FACULTY OF PSYCHOLOGY AND EDUCATIONAL SCIENCES

Research Foundation Flanders
Opening new horizons

RESEARCH INTEGRITY:

THE OPEN SCIENCE FRAMEWORK

HTTPS://OSF.IO

PIETER VAN DESSEL

GHENT UNIVERSITY

LiP Lab
liplab.ugent.be

What is the Open Science Framework ?

- The Open Science Framework (OSF) is a free, open source web application that connects and supports the research workflow, enabling scientists to increase the efficiency and effectiveness of their research.

- Researchers use the OSF to collaborate, document, archive, share, and register research projects, materials, and data.

- The OSF is the flagship product of the non-profit Center for Open Science.

What is the Center for Open Science?

- COS is a non-profit organization funded through a number of grants and donations from granting agencies, universities, companies,…
- Mission: increase openness, integrity, and reproducibility of research.
- Team of scientists from different fields
- Founded in 2013 by Brian Nosek and Jeffrey Spies

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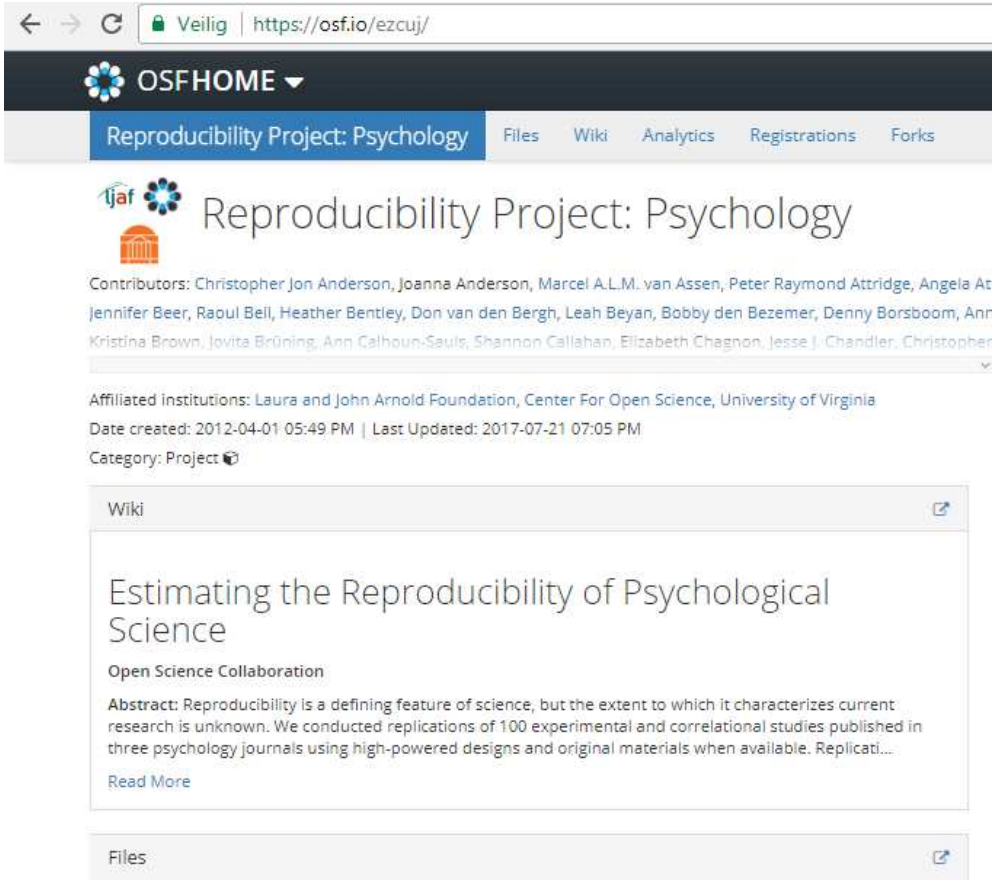
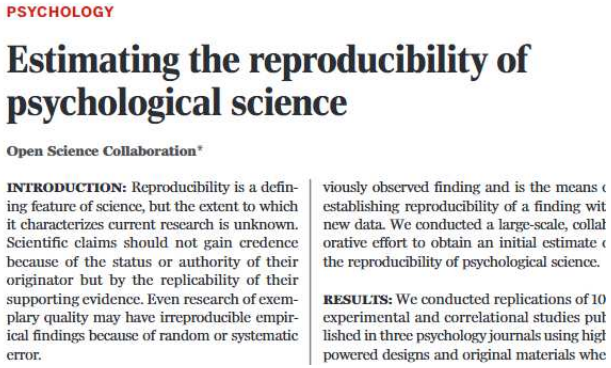
OSF: Psychology

- Start: Reproducibility in Psychology :

  Huge collaboration coordinated online

  270 authors repeat 100 published psychology studies




PSYCHOLOGY

Estimating the reproducibility of psychological science

Open Science Collaboration*

INTRODUCTION: Reproducibility is a defining feature of science, but the extent to which it characterizes current research is unknown. Scientific claims should not gain credence because of the status or authority of their originator but by the replicability of their supporting evidence. Even research of exemplary quality may have irreproducible empirical findings because of random or systematic error.

viously observed finding and is the means establishing reproducibility of a finding wit new data. We conducted a large-scale, collab orative effort to obtain an initial estimate the reproducibility of psychological science.

