

# Aligning Open Science with Promotion and Tenure Guidelines

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Interested in reforming your promotion policies?

Resources for reform available on OSF: <https://osf.io/pfwtx/>

email me: [mdougher@umd.edu](mailto:mdougher@umd.edu)

# Summary: What did I learn?

## **Faculty want to do the right thing**

Faculty were already making prosocial decisions (where to publish; use of Open Education Resources)

Some were excited to be able to pursue new projects with the community

Others just thanked me

**We've been doing it one way for so long**, faculty have a hard time imagining something different

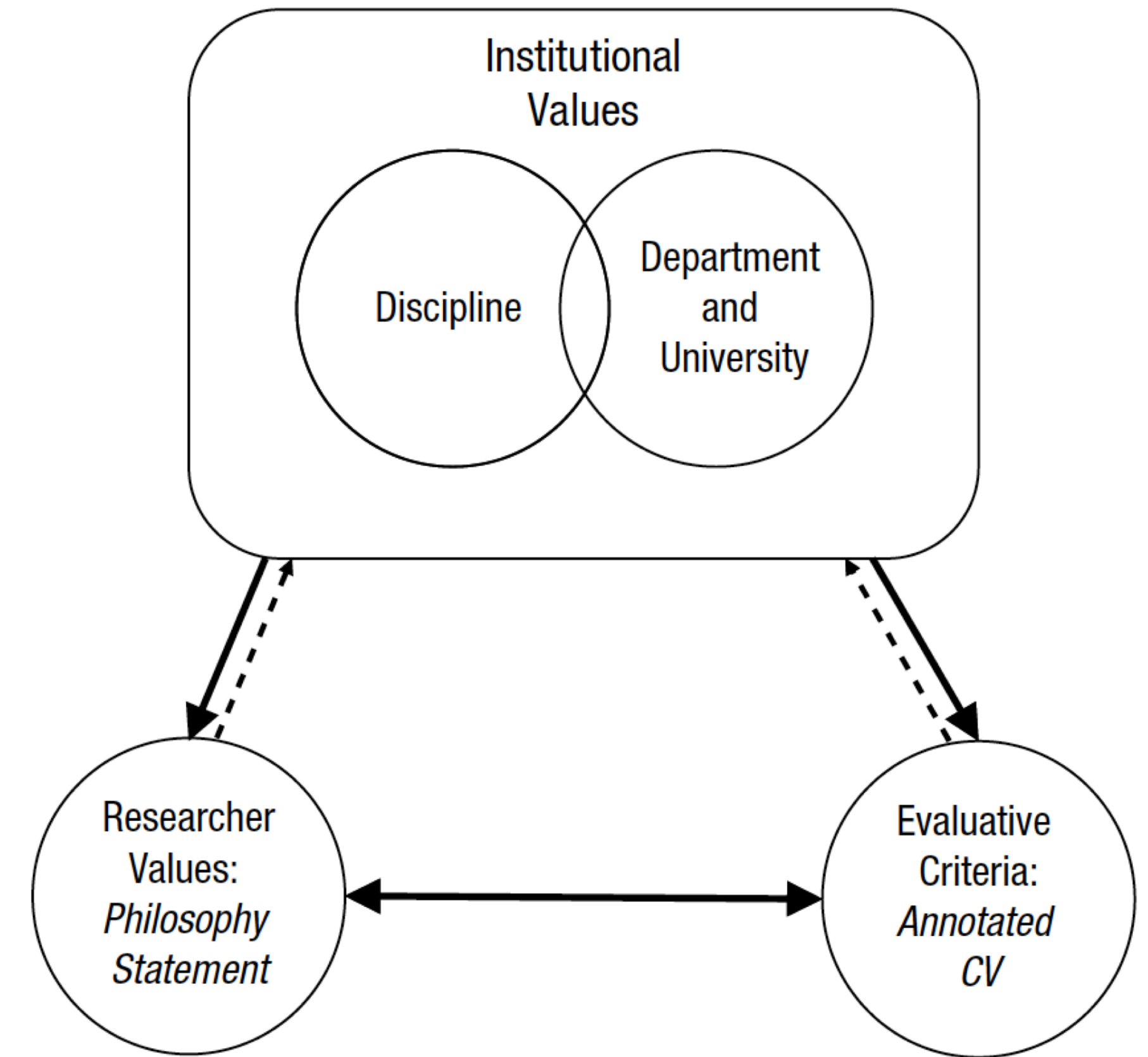
**It takes time** to socialize and educate

