

RESEARCH INTEGRITY: THE OPEN SCIENCE FRAMEWORK

[HTTPS://OSF.IO](https://osf.io)

PIETER VAN DESSEL

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](https://www.centerforopenscience.org/).

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

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 of establishing reproducibility of a finding with new data. We conducted a large-scale, collaborative effort to obtain an initial estimate of the reproducibility of psychological science.

RESULTS: We conducted replications of 10 experimental and correlational studies published in three psychology journals using high-powered designs and original materials where

OSFHOME

Reproducibility Project: Psychology

Contributors: Christopher Jon Anderson, Joanna Anderson, Marcel A.L.M. van Assen, Peter Raymond Attridge, Angela At Jennifer Beer, Raoul Bell, Heather Bentley, Don van den Bergh, Leah Beyan, Bobby den Bezemer, Denny Borsboom, Anr Kristina Brown, Jovita Brünig, Ann Calhoun-Saults, Shannon Callahan, Elizabeth Chagnon, Jesse J. Chandler, Christopher

Affiliated institutions: Laura and John Arnold Foundation, Center For Open Science, University of Virginia

Date created: 2012-04-01 05:49 PM | Last Updated: 2017-07-21 07:05 PM

Category: Project

Wiki

Estimating the Reproducibility of Psychological Science

Open Science Collaboration

Abstract: Reproducibility is a defining feature of science, but the extent to which it characterizes current research is unknown. We conducted replications of 100 experimental and correlational studies published in three psychology journals using high-powered designs and original materials when available. Replicati...

