Info Box

This is what an Info Box looks like - Info Boxes summarize and define relevant concepts.

Tool Box

This is what a Tool Box looks like - Tool Boxes provide the reader with practical advice and helpful tools.

Further Information

Info Box

This is what an Info Box looks like - Info Boxes summarize and define relevant concepts.

Tool Box

This is what a Tool Box looks like - Tool Boxes provide the reader with practical advice and helpful tools.

Further Information

Within the guide, you will also find this sort of window with further information. Just like the Info and Tool Boxes, you can open and collapse these windows. That way, you can read them or ignore them according to your interests.

1. Asked to peer review?

- You don‘t have to accept! But please anwer to the invitation e-mail!
- When to accept / decline and what to do if you‘re unsure

→ Time, experitise

→ Also: *Values!* (Info Box on Open Science Principles) and be aware of predatory journals!

> If you want to actively contribute to Reproducibility and Open Science, check out the Peer Reviewer's Openness (PRO) initiative's guidelines for reviewers. Note that the PRO initiative's platform also includes guidance to help authors comply to the principles of Open Science.

> In case you are invited to review a manuscript that does not adhere to the above Open Science principles, the PRO initiative provides examples of how to address such issue with the editor.

2. How to Peer Review

Before you start

- Journal Guidelines, Reporting Guidelines, confidentiality etc.
- Is the study within the scope of the journal?

General recommendations

- tips and tricks from experienced reviewers

„Record your thoughts as you read“

„Outsmart your own biases!“

Reviewing the different sections of a manuscript and when to stop

- The scope of your review
- Title and abstract
- Introduction, research questions, and hypotheses
- Methods
- Analysis and results
- Discussion and limitations

- Reporting, reporting, reporting!

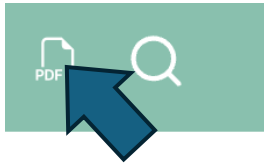
→ Sample size determination, stopping criteria, descriptive stats, full results etc etc ect

- Go beyond p: Adequate measures of uncertainty
- Different forms of bias and how to detect them

3. How to write a peer review report

- Review format
- How to form your decision
- Transparency in your review report …

How to use the Guide



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Outlook

- **ECR‘s** from **different empirical disciplines** welcome
- **Flipped-classroom model:** Aquire skills in self-study and with **real pre-accepted manuscripts** at our in-person session!
- **Spring 2025 in Brigg, Switzerland**

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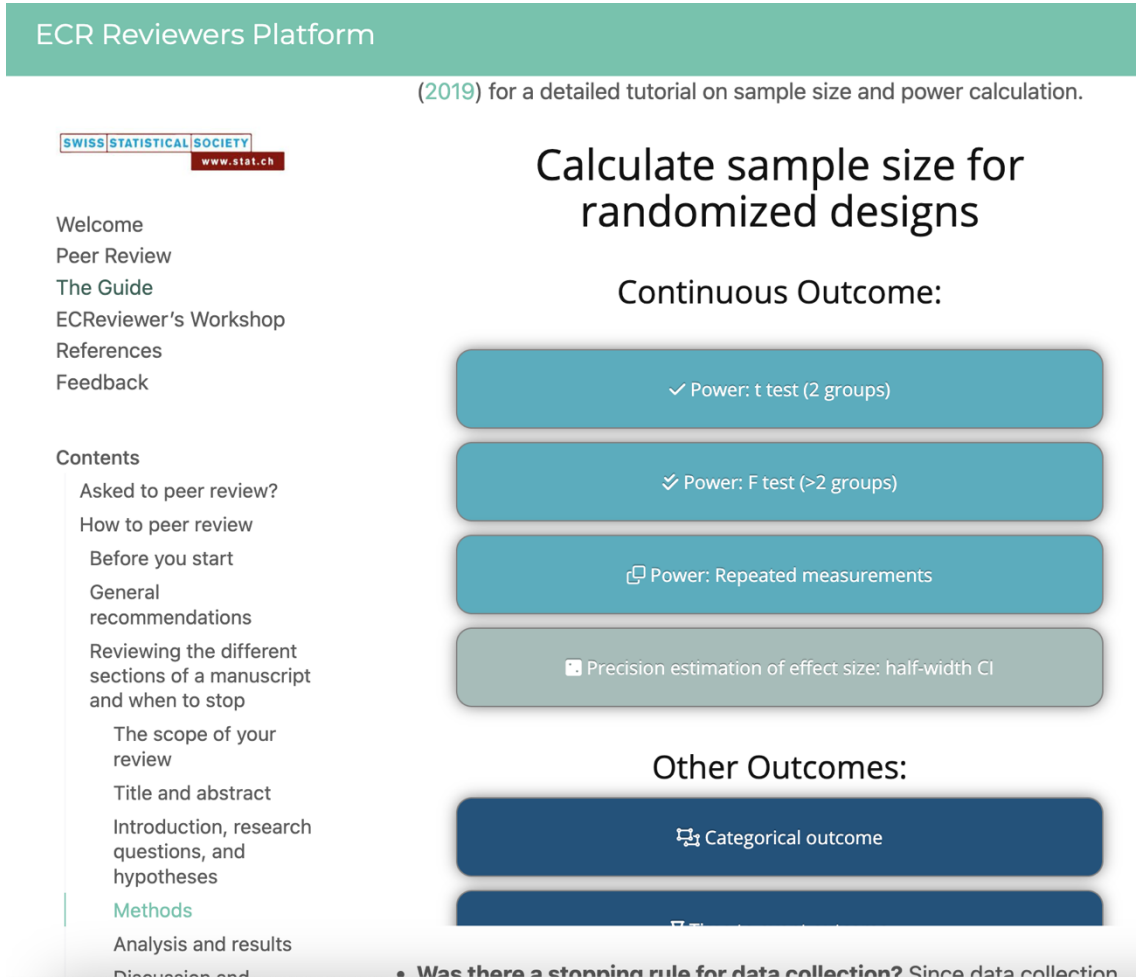

- Links to open-source software like the R package pwr or the SampleSizeR online tool
- Resource for detailed tutorial on sample size and power by Brysbaert (2019)