Passing a policy like this requires **intentionality** and **persistence**

**Administrators are totally open** to new ways of doing things - this was the easy part!

# Overview

- **Why did we undertake reform efforts?**
- **What did we do?**
- **What strategies did I use to maximize success?**



**Fig. 1.** Schematic of the three pillars of the conduct of science.

Dougherty, Grand, & Slevc 2019

**Why did we undertake reform efforts?**



Many scientific studies can't be replicated.  
That's a problem.

 By [Joel Achenbach](#)  
August 27, 2015 at 5:21 p.m. EDT

## Harvard Scholar Who Studies Honesty Is Accused of Fabricating Findings

Questions about a widely cited paper are the latest to be raised about methods used in behavioral research.

## Did a Star Researcher Fabricate Data in a Study About Dishonesty?

By [Helen Huiskes](#) | JULY 28, 2023



EDUARDO MUNOZ, REUTERS

## A New Replication Crisis: Research that is Less Likely to be True is Cited More

Papers that cannot be replicated are cited 153 times more because their findings are interesting, according to a new UC San Diego study

## About 40% of economics experiments fail replication survey

Compared with psychology, the replication rate "is rather good," researchers say

3 MAR 2016 • BY [JOHN BOHANNON](#)

EDUCATION

## Stanford president resigns after fallout from falsified data in his research

Updated July 20, 2023 • 6:36 PM ET ⓘ

By [Ayana Archie](#)

## Questionable Research Practices Surprisingly Common

May 24, 2012

TAGS: [METHODOLOGY](#) | [PSYCHOLOGICAL SCIENCE](#) | [SCIENTISTS](#)

## More social science studies just failed to replicate. Here's why this is good.

What scientists learn from failed replications: how to do better science.

SCIENCEINSIDER | EDUCATION

## Final Report: Stapel Affair Points to Bigger Problems in Social Psychology

In video statement, disgraced psychologist expresses "deep, deep remorse"

28 NOV 2012 • BY [MARTIN ENSERINK](#)

# Why did we undertake reform efforts?

- A need to incentivize research integrity, transparency, and reproducibility and promote trust in science
- Misalignment between what we say we value and what is rewarded
- Commonly used metrics are problematic

# Misalignment between values and rewards

University mission statements often tout the importance of **community** and **public engagement**, and working for the **public good**

**But**, these values are rarely weighed very heavily, and when considered are lumped under the 'service' category.

## The Public Good

Universities say they want to address societal problems

Climate Change

Do my part to reduce carbon footprint

## The Incentivized Behavior

Universities Reward Faculty for “Visibility”

Attend Conference

Fly to SF  
(1.3 Tonnes of CO<sub>2</sub>)

Conflict between Social Responsibility and Incentives for Tenure

## My carbon footprint

My flight

1.3 t CO<sub>2</sub>

In order to stop climate change, this is the maximum amount of CO<sub>2</sub> that can be generated by a single person in a year:

0.600 t CO<sub>2</sub> \*

This is the average annual amount of CO<sub>2</sub> generated by a single person in the EU:

7.2 t CO<sub>2</sub> \*\*

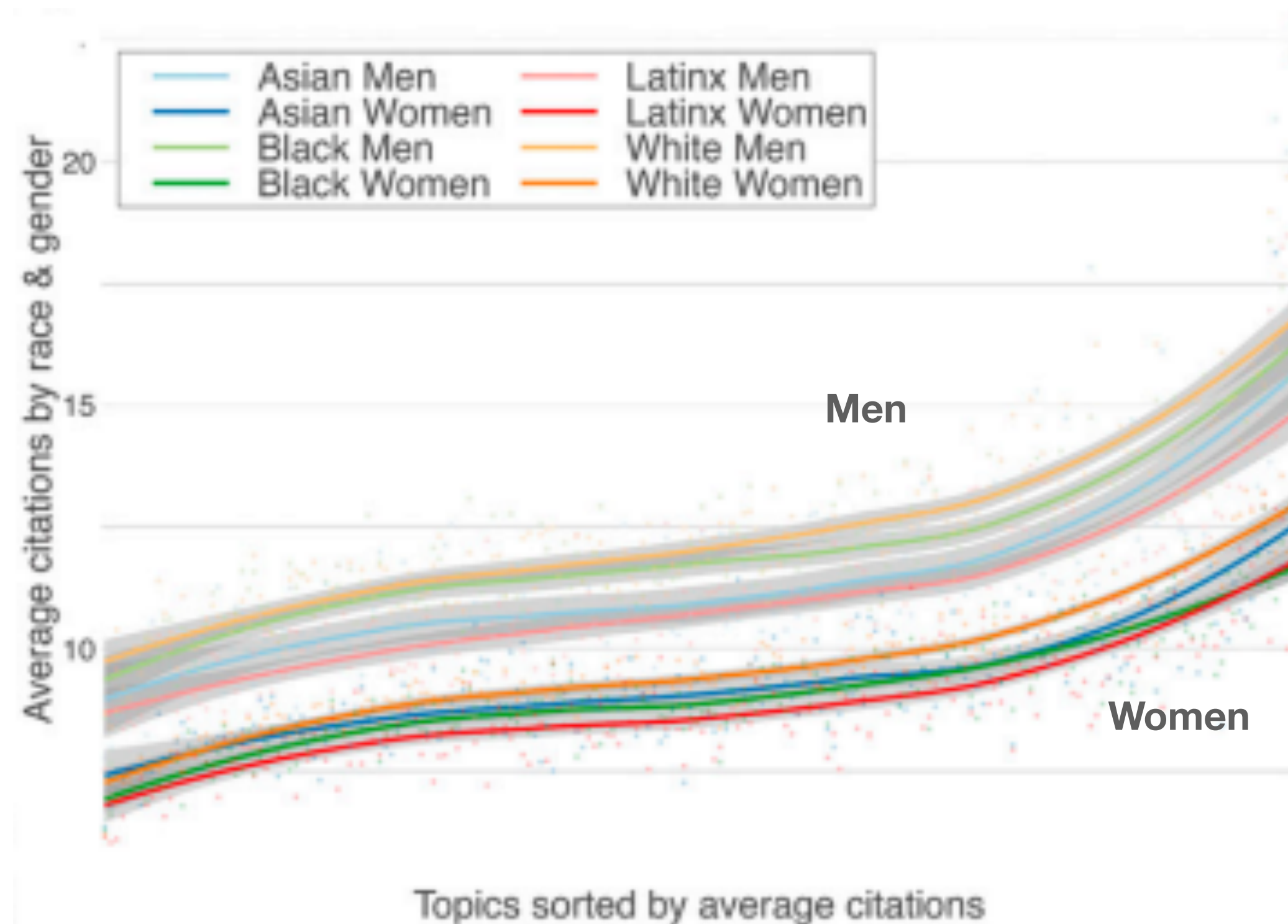
\* Source: [Federal Environment Agency](#) as of 2020; adjusted for "production-consumption".

\*\* Source: [Federal Office for the Environment](#) Status: 11.04.2023.



