

# *Increasing Openness, Integrity, and Reproducibility of Scholarly Research*

Brandon Thorpe, Ph.D.  
Center for Open Science  
<http://cos.io/>  
@OSFramework



**JOHN TEMPLETON FOUNDATION**  
SUPPORTING SCIENCE ~ INVESTING IN THE BIG QUESTIONS



# Norms

## **Communality**

Open Sharing

# Counternorms

## **Secrecy**

Closed

# Norms

## **Communality**

Open Sharing

## **Universalism**

Evaluate research on own merit

# Counternorms

## **Secrecy**

Closed

## **Particularism**

Evaluate research by reputation

# Norms

## **Communality**

Open Sharing

## **Universalism**

Evaluate research on own merit

## **Disinterestedness**

Motivated by knowledge and discovery

# Counternorms

## **Secrecy**

Closed

## **Particularism**

Evaluate research by reputation

## **Self-interestedness**

Treat science as a competition

# Norms

## Communality

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Motivated by knowledge and discovery

## Organized skepticism

Consider all new evidence, even against one's prior work

# Counternorms

## Secrecy

Closed

## Particularism

Evaluate research by reputation

## Self-interestedness

Treat science as a competition

## Organized dogmatism

Invest career in promoting one's own theories, findings

# Norms

## Communality

Open Sharing

## Universalism

Evaluate research on own merit

## Disinterestedness

Motivated by knowledge and discovery

## Organized skepticism

Consider all new evidence, even against one's prior work

## Quality

# Counternorms

## Secrecy

Closed

## Particularism

Evaluate research by reputation

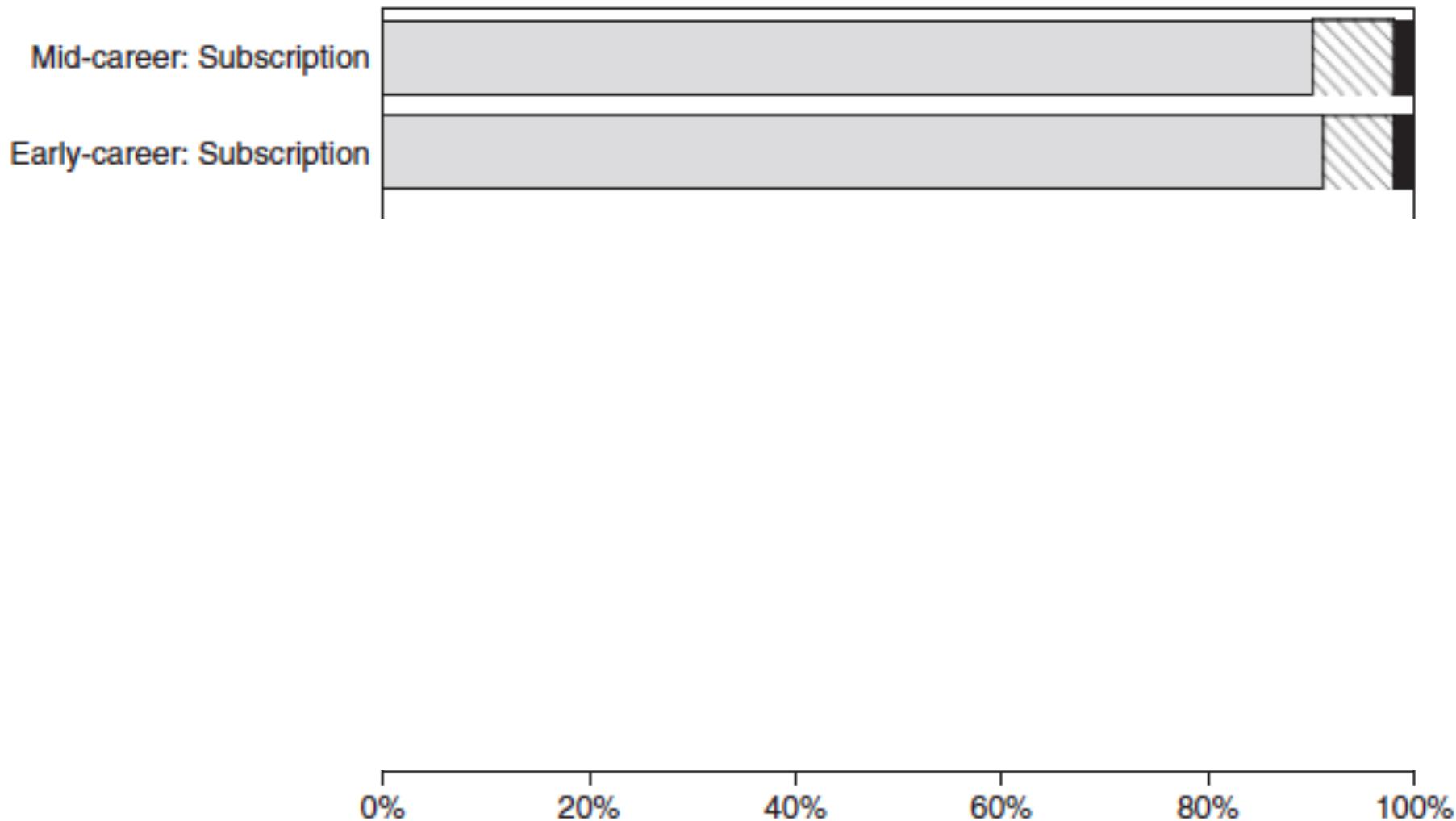
## Self-interestedness

Treat science as a competition

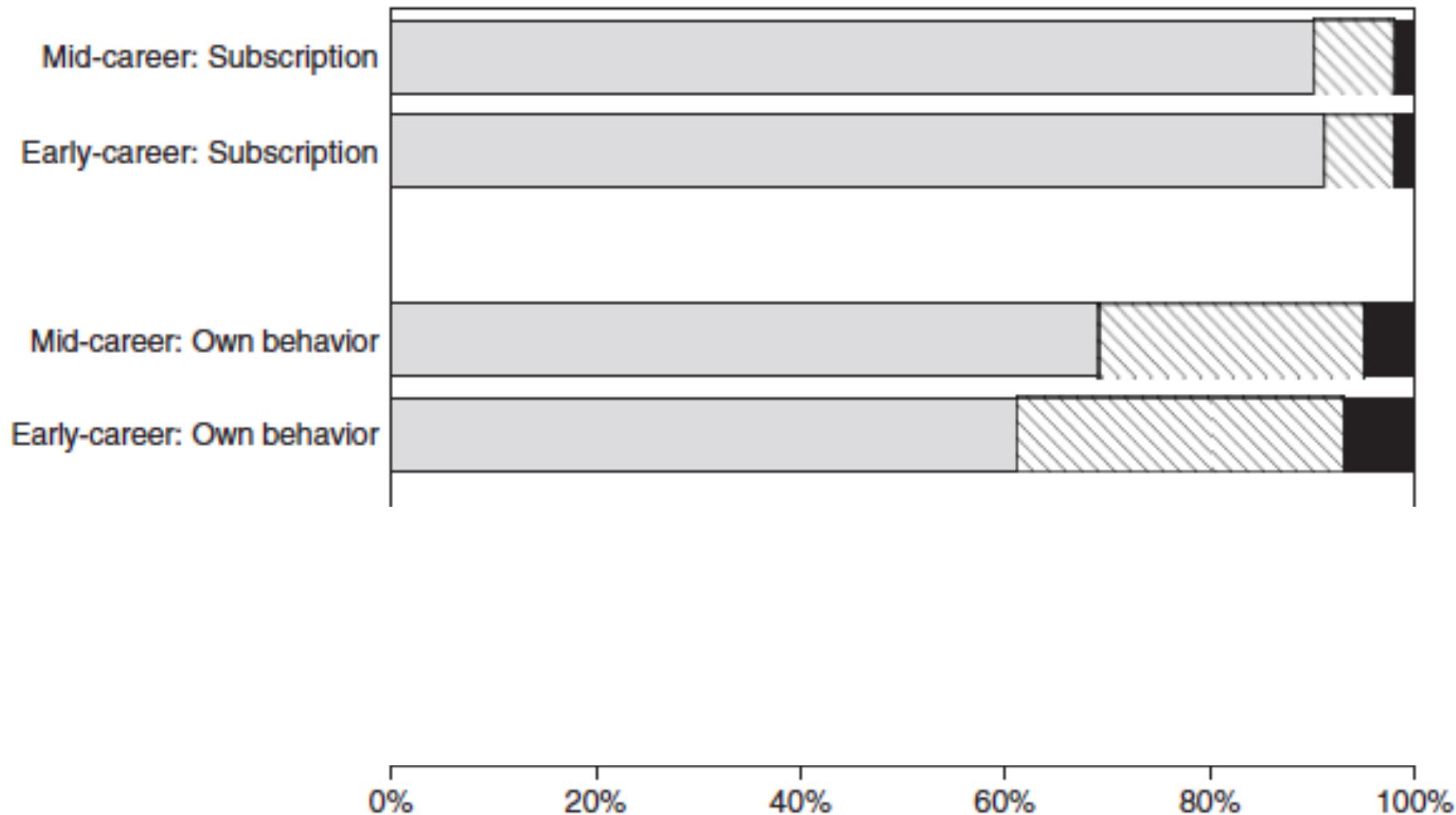
## Organized dogmatism

Invest career in promoting one's own theories, findings

## Quality



**FIG. 3. Norm versus Counternorm Scores: Percent with Norm > Counternorm (dotted), Norm = Counternorm (striped), Norm < Counternorm (solid).**