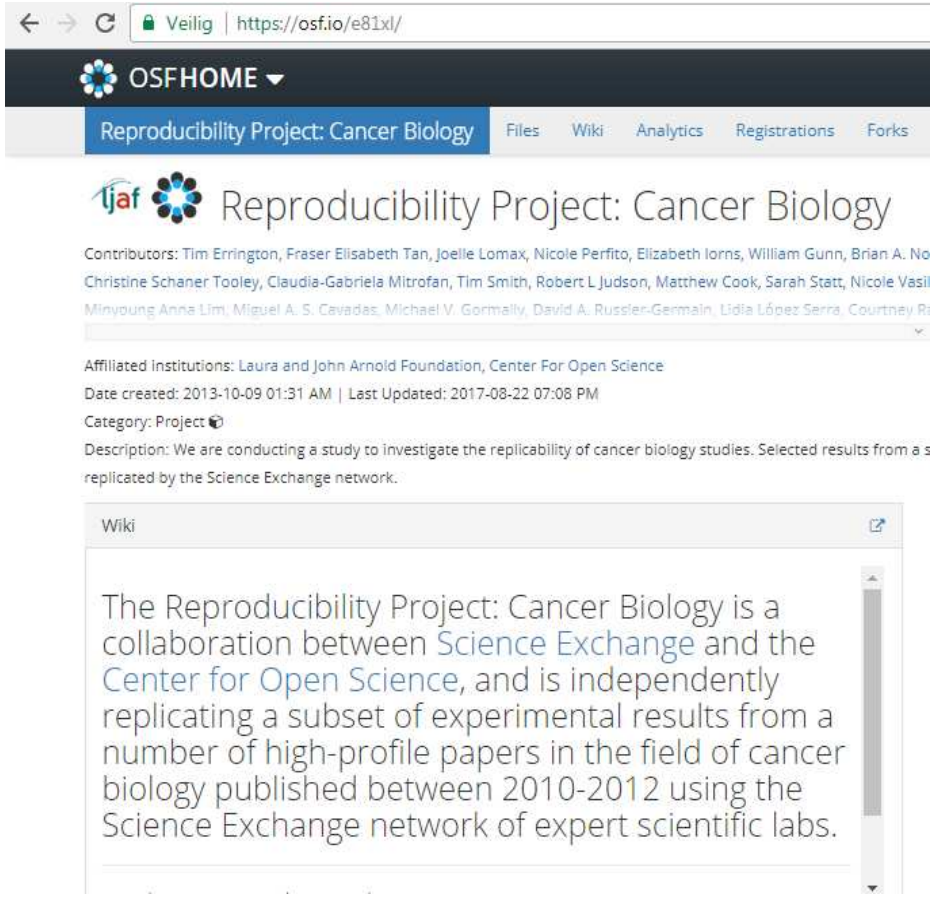
RESULTS: We conducted replications of 10 experimental and correlational studies pub lished in three psychology journals using high powered designs and original materials whe