# Traditional metrics are problematic:

They can create Adverse Impact

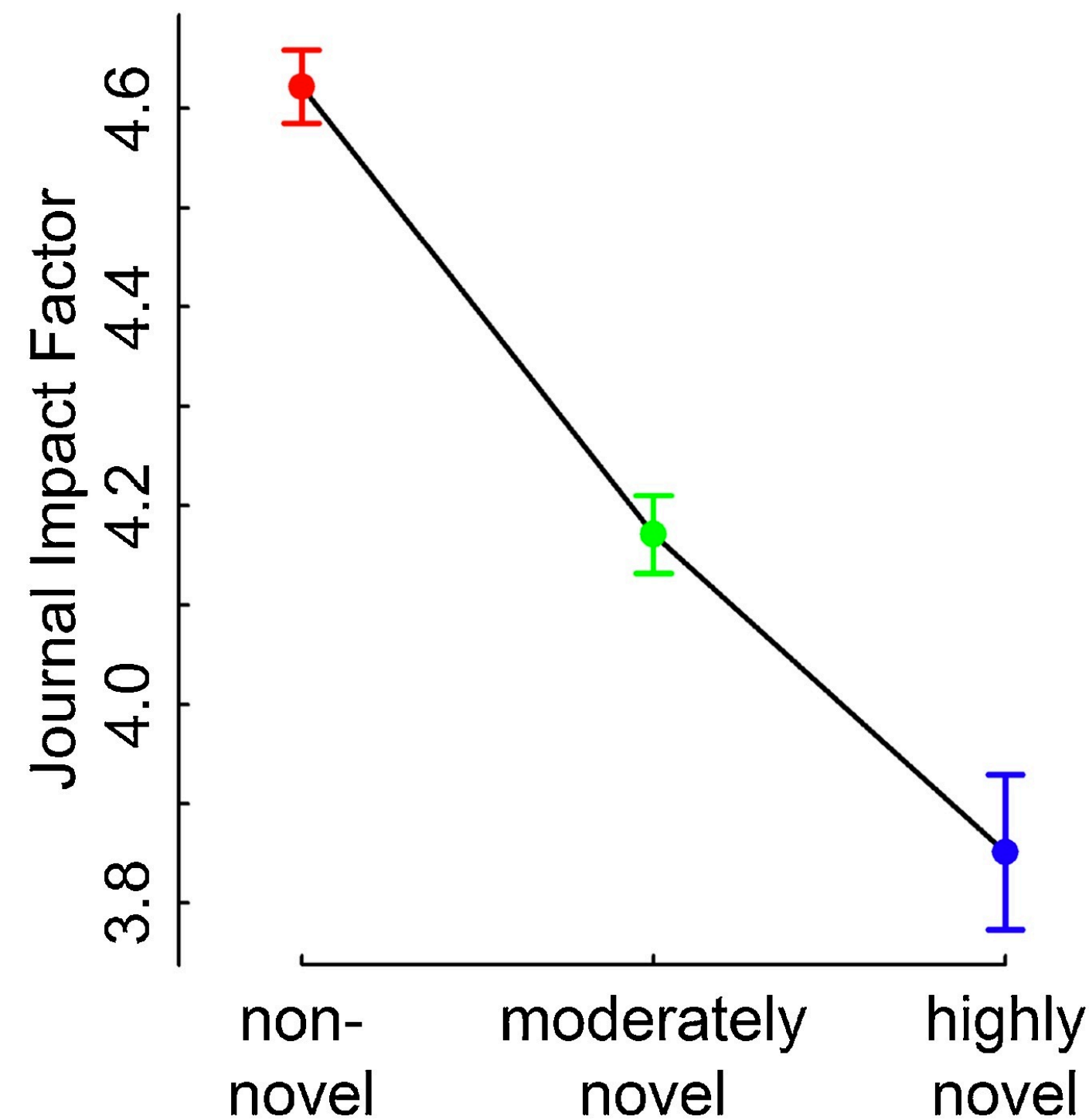


Citation disparities are multidisciplinary