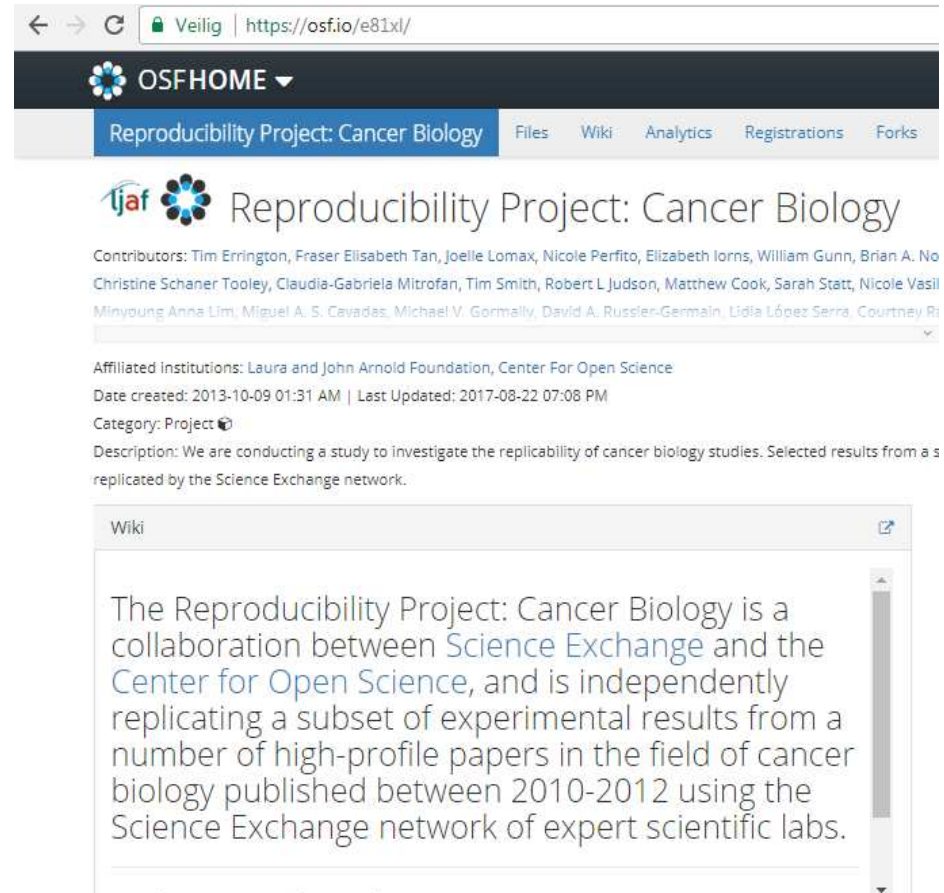
Read More

Files

→ 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



The screenshot shows a web browser window with the URL <https://osf.io/e81xl/>. The page header includes the OSFHOME logo and navigation links for Files, Wiki, Analytics, Registrations, and Forks. The main content area features the project title "Reproducibility Project: Cancer Biology" with the iJaf logo. Below the title, it lists contributors: Tim Errington, Fraser Elisabeth Tan, Joelle Lomax, Nicole Perfito, Elizabeth Iorns, William Gunn, Brian A. No Christine Schaner Tooley, Claudia-Gabriela Mitrofan, Tim Smith, Robert L Judson, Matthew Cook, Sarah Statt, Nicole Vasil Minyoung Anna Lim, Miguel A. S. Cavadas, Michael V. Gormally, David A. Russler-Germain, Lidia López Serra, Courtney Ri. It also lists affiliated institutions: Laura and John Arnold Foundation, Center For Open Science. The date created is 2013-10-09 01:31 AM and the last updated is 2017-08-22 07:08 PM. The category is Project. The description states: "We are conducting a study to investigate the replicability of cancer biology studies. Selected results from a s replicated by the Science Exchange network." A Wiki section is visible, containing the text: "The Reproducibility Project: Cancer Biology is a collaboration between Science Exchange and the Center for Open Science, and is independently replicating a subset of experimental results from a number of high-profile papers in the field of cancer biology published between 2010-2012 using the Science Exchange network of expert scientific labs."

How can OSF help your research?

- Step 1: Planning:

Organize projects

Collaborate

Document

OSFHOME

My Projects Search Support Donate Pieter Van Dessel

My Projects Browse and organize all your projects [Create Project](#)

All my projects > Filter displayed projects

| Collections | Name | Contributors | Modified |
|----------------------|---|---------------------------|-------------|
| All my projects | + Supercharging approach-avoidance training effects | Van Dessel, Hughes | a day ago |
| All my registrations | + Approach-Avoidance Instructions and Hypnosis | Van Dessel | 3 days ago |
| All my preprints | + Hypnotic suggestions and the impact of counter-attitudinal information... | Van Dessel | 3 days ago |
| Bookmarks (0) | - Testing predictions of a common-coding and inferential account of App... | Van Dessel, Eder + 1 | 23 days ago |
| Contributors | + Experiment 3 | Van Dessel, Eder + 1 | 23 days ago |
| Sean Hughes | + Experiment 1 | Van Dessel, Eder + 1 | 23 days ago |
| Colin Smith | + Experiment 4 | Van Dessel, Eder + 1 | 23 days ago |
| Jan De Houwer | + Experiment 2 | Van Dessel, Eder + 1 | 23 days ago |
| Ian Hussey | + Inferential influence in approach-avoidance effects | Van Dessel, Hughes + 1 | 23 days ago |
| Tags | + Predictive EC | Van Dessel, Hughes + 1 | a month ago |
| poster | + Relations among different forms of awareness within evaluative learning | Hussey, Van Dessel + 1 | a month ago |
| spsp2016 | + Mechanisms underlying approach-avoidance instruction effects on impl... | Van Dessel, Gawronski + 1 | a month ago |

- Step 1: Planning:

Materials

Procedure

Data analysis plan

Hypotheses

Open Science Framework

Dashboard My Projects Browse Pieter Van Dessel

New Project Files Wiki Analytics Registrations Forks Contributors Settings

Private Make Public 0

New Project

Contributors: [Pieter Van Dessel](#)
Date created: 2013-08-12 11:33 AM | Last Updated: 2017-01-19 04:37 PM
Category: Project
Description:
Demo for Liplab
License: No license

Wiki

This is a demonstration project. We want to investigate whether Liplab members use the OSF-framework

Files

Click on a storage provider or drag and drop to upload

| Name ^ v | Modified ^ v |
|-----------------------------|--------------|
| New Project | |
| + OSF Storage | |
| + Main Hypothesis | |
| + Main Methods | |
| + Materials | |
| + Procedure | |
| + Data Part 1 | |
| + Data Analysis - R script | |

Citation osf.io/fsiy6

Components

- Main Hypothesis
Van Dessel
4 contributions
- Main Methods
Van Dessel
2 contributions
- Materials
Van Dessel
1 contribution
- Procedure
Van Dessel
2 contributions
- Data Part 1
Van Dessel
1 contribution
- Data Analysis - R script
Van Dessel
1 contribution