**FIG. 3. Norm versus Counternorm Scores: Percent with Norm > Counternorm (dotted), Norm = Counternorm (striped), Norm < Counternorm (solid).**

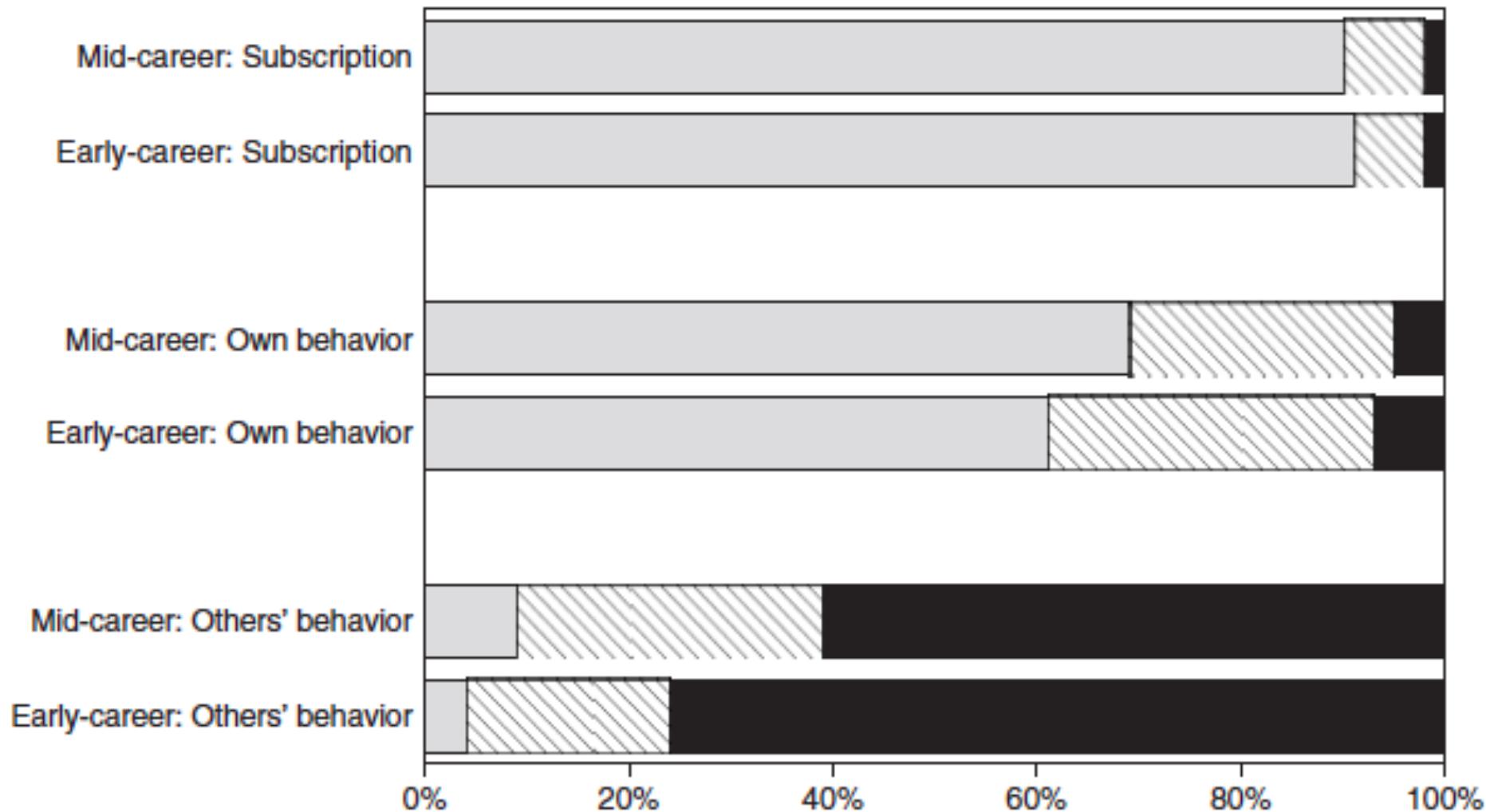


FIG. 3. Norm versus Counternorm Scores: Percent with Norm > Counternorm (dotted), Norm = Counternorm (striped), Norm < Counternorm (solid).

Incentives for individual success are focused on *getting it published, not getting it right*

It's time for a change...

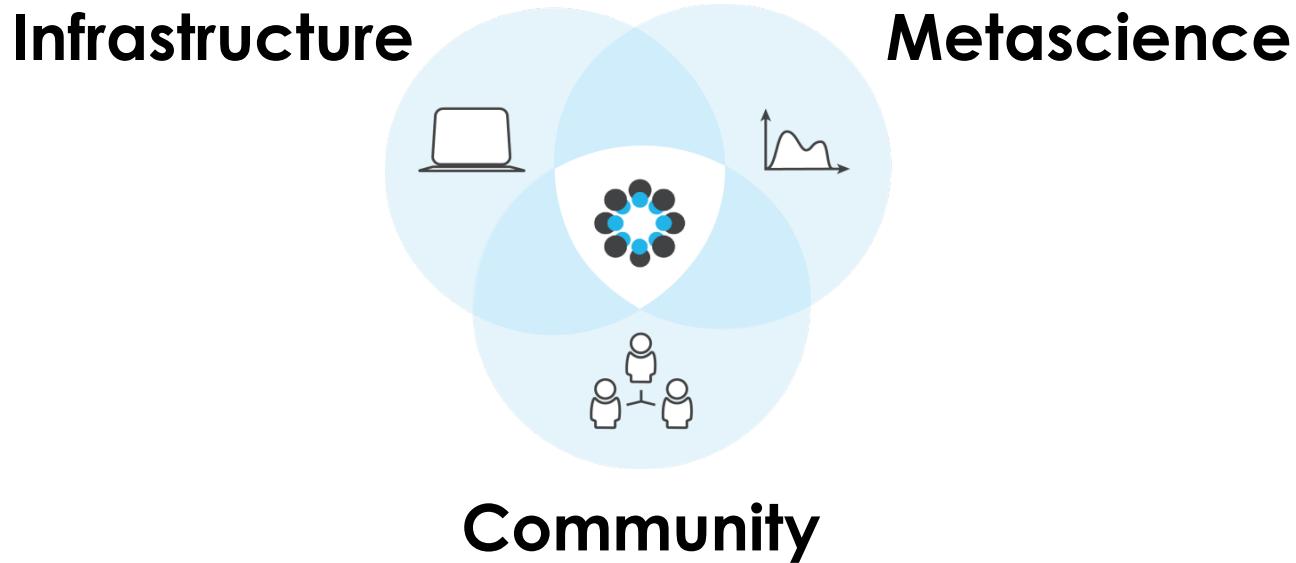
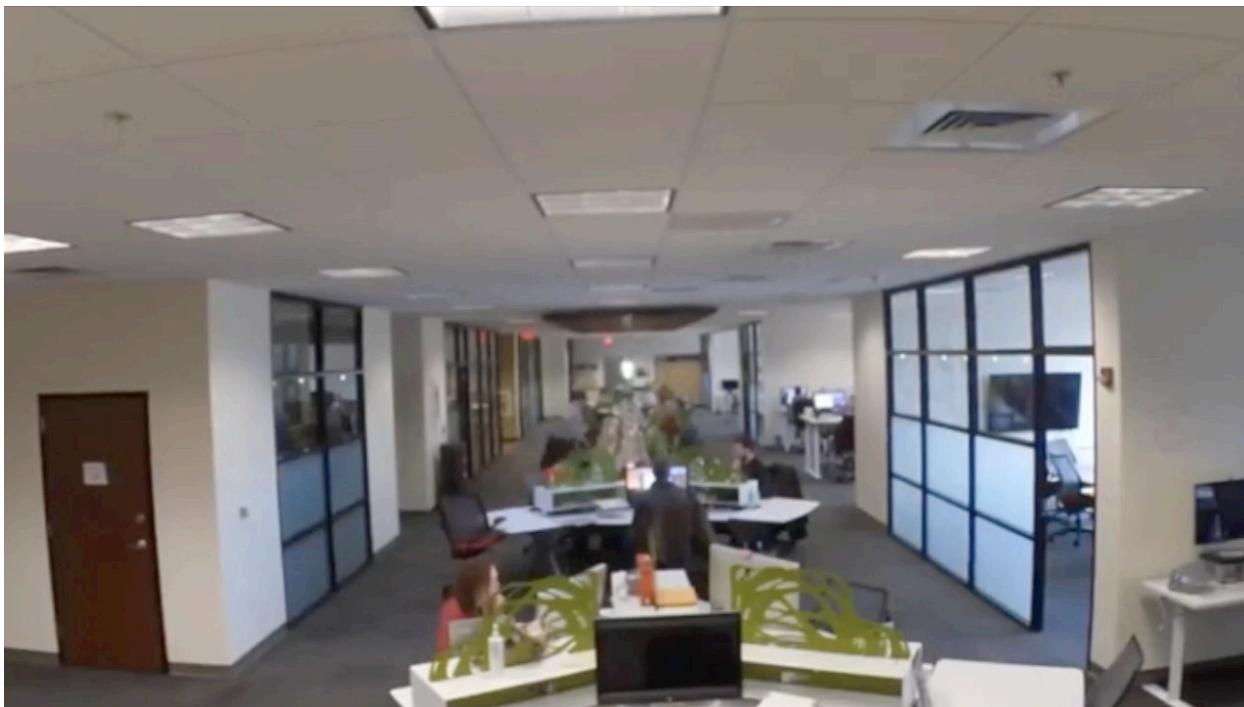
Evidence to **encourage** change

