preregRS guides preregistration

Facilitating Open Science Practices for research syntheses

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20. May 2021

The Problem

inferences we can draw from research syntheses **depend on the decisions** in the research process

(Ioannidis, 2016)

e.g. "garbage in garbage out"

(Egger et al., 2001)

degrees of freedom, e.g. in
- literature search
- eligibility criteria
- strategy for data synthesis

transparency allow for critical evaluation & enhance reproducibility

(Wilson, 2019)

The Problem

Open Science Practices help to make research transparent and reproducible

(Page et al., 2021)

preregistration makes research syntheses as a process transparent

(Atkinson et al., 2015; Stewart et al., 2012)

preregistration of research syntheses is **not standard** procedure yet (outside of health)

(Ioannidis, 2016; Møller et al., 2018)

Existing solutions?

important frameworks

👉 PROSPERO

(Booth et al., 2012)

👉 PRISMA-P

(Moher et al., 2015)

👉 MARS

(Appelbaum et al., 2018)

Existing solutions?

important frameworks

- PROSPERO (Booth et al., 2012)
- PRISMA-P (Moher et al., 2015)
- MARS (Appelbaum et al., 2018)

- discipline-specific frameworks

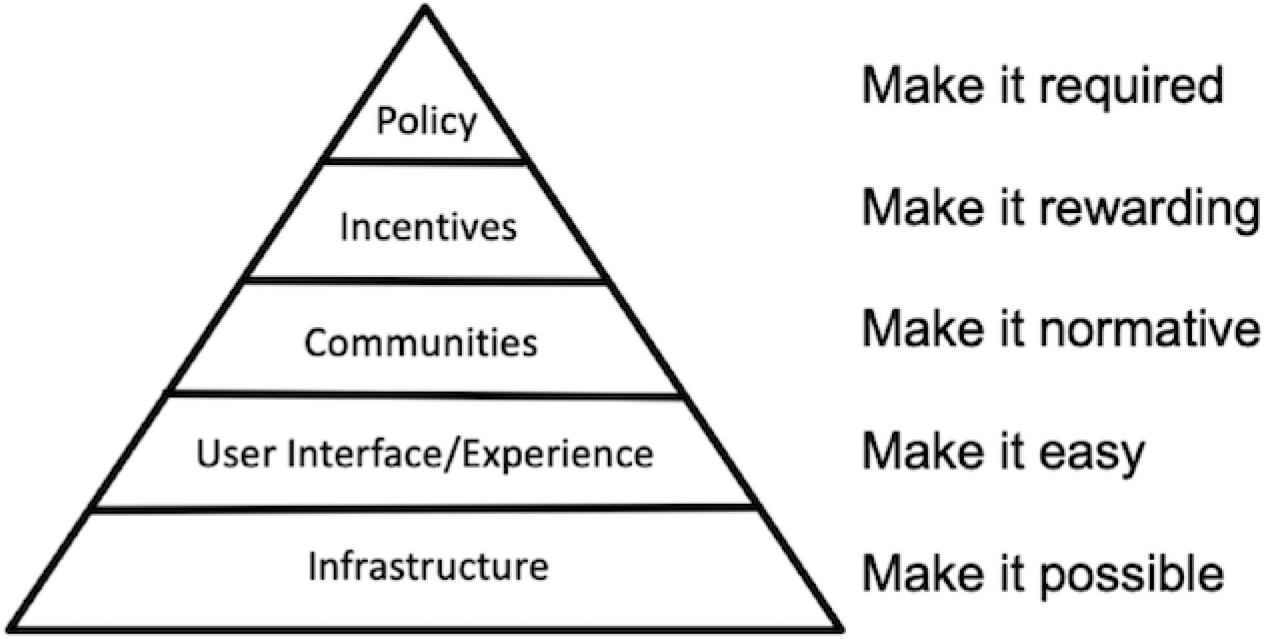
- “Preregistration is hard”
  e.g. including power analysis, coding manual, data analysis strategy (Nosek et al., 2019)

Existing solutions?

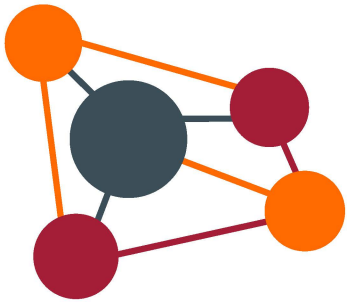
important frameworks

If we want culture change, we need to “make it easy”

(Nosek, 2019)



Our Context



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Joint project of
University of Tübingen and
Leibniz-Institut für Wissensmedien (IWM)

Research group "Transformation & Translation"

- research syntheses on the topic of digitization
- in teaching and teacher education

Our Aims

- utilize **existing** frameworks and **standards**

- make them **accessible** & **applicable**
  - for meta-analyses and systematic reviews
  - for all disciplines

- enable **seamless integration** of data analyses, files, figures, text, …

- ensure **compatibility** with markup languages

➔ produce **standalone** HTML/PDF

preregRS

R package

preregRS = R Markdown template (install via R-package)

- provides **structure**: synthesized
  PROSPERO, PRISMA-P and MARS

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- **guides** with additional information

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- fill out like a form: provides **placeholders**

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- **guides** with additional information
- fill out like a form: provides **placeholders**
- R Markdown enables us to…
  - include R **code** and its **output**
  - encode **files** (e.g. separate coding system)
  - include **figures**, iframes, latex, …
  - include **interactive** content (e.g. plotly)

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include R **code** and its **output**


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compile to **standalone** file

Demo

Demo

check out…

1. an empty template (compiled to HTML): bit.ly/preregRS-HTML

2. a Jupyter-Notebook with preregRS template available: bit.ly/preregRS-jupyter

3. a partial example of a preregistration: bit.ly/preregRS-example

Further developments

- Increase usability & accessibility outside of R
  e.g. JBI SUMARI

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