- Step 2: Pre-registration:

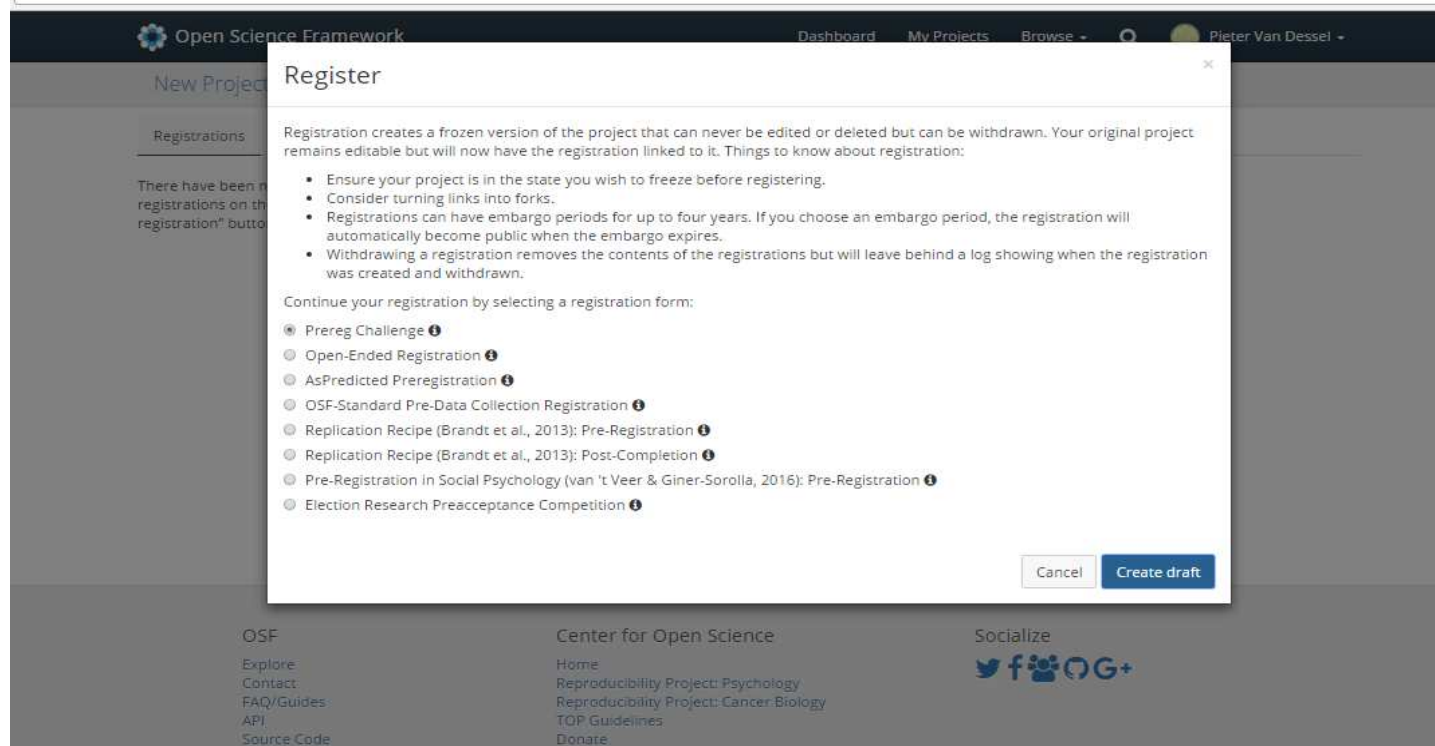
Different options

Anything you want

Everyone approves

Frozen version with url

Embargo period



- Step 3: Execution – Step 4: Analyses:

See data as it comes in...