Incentives to **embrace** change

Training to **enact** change

Technology to **enable** change

Video of  
COS 9 am  
standup:



# Challenges

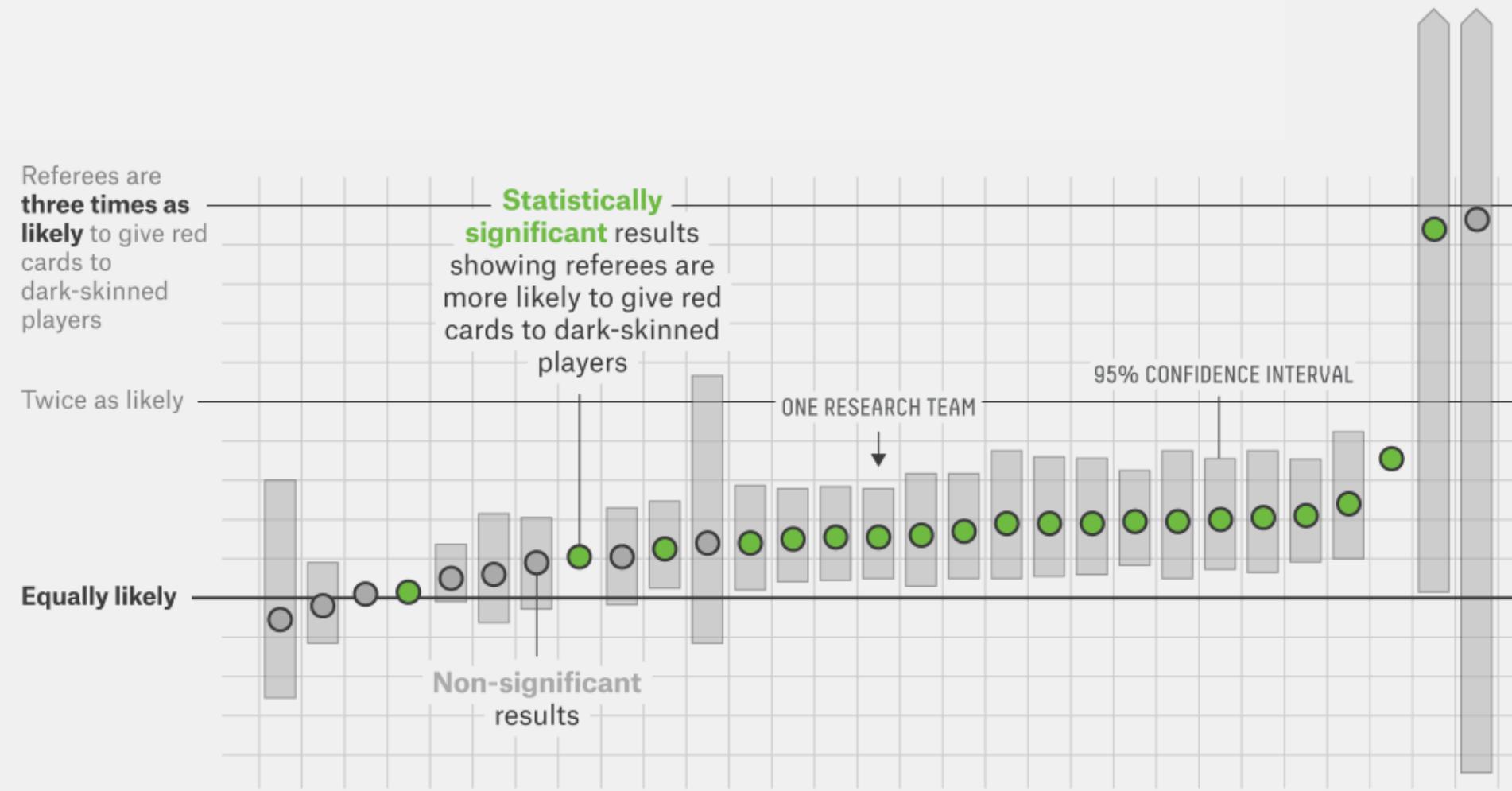
Low power  
Flexibility in analysis  
Selective reporting  
Ignoring nulls  
Lack of replication

Sterling, 1959; Cohen, 1962; Lykken, 1968; Tukey, 1969; Greenwald, 1975; Meehl, 1978; Rosenthal, 1979