→ 64% of studies did not replicate

OSF: Other fields

- OSF is used in many research fields

  e.g., second reproducibility project for cancer biology research



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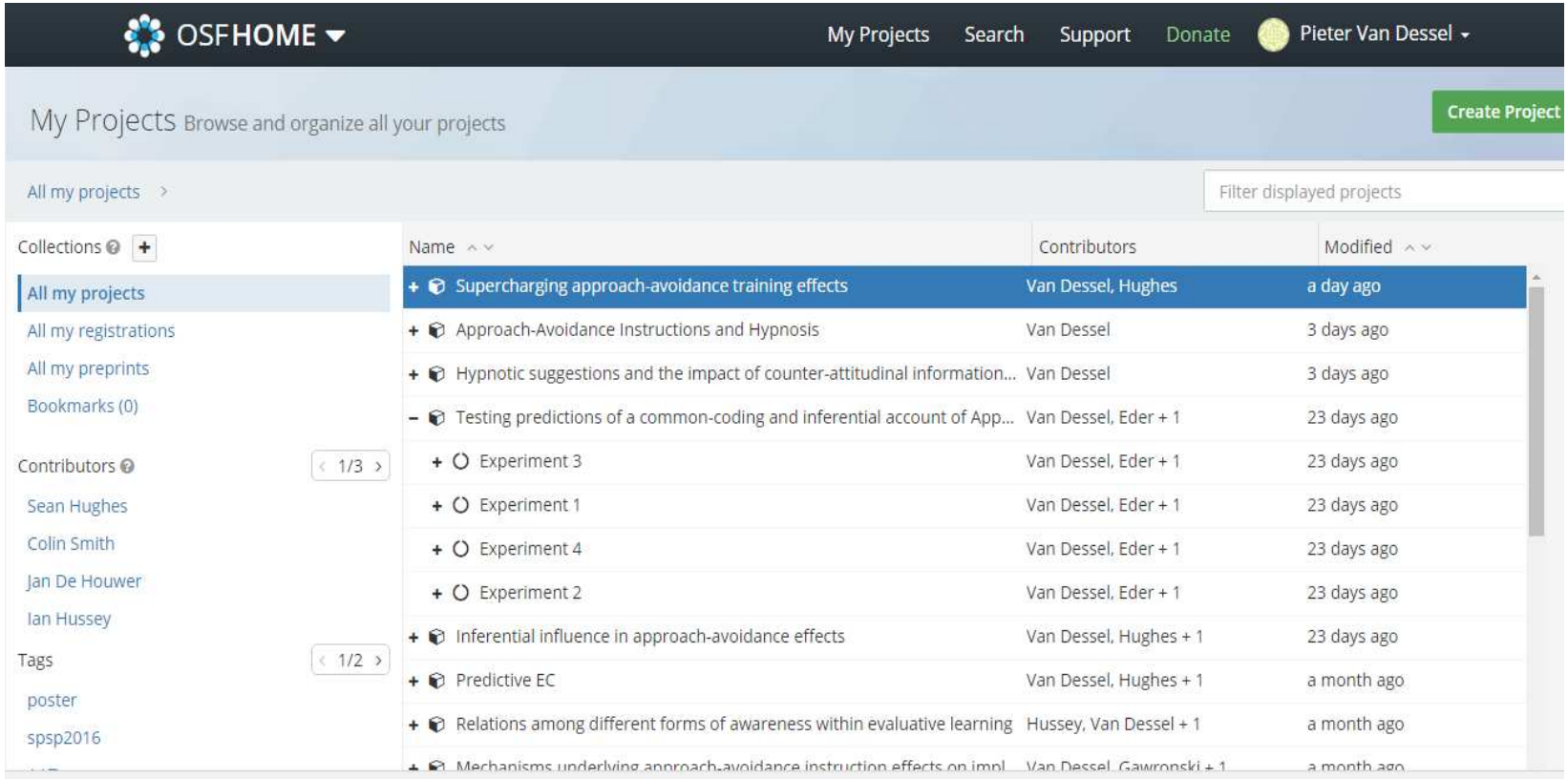
How can OSF help your research?

- Step 1: Planning:

Organize projects

Collaborate

Document



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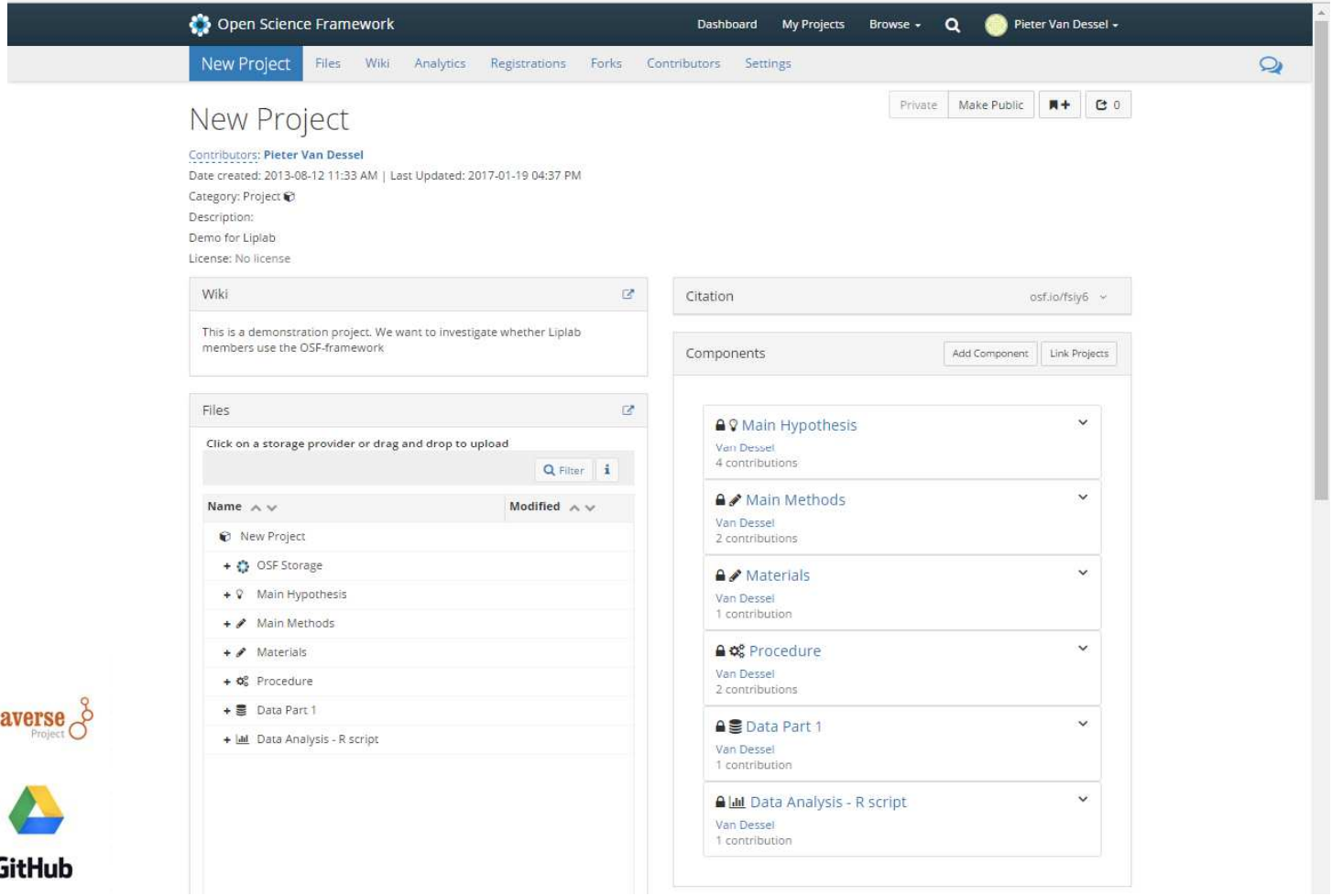
- Step 1: Planning:

Materials

Procedure

Data analysis plan

Hypotheses



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- Step 2: Pre-registration:

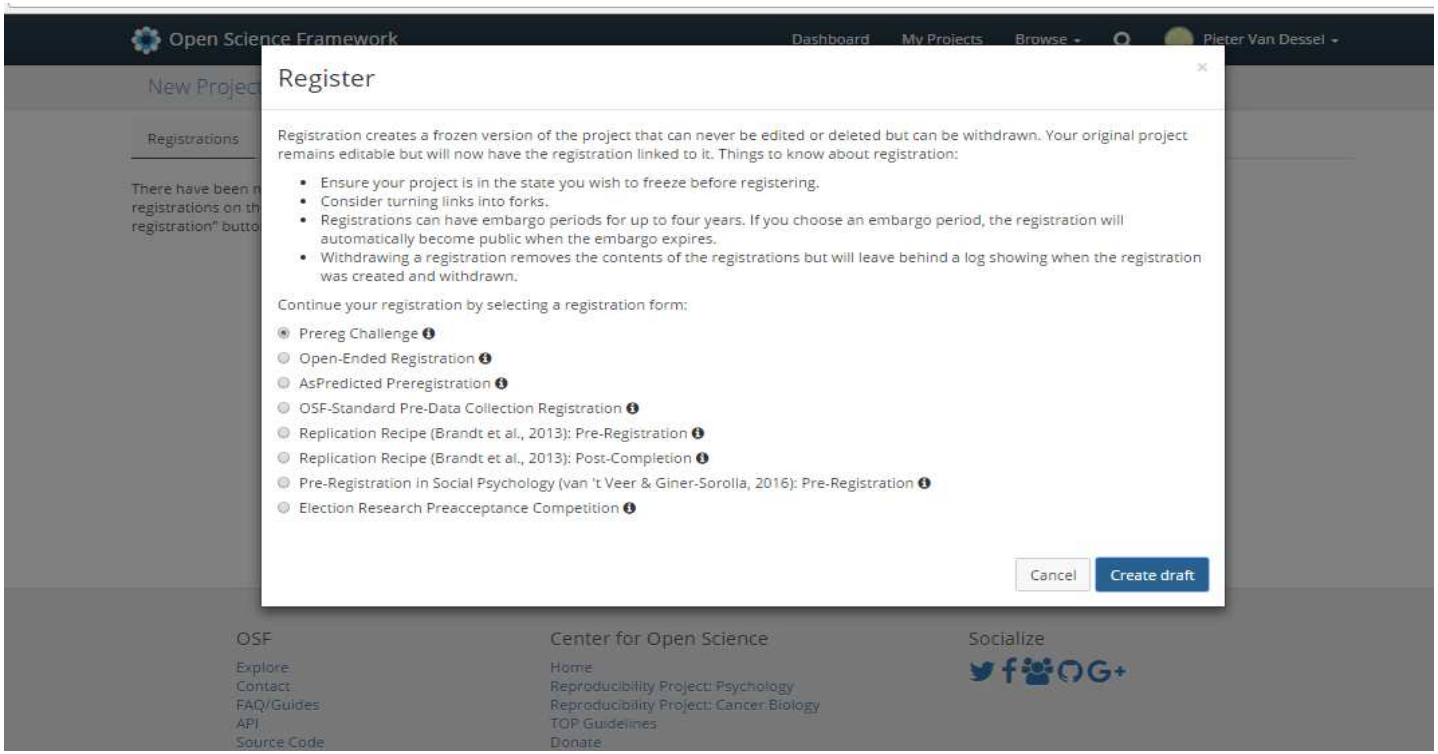
Different options

Anything you want

Everyone approves

Frozen version with url

Embargo period



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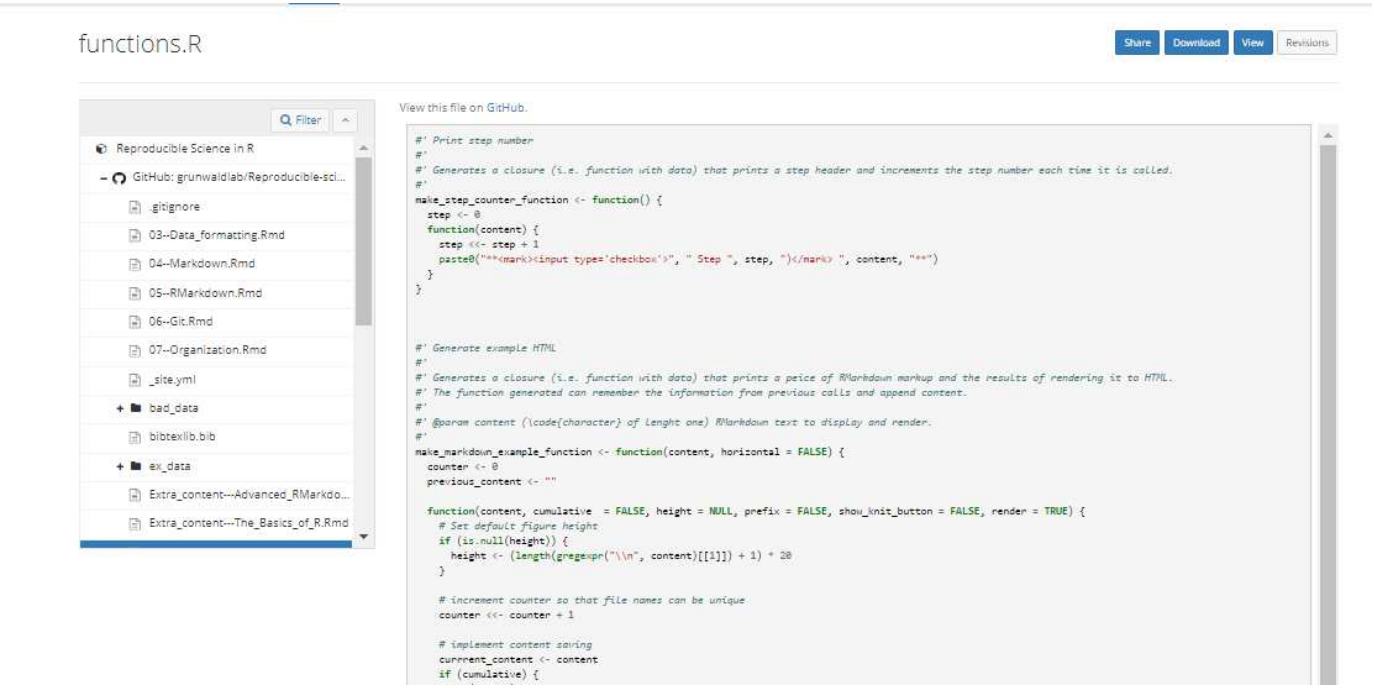
- Step 3: Execution – Step 4: Analyses:

See data as it comes in…

All steps:
data → reported analyses

Intermediate analyses

Discussion with collaborators



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- Step 5: Reporting:

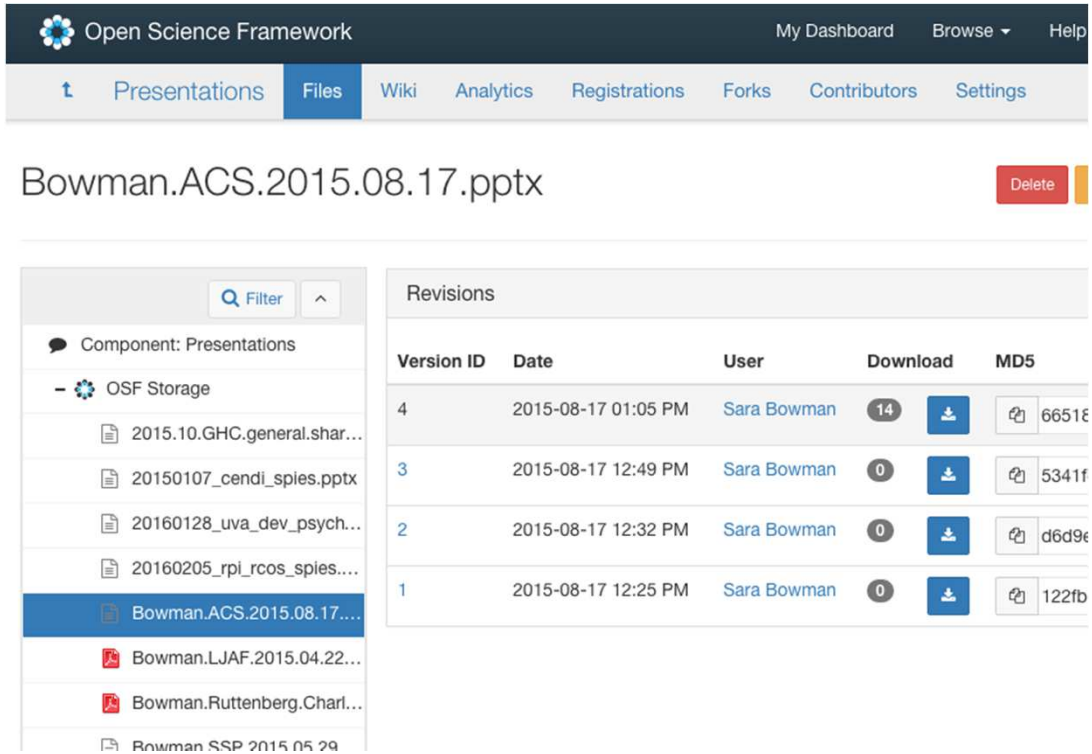
Manuscript: version control

Live editing: collaboration

Response to reviewers

Add presentations

Preprints



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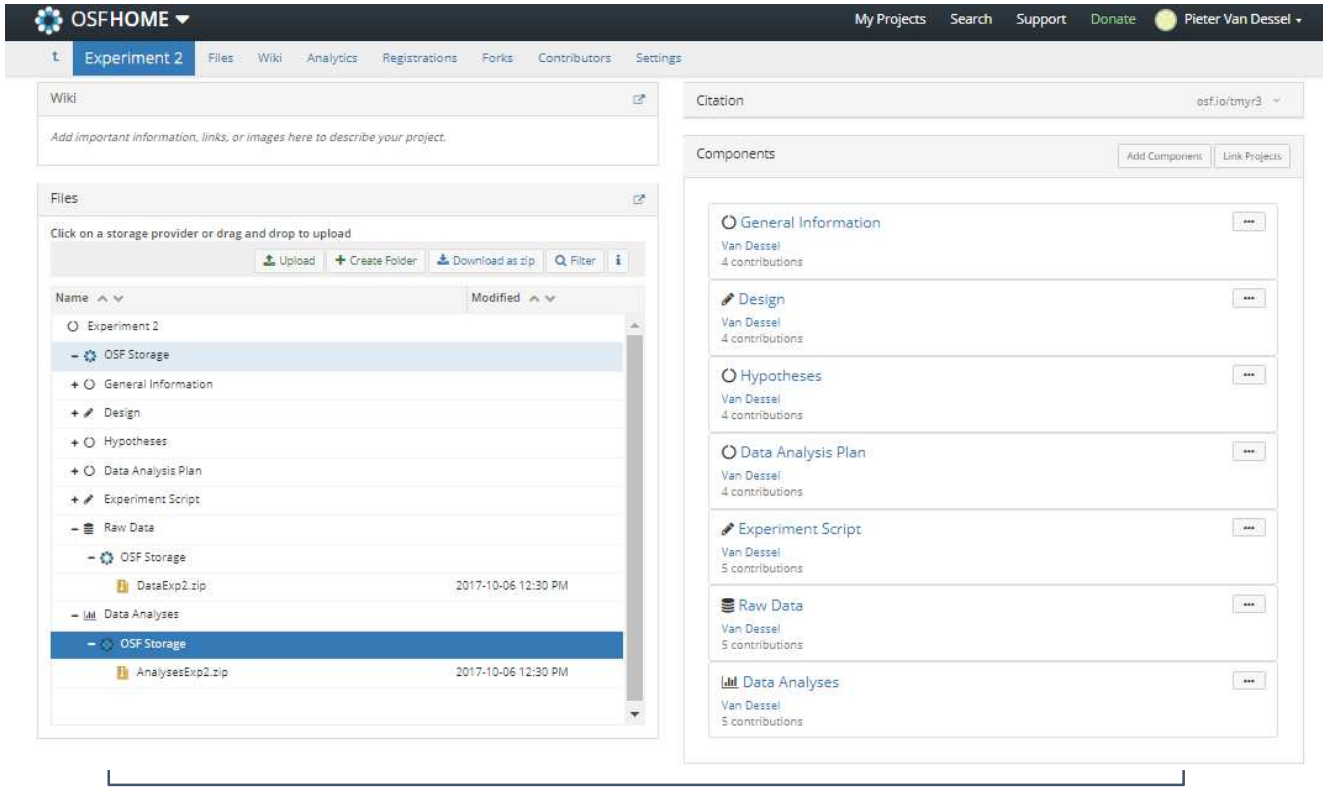
- Step 6: Archiving:

Add data

Add analysis scripts

Other people can use it (license)



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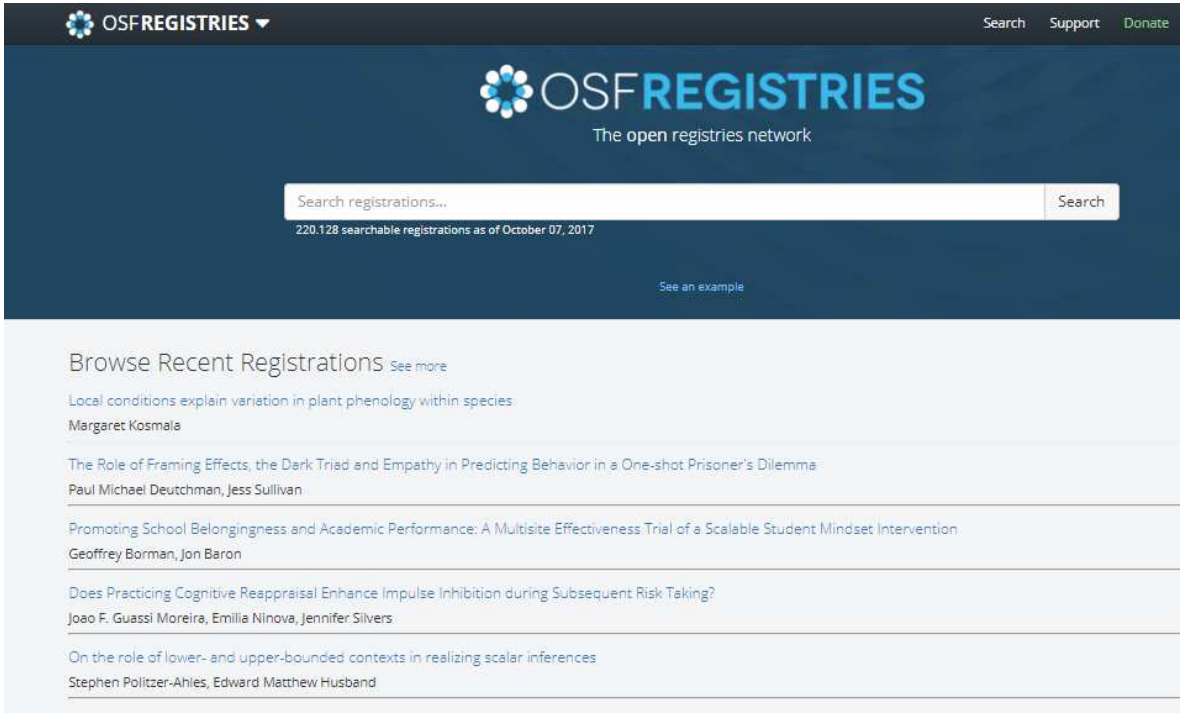
- Step 1: Planning new research:

Communicate + collaborate

Look for other registered projects

Join projects: Manylab, Metalab



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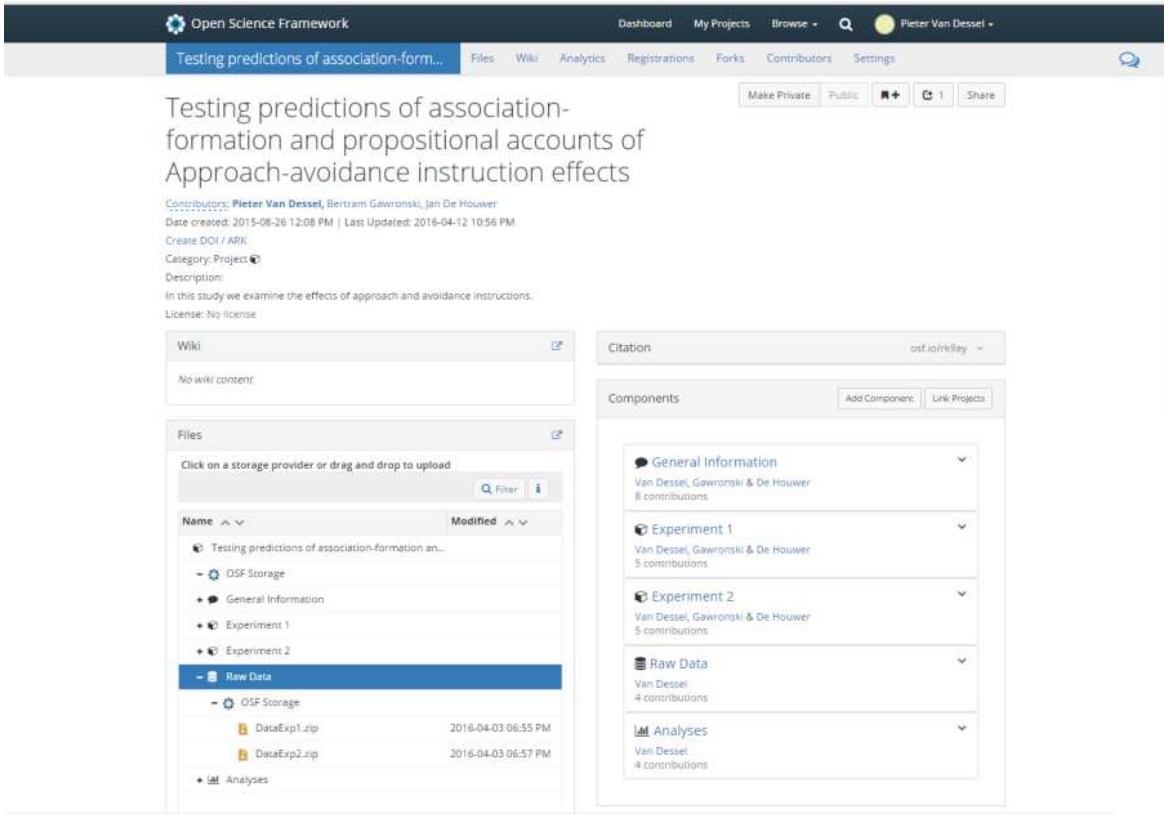
- A finished project:



a second estimate of the relative contribution of associative self-anchoring processes and propositional processes in these effects.

The described hypotheses as well as the study design and data-analysis plan of Experiment 1 and Experiment 2 were pre-registered on the Open Science Framework prior to data-collection (which was done concurrently for the two experiments). Any deviation from pre-registration is noted in the main text. The pre-registered plan and all code and data are available at https://osf.io/4sajr/. The collaboration between authors qualifies as adversarial in that (a) the second author put forward the associative self-anchoring account as an alternative for the propositional account of AA instruction effects developed by the other three authors (De Houwer, 2014; Van Dessel et al., 2016a) and (b) the four authors jointly devised Experiments 1 and 2 as a way to distinguish between the two competing accounts.

the data from all participants in the analyses reduced the magnitude of the instruction effects, but did not change the statistical significance of any of the reported effects. Yet, when we performed exploratory *t*-tests only on the data of participants who made one error or more on the memory questions, we found no evidence for approach or avoidance instruction effects (all $ps > 0.25$).

[3] For both Experiments 1 and 2, the sample sizes were determined prior to the data collections and pre-registered together with the respective study designs. In line with the pre-registered sample information, we stopped the data-collections when at least 1000 participants had completed all measures of the experiment to ensure that we would have sufficient statistical power to detect even small effects after excluding data of participants with incorrect instruction memory (power > 0.80 to detect an effect size of $d = 0.20$). Because the studies could only be taken offline at fixed points in time, the final sample size always exceeded the pre-determined sample size. For both studies, we report all manipulations and measures. All data were collected in one shot without intermittent data analysis.

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- Conclusion:

OSF is easy to use for setting up your projects in a structured manner

OSF can help you in all steps of your research

OSF can help facilitate openness and research integrity

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Thank you!

Pieter.VanDessel@UGent.be
https://osf.io/nu8xj/

Center for Open Science
http://cos.io | http://osf.io

LipLab
liplab.ugent.be

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