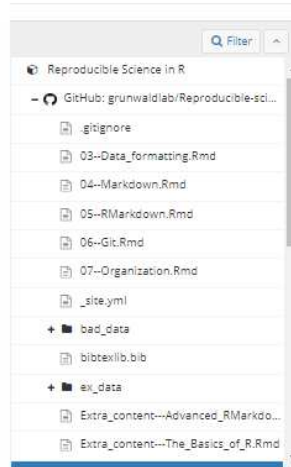
All steps:
data → reported analyses

Intermediate analyses

Discussion with collaborators

functions.R

Share Download View Revisions



View this file on GitHub.

```
## Print step number
##
## Generates a closure (i.e. function with data) that prints a step header and increments the step number each time it is called.
##
make_step_counter_function <- function() {
  step <- 0
  function(content) {
    step <- step + 1
    paste0("<mark><input type='checkbox'>", " Step ", step, "</mark> ", content, "***")
  }
}

## Generate example HTML
##
## Generates a closure (i.e. function with data) that prints a piece of RMarkdown markup and the results of rendering it to HTML.
## The function generated can remember the information from previous calls and append content.
##
## @param content {code{character} of length one} RMarkdown text to display and render.
##
make_markdown_example_function <- function(content, horizontal = FALSE) {
  counter <- 0
  previous_content <- ""

  function(content, cumulative = FALSE, height = NULL, prefix = FALSE, show_init_button = FALSE, render = TRUE) {
    # Set default figure height
    if (is.null(height)) {
      height <- (length(gregepr("\\n", content)[[1]]) + 1) * 20
    }

    # increment counter so that file names can be unique
    counter <- counter + 1

    # implement content saving
    current_content <- content
    if (cumulative) {

```

- Step 5: Reporting:

Manuscript: version control

Live editing: collaboration

Response to reviewers

Add presentations

Preprints

The screenshot shows the Open Science Framework (OSF) interface. At the top, there is a navigation bar with 'Open Science Framework' on the left and 'My Dashboard', 'Browse', and 'Help' on the right. Below this is a secondary navigation bar with 'Presentations', 'Files', 'Wiki', 'Analytics', 'Registrations', 'Forks', 'Contributors', and 'Settings'. The main content area displays the file 'Bowman.ACS.2015.08.17.pptx' with a 'Delete' button. Below the file name, there is a 'Revisions' table and a file browser on the left.

| Version ID | Date | User | Download | MD5 |
|------------|---------------------|-------------|----------|----------|
| 4 | 2015-08-17 01:05 PM | Sara Bowman | 14 | 6651e... |
| 3 | 2015-08-17 12:49 PM | Sara Bowman | 0 | 5341f... |
| 2 | 2015-08-17 12:32 PM | Sara Bowman | 0 | d6d9e... |
| 1 | 2015-08-17 12:25 PM | Sara Bowman | 0 | 122fb... |

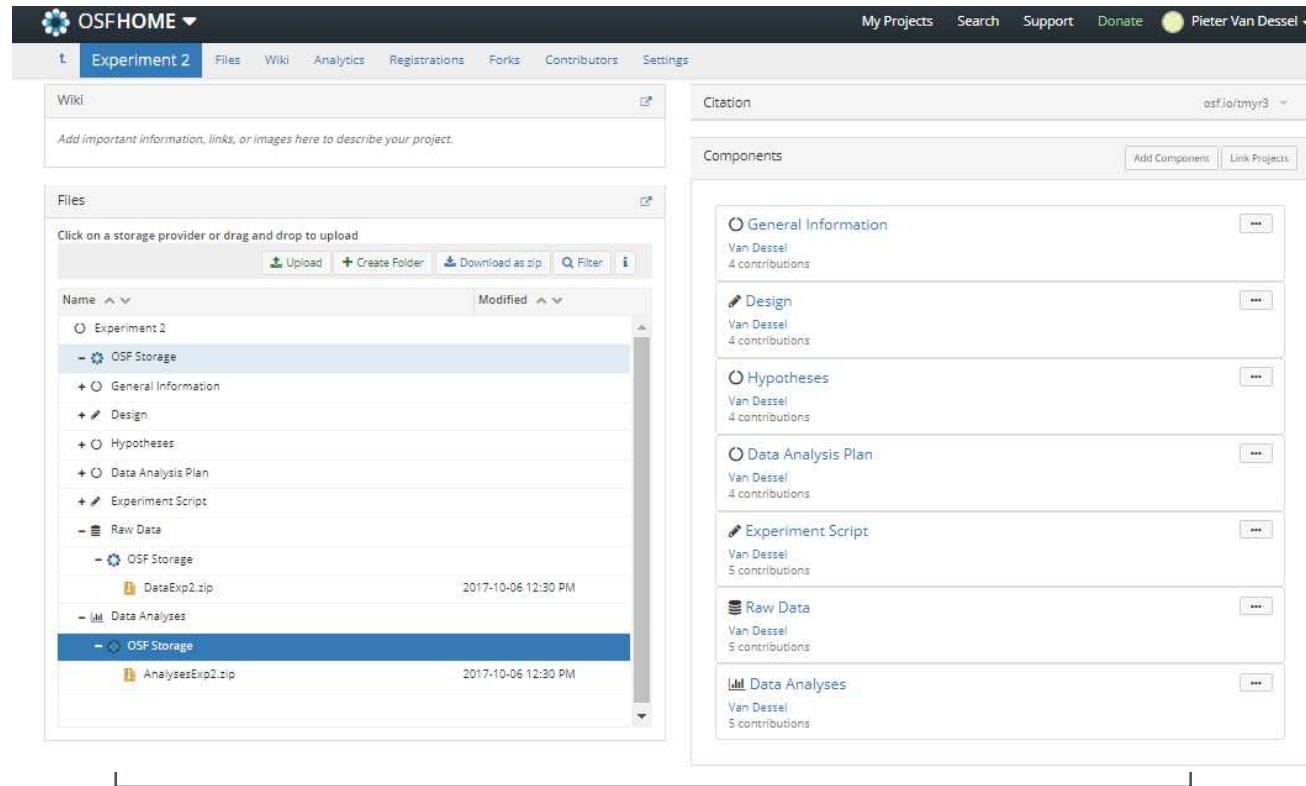
The file browser on the left shows a list of files under 'OSF Storage', including '2015.10.GHC.general.shar...', '20150107_cendi_spies.pptx', '20160128_uva_dev_psych...', '20160205_rpi_rcos_spies...', 'Bowman.ACS.2015.08.17.pptx' (highlighted), 'Bowman.LJAF.2015.04.22...', 'Bowman.Ruttenberg.Charl...', and 'Bowman.SSP.2015.05.29'.