Evidence to **encourage** change

Same data + different analysis = different results



# Reproducibility Project: Psychology

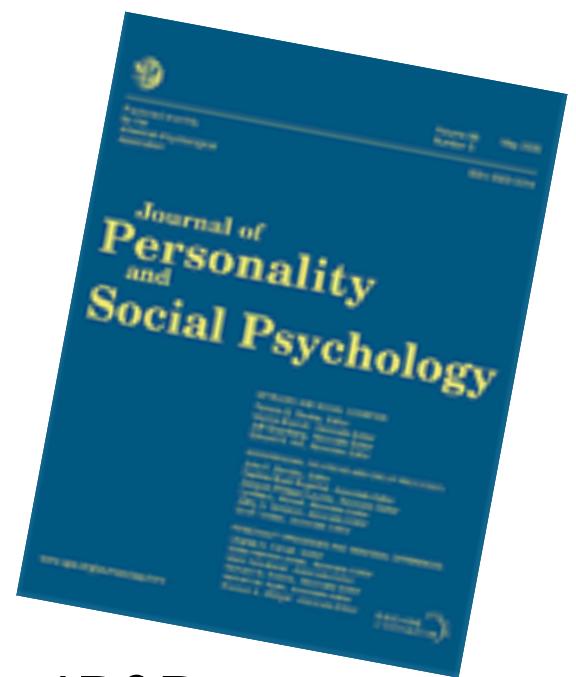
<http://osf.io/ezcuj>



PSCI

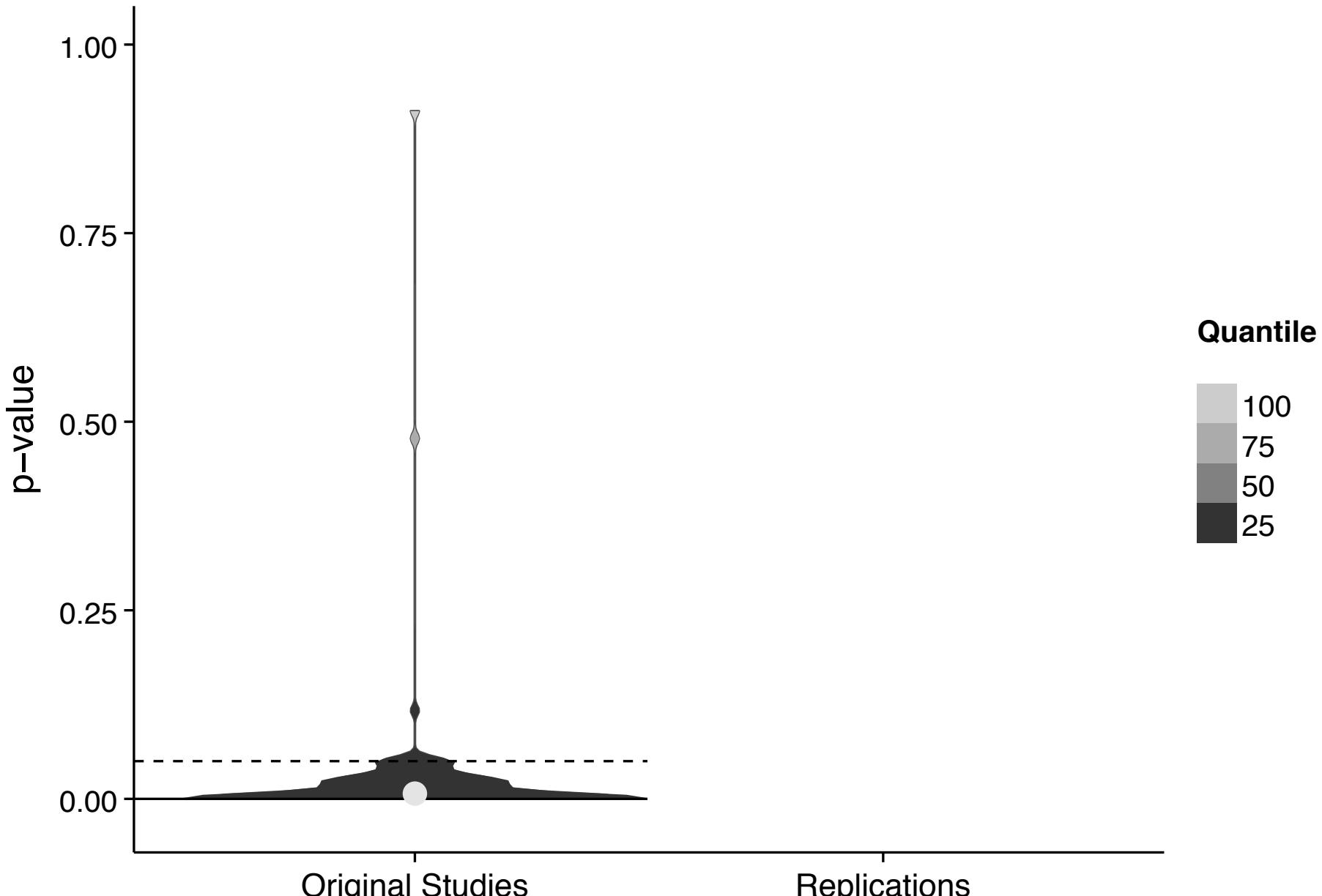


JEP:LMC



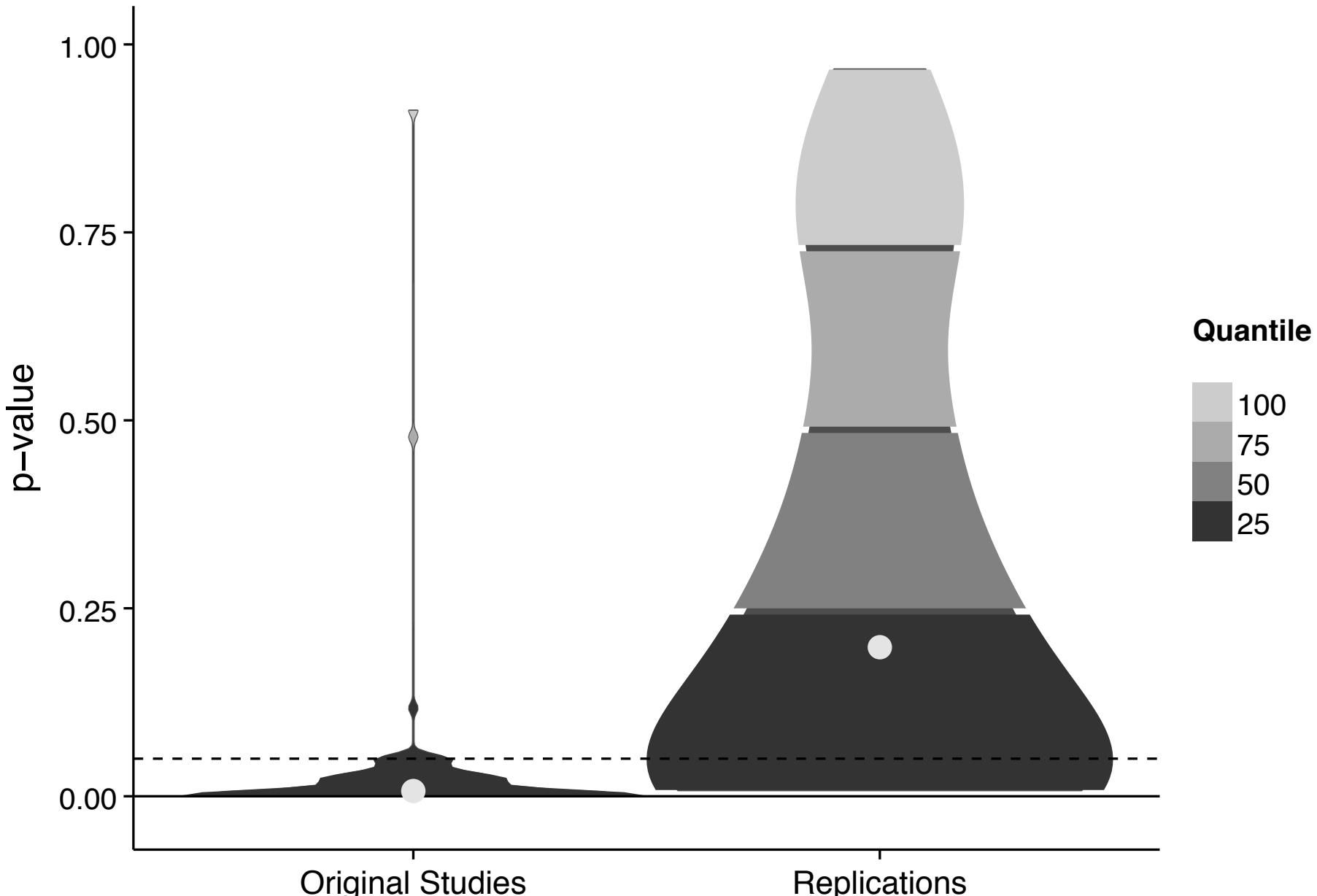
JPS<sup>P</sup>

97%



97%

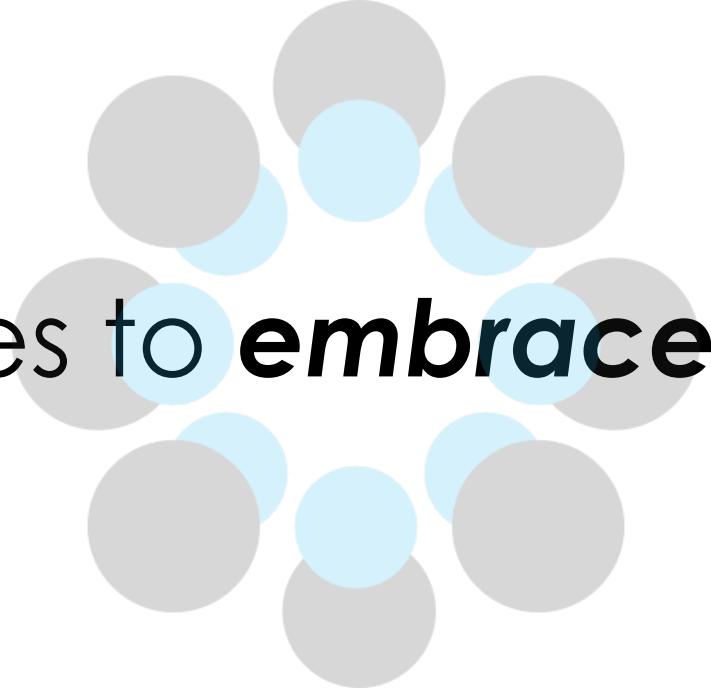
37%



Original Studies

Replications

Open Science Collaboration, 2015, *Science*



Incentives to **embrace** change

# TOP Guidelines

2,900+ journals and organizations have become signatories

<http://cos.io/top>

	<b>Level 0</b>	<b>Level I</b>	<b>Level II</b>	<b>Level III</b>
<b>Citation Standards</b>	Journal encourages citation of data, code, and materials, or says nothing.	Journal describes citation of data in guidelines to authors with clear rules and examples.	Article provides appropriate citation for data and materials used consistent with journal's author guidelines.	Article is not published until providing appropriate citation for data and materials following journal's author guidelines.
<b>Data Transparency</b>	Journal encourages data sharing, or says nothing.	Article states whether data are available, and, if so, where to access them.	Data must be posted to a trusted repository. Exceptions must be identified at article submission.	Data must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication.
<b>Analytic Methods (Code) Transparency</b>	Journal encourages code sharing, or says nothing.	Article states whether code is available, and, if so, where to access it.	Code must be posted to a trusted repository. Exceptions must be identified at article submission.	Code must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication.
<b>Research Materials Transparency</b>	Journal encourages materials sharing, or says nothing.	Article states whether materials are available, and, if so, where to access them.	Materials must be posted to a trusted repository. Exceptions must be identified at article submission.	Materials must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication.
<b>Design and Analysis Transparency</b>	Journal encourages design and analysis transparency, or says nothing.	Journal articulates design transparency standards.	Journal requires adherence to design transparency standards for review and publication.	Journal requires and enforces adherence to design transparency standards for review and publication.
<b>Study Preregistration</b>	Journal says nothing.	Article states whether preregistration of study exists, and, if so, where to access it.	Article states whether preregistration of study exists, and, if so, allows journal access during peer review for verification.	Journal requires preregistration of studies and provides link and badge in article to meeting requirements.
<b>Analysis Plan Preregistration</b>	Journal says nothing.	Article states whether preregistration of study exists, and, if so, where to access it.	Article states whether preregistration with analysis plan exists, and, if so, allows journal access during peer review for verification.	Journal requires preregistration of studies with analysis plans and provides link and badge in article to meeting requirements.
<b>Replication</b>	Journal discourages submission of replication studies, or says nothing.	Journal encourages submission of replication studies.	Journal encourages submission of replication studies and conducts results blind review.	Journal uses Registered Reports as a submission option for replication studies with peer review prior to observing the study outcomes.

# Signals make behaviors visible



<http://cos.io/badges>

# Psychological SCIENCE

Research, Theory, & Application in  
Psychology and Related Sciences

A Journal of the Association for Psychological Science



Open Data



Open Materials



Preregistered

Click here  
for more  
information

## Download 2014 APS Convention

## This Week in *Psychological Science* (TWiPS)



The links below take you to the journal via the APS website. If not already logged in, you will be redirected to log-in using your last name (Nosek) and Member ID (16341).

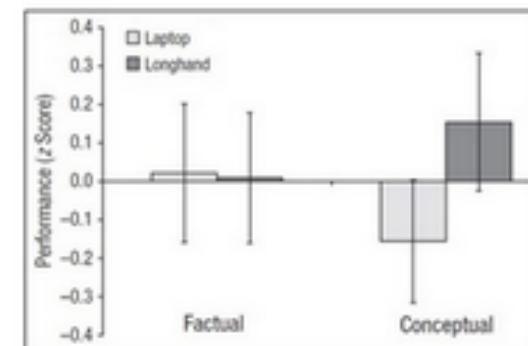
### Call for Editor Nominations

*Psychological Science in the Public Interest*



### [The Pen Is Mightier Than the Keyboard: Advantages of Longhand Over Laptop Note Taking](#)

Pam A. Mueller and Daniel M. Oppenheimer



It's becoming more and more common for students to type their notes on laptops rather than writing them out in longhand. In the first of several studies, the authors examined the effects of laptop note taking by having participants take notes on a TED talk using a laptop computer or a notepad. Thirty minutes later, the participants answered factual-recall and conceptual-application questions about the lecture. Those who took notes on laptops performed worse on conceptual-application questions – but not on factual-recall questions. Follow-up studies indicated that although people with laptops take more notes, they tend to copy the information verbatim and therefore process the information less than do longhand note takers.

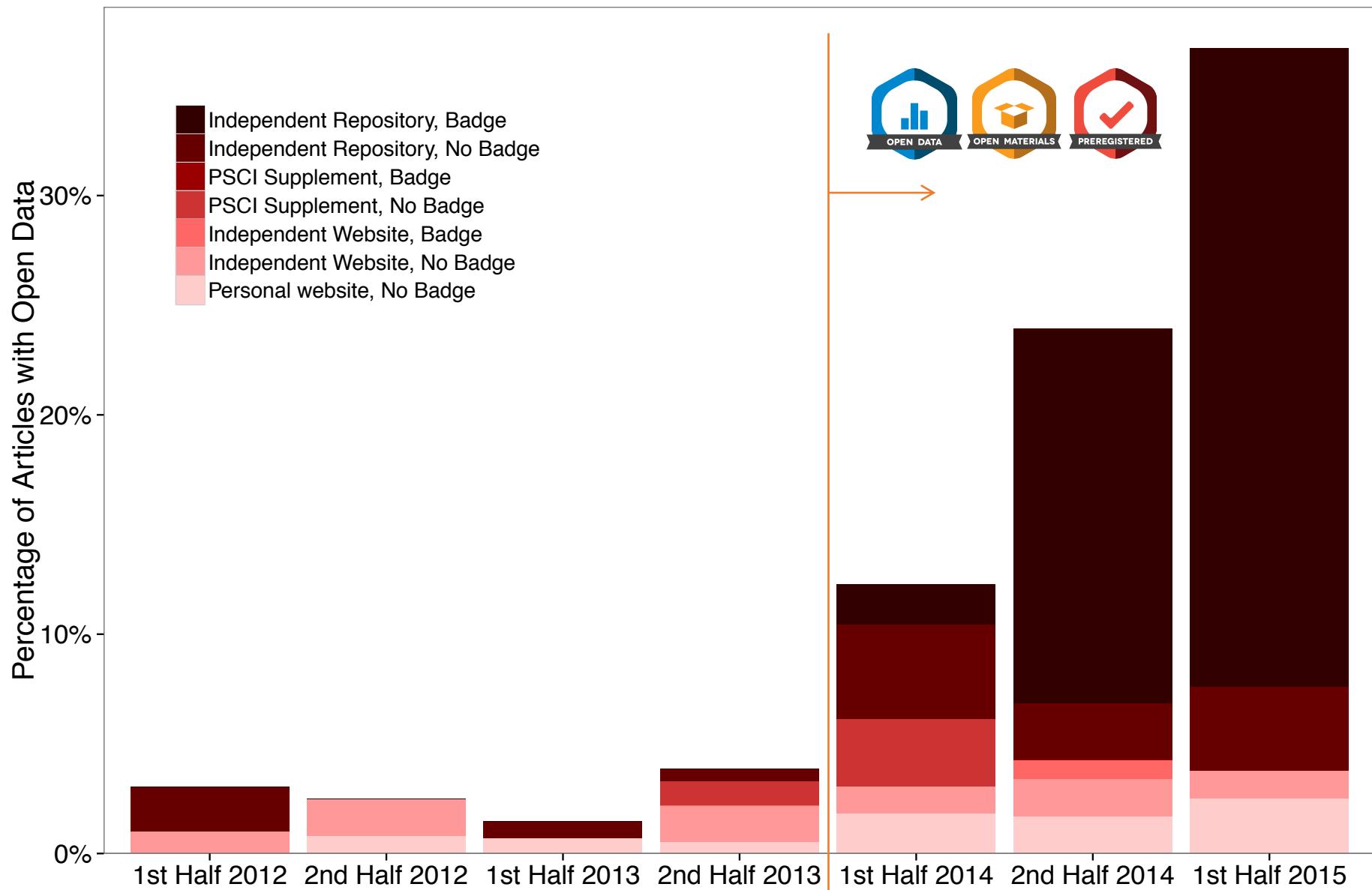
### [Gratitude: A Tool for Reducing Economic Impatience](#)

David DeSteno, Ye Li, Leah Dickens, and Jennifer S. Lerner



It is well-known that people are generally impatient and prefer immediate rewards to future rewards. To examine whether certain emotions could reduce people's economic impatience, researchers asked participants to recall events that made them feel

# Data availability in Psychological Science



# Preregistration Challenge



# Registered Reports



- Early review improves study design
- Stage 1 review → in-principle acceptance of publication, independent of research outcome

<https://cos.io/rr>



Training to **enact** change

# Statistical and methodological consulting

- ✓ Power analyses
- ✓ Meta-analyses
- ✓ Using R
- ✓ Using the OSF
- ✓ Preregistering analysis plans
- ✓ Workflows to increase transparency



Free training on how to make research more reproducible

[http://cos.io/stats\\_consulting](http://cos.io/stats_consulting)