- Step 6: Archiving:

Add data

Add analysis scripts

Other people can use it (license)



- Step 1: Planning new research:

Communicate + collaborate

Look for other registered projects

Join projects: Manylab, Metalab



The screenshot shows the OSF Registries website. At the top, there is a navigation bar with the OSF Registries logo and a dropdown arrow, and links for Search, Support, and Donate. Below the navigation bar is a large dark blue header with the OSF Registries logo and the tagline "The open registries network". A search bar is located in the center of the header, with the text "Search registrations..." and a "Search" button. Below the search bar, it says "220,128 searchable registrations as of October 07, 2017". A link "See an example" is also present. Below the header is a section titled "Browse Recent Registrations" with a "See more" link. The section contains a list of recent registrations, each with a title and the author's name:

- Local conditions explain variation in plant phenology within species
Margaret Kosmala
- The Role of Framing Effects, the Dark Triad and Empathy in Predicting Behavior in a One-shot Prisoner's Dilemma
Paul Michael Deutchman, Jess Sullivan
- Promoting School Belongingness and Academic Performance: A Multisite Effectiveness Trial of a Scalable Student Mindset Intervention
Geoffrey Borman, Jon Baron
- Does Practicing Cognitive Reappraisal Enhance Impulse Inhibition during Subsequent Risk Taking?
Joao F. Guassi Moreira, Emilia Ninova, Jennifer Silvers
- On the role of lower- and upper-bounded contexts in realizing scalar inferences
Stephen Politzer-Ahles, Edward Matthew Husband

- A finished project:

The screenshot shows the Open Science Framework (OSF) interface for a project. The header includes the OSF logo and navigation links like 'Dashboard', 'My Projects', and 'Browse'. The project title is 'Testing predictions of association-formation and propositional accounts of Approach-avoidance instruction effects'. Below the title, it lists contributors: Pieter Van Dessel, Bertram Gawronski, and Jan De Houwer. The description states: 'In this study we examine the effects of approach and avoidance instructions.' The 'Files' section shows a folder structure with 'Raw Data' containing two zip files: 'DataExp1.zip' and 'DataExp2.zip'. The 'Components' section lists 'General Information', 'Experiment 1', 'Experiment 2', 'Raw Data', and 'Analyses'.

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.

- 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

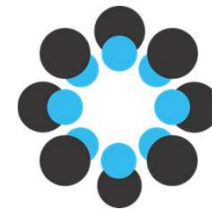
OSF can help facilitate openness and research integrity



Thank you!



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<https://osf.io/nu8xj/>



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