# Reproducibility workshops

- Free & hands-on
- Topics include:
  - ❖ Project documentation
  - ❖ Version control
  - ❖ Pre-analysis plans
  - ❖ Using OSF
  - ❖ Benefits of open science



Requests for info: [contact@cos.io](mailto:contact@cos.io)

# Webinars



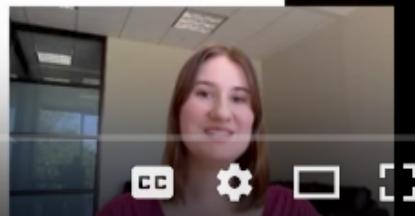
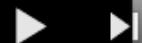
Search

## Issues Arising from Underpowered Studies

Courtney Soderberg

Center for Open Science

Statistical and Methodological Consultant



## Consequences of Low Statistical Power



Center for Open Science



647

718 views



Technology to **enable** change

# Open Science Framework

<http://osf.io>  
Free, open  
source

The screenshot shows the OSF dashboard with a list of projects. The projects listed are:

Title	Contributors	Modified
Center for Open Science / Lunch Talks / Baking with skim or Upcoming features in WaterButler	Seto, Bowman, Amanfu + 111	2016-12-31 03:26 PM
Center for Open Science / Lunch Talks	Bowman, Amanfu, Chrisinger + 112	2016-12-31 03:26 PM
Center for Open Science	Barker, Barbour, Benjamin + 64	2016-12-31 03:26 PM
NGS2 DARPA Program	Nosek, Spitzer, Russell + 41	2016-12-21 11:38 AM
NGS2 DARPA Program / Reference Papers	Spitzer, Nosek, Russell + 41	2016-12-20 11:26 AM
NGS2 DARPA Program / Resources	Soderberg, Nosek, Spitzer + 41	2016-12-20 11:26 AM
NGS2 DARPA Program / NGS2 KickOff Meeting Presentations	Spitzer, Nosek, Russell + 41	2016-12-20 11:26 AM
HRA's Open Science Task Force	Franko, Alvarez, Shannon Gallagher + 5	2016-12-16 02:46 PM
HRA's Open Science Task Force / Bibliography of Resources Mentioned by Maximizing Impact Stakeholders	Franko, Alvarez, Shannon Gallagher + 4	2016-12-16 02:46 PM
HRA's Open Science Task Force / RFIs of Interest	Franko, Alvarez, Shannon Gallagher + 4	2016-12-16 02:46 PM

The dashboard also features a navigation bar with links to 'Dashboard', 'My Projects', 'Browse', and a user profile for 'Rusty Speidel'. There is a green button labeled 'Create new project' and a search bar at the top.

# Project collaboration, organization, and sharing

Open Science Framework

Dashboard My Projects Browse Matthew Spitzer

Understanding and Using the Brief Impl... Files Wiki Analytics Registrations Forks

Public 0 Share

## Understanding and Using the Brief Implicit Association Test: Recommended Scoring Procedures

Contributors: Brian A. Nosek, Yoav Bar-Anan, Sriram Natarajan, Jordan Axt, Anthony G. Greenwald

Affiliated institutions: University of Virginia

Date created: 2013-01-01 01:40 PM | Last Updated: 2016-12-27 12:13 PM

Category: Project

Description: A brief version of the Implicit Association Test (BIAT) has been introduced. The present research identified analytical best practices for overall psychometric performance of the BIAT. In 7 studies and multiple replications, we investigated analytic practices with several evaluation criteria: sensitivity to detecting known effects and group differences, internal consistency, relations with implicit measures of the same topic, relations with explicit measures of the same topic and other criterion variables, and resistance to an extraneous influence of average response time. The data transformation algorithms D outperformed other approaches. This replicates and extends the strong prior performance of D compared to conventional analytic techniques. We conclude with recommended analytic practices for standard use of the BIAT.

License: CC0 1.0 Universal

This project represents a preprint. [Learn more](#) about how to work with preprint files.

Wiki

Materials and data for investigation of scoring procedures for the Brief Implicit Association Test. Article was published in [PLOS ONE](#).  
Files include the main tables and supplementary tables for the article evaluating BIAT scoring procedures.  
Also, the supplement pdf presents evidence that the ABAB block design for the BIAT avoids a confounding influence of block order across all three domains te...  
[Read More](#)

Files

Name Modified

Filter

Citation osf.io/7a2n8

Components

Data sets   
Bar-Anan, Nosek & Axt  
12 contributions

Tags

IAT Implicit Association Test Brief IAT BIAT scoring procedures

# Put data, materials, and code on the OSF

Screenshot of the Open Science Framework (OSF) interface showing a file named "Lepadogaster.stl".

The top navigation bar includes links for My Dashboard, Browse, Help, a search icon, a user profile, settings, and a share icon.

The main content area shows the file "Lepadogaster.stl" with options to Share, Download, View, and Revisions.

The left sidebar displays the file structure:

- Component: Lepadogaster lep...
- OSF Storage
  - Lepadogaster.stl
    - + low res slice data
    - oblique.jpg
    - + slice data
    - standard headshot.jpg
    - ventral.jpg

The right side of the screen displays a detailed 3D model of a fish skeleton, specifically a Lepidogaster species, shown from a lateral perspective.

Check out "Fish Guy's" Story:

<http://www.wired.com/2016/01/print-an-army-of-giant-articulated-fish-from-this-3-d-database/>

# Put data, materials, and code on the OSF

The screenshot shows the OSF (Open Science Framework) interface. On the left, there's a sidebar titled "Files" with a message: "Click on a storage provider or drag and drop to upload". Below this, a list of storage providers is shown:

- Dropbox: COS Files  
ExampleOSFWorkshop.pdf
- figshare: TEST OSF:13327  
COS1pager.pdf  
COS\_onepager\_2016-11.pdf  
COS\_onepager\_2016-11.pdf  
OSF4I\_OverviewSlides.pdf
- GitHub: mattspitzer/community (master)  
operationsmanual.md  
README.md  
UserMetrics.md
- OSF Storage  
OSForInstitutionsOverview.pdf
- Amazon S3: nakpo (US Standard)

On the right, there's a "Components" section with three items:

- Data**  
Spitzer  
4 contributions
- Test hyp**  
Spitzer, Dayton & Benjamin  
6 contributions
- IRB forms**  
Spitzer  
2 contributions

A red arrow points from the text "Control access" to the "Data" component.

Control access

# Automated versioning

Open Science Framework

My Dashboard   Browse   Help   Andrew Sallans   Settings

Badges to Acknowledge Open Practices   Files   Wiki   Analytics   Registrations   Forks   Contributors   Settings

BadgesDisclosureTemplate.docx   Delete   Check out   Share   Download   View   Revisions

Revisions

Version ID	Date	User	Download	MD5	SHA2
2	2015-02-18 08:55 AM	Andrew Sallans		5449614541941c1964	c5b9946df2a8728a44:
1	2015-01-26 02:40 PM	Sara Bowman		ddef6d58cd6a9b53ee:	b4b6e30e7140c76f58:

Project: Badges to Acknowledge Open Pr...  
OSF Storage  
badges.Article-Variation1.pdf  
badges.Article-Variation2.pdf  
badges.Article-Variation3.pdf  
badges.Article-Variation4.pdf  
BadgesDisclosureTemplate.docx  
data\_large\_color.png  
data\_large\_color.tif  
data\_large\_gray.png  
data\_large\_gray.tif  
data\_small\_color.png  
data\_small\_color.tif  
data\_small\_gray.png

# Persistent identifiers and citation

Open Science Framework My Dashboard Browse Help Andrew Sallans Settings

Badges to Acknowledge Open Practices Files Wiki Analytics Registrations Forks Contributors Settings

Badges to Acknowledge Open Practices Make Private Public 14 3

Contributors: Ben B. Blohowiak, Johanna Cohoon, Lee de-Wit, Eric Eich, Frank J. Farach, Fred Hasselman, Alex O. Holcombe, Macartan Humphreys, Melissa Lewis, Brian A. Nosek, Jonathan Peirce, Jeffrey R. Spies, Chris Seto, Sara Bowman, Don Green, Gustav Nilsonne, Jon Grahe, Stephanie Wykstra, Alicia Hofelich Mohr, Andrew Sallans, Roger Giner-Sorolla, Timothy H. Parker, Wolfgang Forstmeier, Shinichi Nakagawa

Date created: 2013-02-19 12:19 PM | Last Updated: 2015-10-22 10:56 AM

Category: Project

Description: The aim is to specify a standard by which we can say that a scientific study has been conducted in accordance with open-science principles and provide visual icons to allow advertising of such good behaviours.

License: No license

Wiki

Openness is a core value of scientific practice. There is no central authority determining the validity of scientific claims. Accumulation of scientific knowledge proceeds via open communication with the community. Sharing evidence for scientific claims facilitates critique, extension, and application. Despite the importance of open communication for scientific progress, present norms do not provide strong incentives for individual researchers to share data, material...

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

Citation osf.io/tvyxz

**APA**  
Blohowiak, B. B., Cohoon, J., de-Wit, L., Eich, E., Farach, F. J., Hasselman, F., ... Nakagawa, S. (2015, October 22). Badges to Acknowledge Open Practices. Retrieved from osf.io/tvyxz

**MLA**  
Blohowiak, Benjamin B et al. "Badges to Acknowledge Open Practices." Open Science Framework, 22 Oct. 2015. Web.

**Chicago**  
Blohowiak, Benjamin B, Johanna Cohoon, Lee de-Wit, Eric Eich, Frank J Farach, Fred Hasselman, Alex O Holcombe, et al. 2015. "Badges to Acknowledge Open Practices." Open Science Framework. October 22. osf.io/tvyxz.

**More**

Citation Style (e.g. "APA")

# Easy collaboration control and granular permissions

Contributors [+ Add](#)

Drag and drop contributors to change listing order.

Name	Permissions	Bibliographic Contributor
 Ben B. Blohowiak	Read + Write	<input checked="" type="checkbox"/> <input type="checkbox"/>
 Johanna Cohoon	Administrator	<input checked="" type="checkbox"/> <input type="checkbox"/>
 Lee de-Wit	Read + Write	<input checked="" type="checkbox"/> <input type="checkbox"/>
 Eric Eich	Read + Write	<input checked="" type="checkbox"/> <input type="checkbox"/>
 Frank J. Farach	Read + Write	<input checked="" type="checkbox"/> <input type="checkbox"/>
 Fred Hasselman	Read + Write	<input checked="" type="checkbox"/> <input type="checkbox"/>
 Alex O. Holcombe	Read + Write	<input checked="" type="checkbox"/> <input type="checkbox"/>
 Macartan Humphreys	Read + Write	<input checked="" type="checkbox"/> <input type="checkbox"/>

# Share your work easily

Open Science Framework      My Dashboard      Browse      Help      Andrew Sallans      Settings

Badges to Acknowledge Open Practices      Files      Wiki      Analytics      Registrations      Forks      Contributors      Settings

Badges to Acknowledge Open Practices

Contributors: Ben B. Blohowiak, Johanna Cohoon, Lee de-Wit, Eric Eich, Frank J. Farach, Fred Hasselman, Alex O. Holcombe, Mortan Humphrey, Melissa Lewis, Brian A. Nosek, Jonathan Peirce, Jeffrey R. Spies, Chris Seto, Sara Bowman, Don Green, Gustav Nilsson, Jon Grahe, Stephanie Wykstra, Alicia Hofelich Mohr, Andrew Sallans, Roger Giner-Sorolla, Timothy H. Parker, Wolfgang Forstmeier, Shinichi Nakagawa

Date created: 2013-02-19 12:19 PM | Last Updated: 2015-10-22 10:56 AM

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Description: The aim is to specify a standard by which we can say that a scientific study has been conducted in accordance with open-science principles and provide visual icons to allow advertising of such good behaviours.

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Wiki

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Make Private      Public               

Citation      osf.io/tvyxz

Components      Add Component      Add Links

Materials from Endorsers

Cohoon & Sallans

12 contributions

Tags

# See the impact beyond just citation

Open Science Framework

My Dashboard

Browse ▾

Help ▾

🔍

Andrew Sallans

⚙️

➡️

Registrations Forks Contributors Settings

🔍 Search

ℹ️

Unique visits

Showing analytics from 7/13/2016 until 8/12/2016 Update

Time of day of visits

Hour of Day

Top referrers

ost.io  
direct link  
www.google.com  
www.smithson...  
cos.io

Popular pages

Forks  
File: OSC2012.pdf  
Registrations  
Analytics  
Files  
Home  
Wiki

Size	Downloads
42.1 kB	274
38.0 kB	114
46.6 kB	130
47.9 kB	173
59.9 kB	11
3.1 kB	94
676.0 kB	57
3.0 kB	62
672.4 kB	54
1.4 kB	74
598.7 kB	55
1.4 kB	49
598.0 kB	52
3.6 kB	65

File downloads

17 Forks

Fork this project

View forks

Links To This Project

Templated From

Forks

Linking to this project will reference it in another project, without creating a copy. The link will always point to the most up-to-date version.

This option will create a new project, using this project as a template. The new project will be structured in the same way, but contain no data.

Fork this project if you plan to build upon it in your own work. The new project will be an exact duplicate of this project's current state, with you as the only contributor.

View Links

Copy Project Structure

Fork this Project

View Forks

Visits & Referral Sources

Forks

# Supports the entire research lifecycle



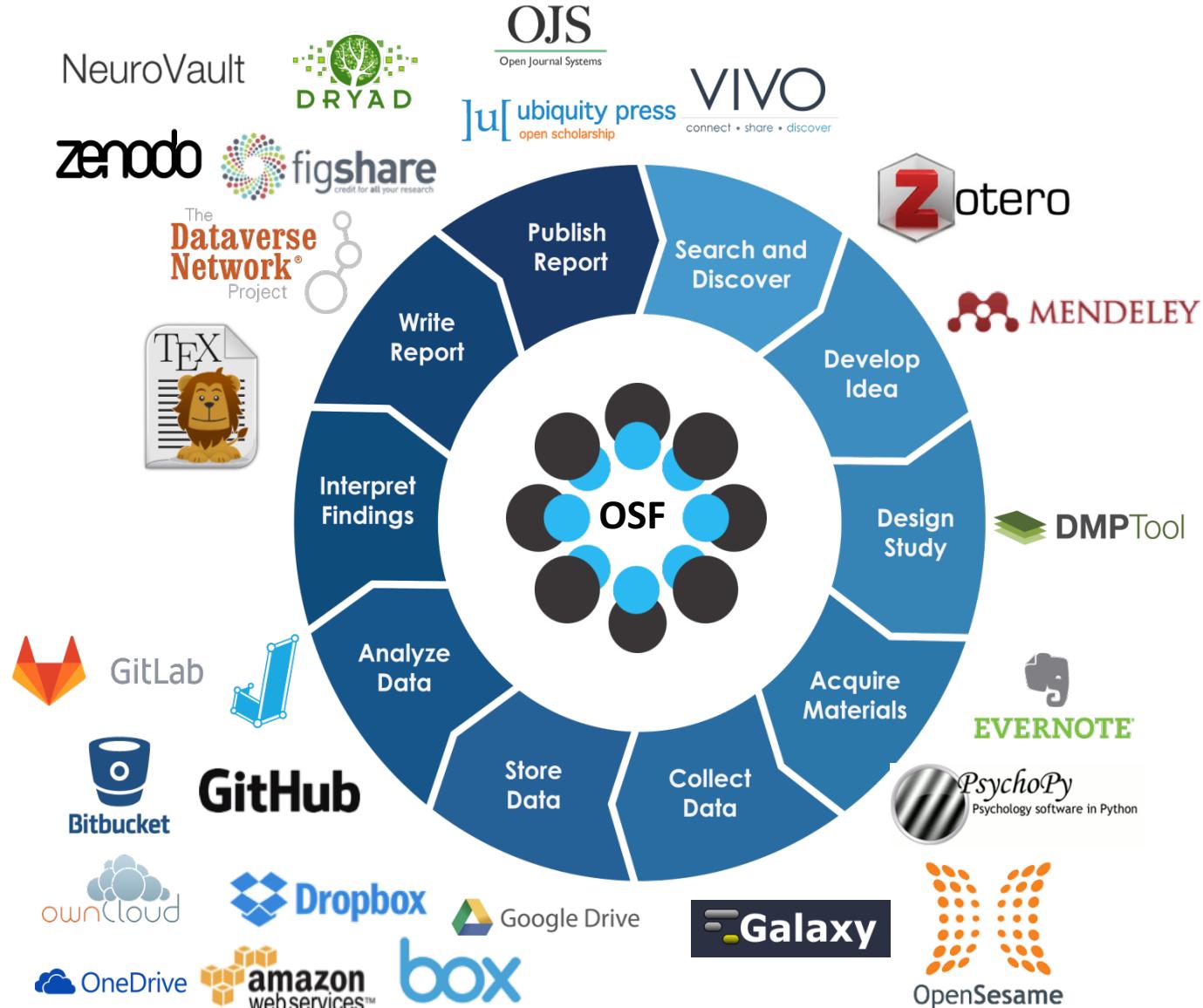


Figure includes current and in progress integrations

Building community interfaces on OSF





OSF Preprints | Badges to Acknowledge Open Practices

<https://osf.io/preprints/khbvy>

Open Science Framework

Browse Support Sign Up Sign in

OSF Preprints Add a preprint Search

# Badges to Acknowledge Open Practices: A Simple, Low-Cost, Effective Method for Increasing Transparency

Mallory Kidwell, Ljiljana Lazarevic, Erica Baranski, Tom Hardwicke, Sarah Piechowski, Lina-Sophia Falkenberg, Curtis Kennett, Agnieszka Slowik, Carina Sonnleitner, Chelsey Hess-Holden, Timothy Errington, Susann Fiedler, Brian Nosek

Added on: August 29, 2016 | Last edited: August 29, 2016

Page: 1 of 17 Automatic Zoom > Download Downloads: 12

Twitter Facebook LinkedIn Email

1 Badges to Acknowledge Open Practices: A Simple, Low Cost, Effective Method for Increasing Transparency  
2 Short title: Badges to Acknowledge Open Practices  
3 Mallory C. Kidwell<sup>1</sup>  
4 Ljiljana B. Lazarevic<sup>2</sup>  
5 Erica Baranski<sup>3</sup>  
6 Tom E. Hardwicke<sup>4</sup>  
7 Sarah Piechowski<sup>5</sup>  
8 Lina-Sophia Falkenberg<sup>5</sup>  
9 Curtis Kennett<sup>6</sup>  
10 Agnieszka Slowik<sup>7</sup>  
11 Carina Sonnleitner<sup>7</sup>  
12 Chelsey Hess-Holden<sup>6</sup>

## Abstract

Beginning January 2014, Psychological Science gave authors the opportunity to signal open data and materials if they qualified for badges that accompanied published articles. Before badges, less than 3% of Psychological Science articles reported open data. After badges, 23% reported open data, with an accelerating trend; 39% reported open data in the first half of 2015, an increase of more than an order of magnitude from baseline. There was no change over time in the low rates of data sharing among comparison journals. Moreover, reporting openness does not guarantee openness. When badges were earned, reportedly available data were more likely to be actually available, correct, usable, and complete than when badges were not earned. Open materials also increased to a weaker degree, and there was more variability among comparison journals. Badges are simple, effective signals to promote open practices and improve preservation of data and

# Branded preprint servers

The image displays four separate browser windows, each showing a different branded preprint server interface:

- SocArXiv Preprints**: A red-themed interface with a search bar and a list of results. One result is "A Cautious Defense of Intellectual Oligopoly with Fringe Competition" by Mark Lemley.
- AgriXiv Preprints**: A green-themed interface with a search bar and a list of results. One result is "Influence of organic amendments on growth, yield and quality of wheat and on soil properties during transition to organic production".
- PsyArXiv Preprints**: A pink-themed interface with a search bar and a list of results. One result is "Inference and exact numerical representation in early language development" by David Barner and Asaf Bachrach.
- engrXiv Preprints**: A dark-themed interface with a search bar and a list of results. One result is "On Advantages of the Kelvin Mapping in Finite Element Implementations of Deformation Processes" by Thomas Nagel, Kevin Mattheus Moerman, and Engineering.

Each interface includes a header with the logo and name, a search bar, a list of active filters, and a sidebar for refining search by providers and subjects.

Incentives for individual  
success are focused on  
*getting it published,*  
*not getting it right*

# **Preprints** are the *first step* in the reinvention of scholarly communication

## **Present**

- Slow (721 days submission to print\*)

## **Preprints**

- Immediate (0 days)

\*[Nosek 2012](#)

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- Inflexible (errors hard to correct, retraction ineffective)

## **Preprints**

- Immediate (0 days)
- Opportunity for community review
- Open access
- Transparent version control

\*[Nosek 2012](#)

# High level goals:

Decouple publication and evaluation

Foster open marketplace of scholarly communication innovation (i.e. bottom-up)

- Requires a complex, multi-stage solution
- Still have a lot of work to do
- See a full slide deck from COS Executive Director Brian Nosek here:  
<https://osf.io/rmvf2/>



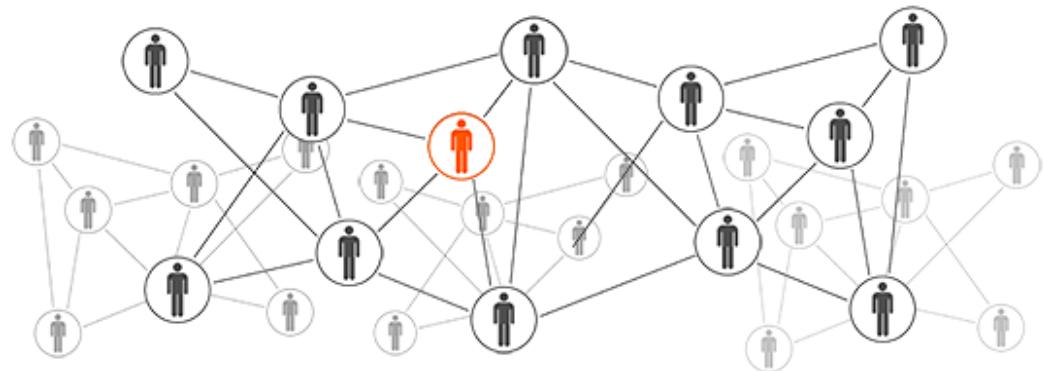
# Next Generation Social Science

# **Primary Research Question:**

*What matters most in the emergence of collective identities?*

## **Starting point:**

Game theoretic models of emergent properties in social networks



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*What matters most in the emergence of collective identities?*

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## **Ultimate goal:**

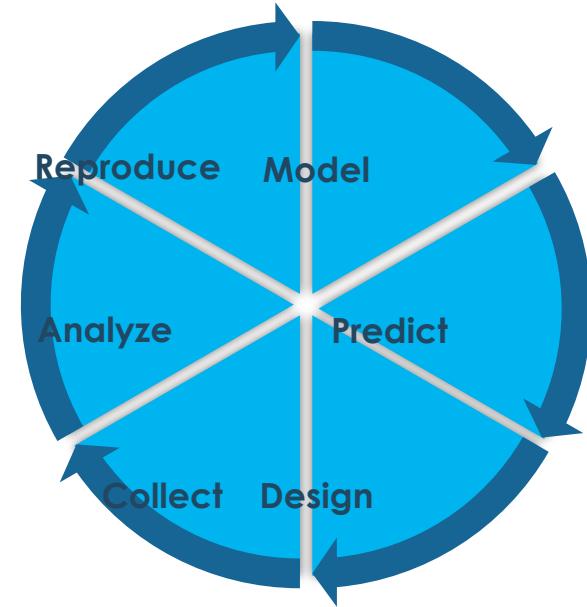
Understand causal mechanisms of emergent properties in global networks



# Why is this DARPA hard?

Must simultaneously advance the state-of-the-art in scale, speed, and complexity for:

- Predictive models
- Experimental platforms
- Analytical platforms



For ANY chance of success, results must be reproducible AND replicable!

# COS's Role – Testing & Evaluation

We are providing:

- Full workflow tracking on the OSF
- Statistical consulting on analysis plans
- Reviewed preregistration on OSF
- Technical support for reproductions
- Evaluation of [computational]  
reproducibility & replicability
- Registered Reports

# Find this presentation at

**<https://osf.io/cq24e/>**

Thorpe\_NetSci\_2017.06.19.pptx  
(Version: 1)

Delete Check out Share Download View Revision:

The screenshot shows a file browser interface. On the left, there is a list of files and folders, with 'Thorpe\_NetSci\_2017.06.19.pptx' highlighted. On the right, the main area displays a presentation slide. The slide features the Center for Open Science logo ('COS CENTER FOR OPEN SCIENCE') and the text 'Increasing Openness, Integrity, and Reproducibility of Scholarly Research'. Below this, a bulleted list identifies the author as Brandon Thorpe, Ph.D., and the organization as the Center for Open Science.

Spitzer.CNI.2016.4.pptx  
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Spitzer\_COS\_Overview\_2017...  
Spitzer\_IASSIST\_2017-5.pptx  
Spitzer\_OSF-GDAS\_2017-04-...  
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Spitzer\_SLA\_2017-6.pptx  
Thorpe\_NetSci\_2017.06.19.pptx

- COS and OSF Logos  
- OSF Storage  
cos (1).png  
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Page: 1 of 49

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**COS**  
CENTER FOR  
OPEN SCIENCE

***Increasing Openness, Integrity, and  
Reproducibility of Scholarly  
Research***

- Brandon Thorpe, Ph.D.
- Center for Open Science



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<http://cos.io>

[brandon@cos.io](mailto:brandon@cos.io)