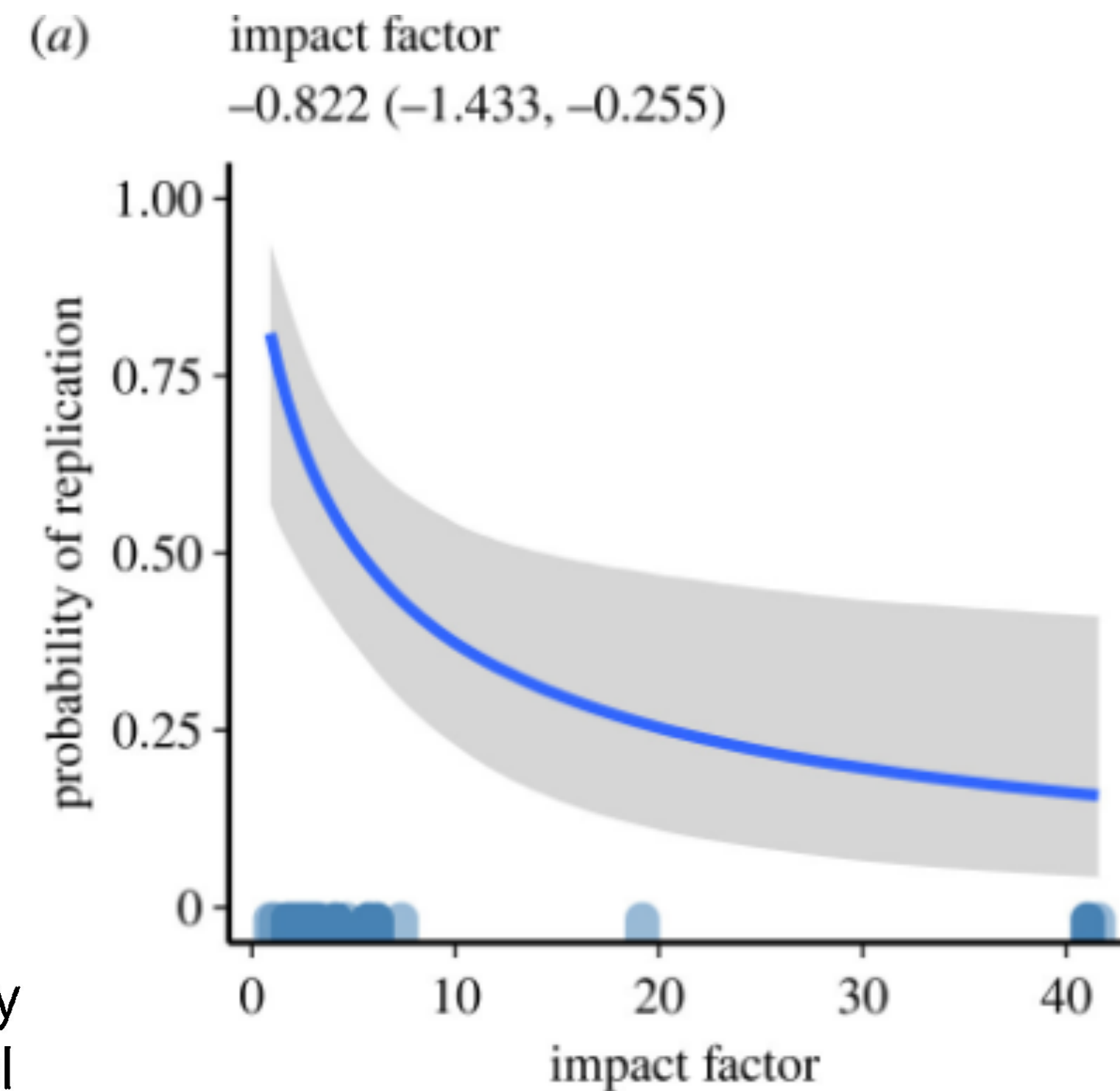
- **Physics** - Teich et al. (2022) *Nature Physics*
- **Communications** - Wang et al. (2021). *Ann Comm Assoc.*
- **Economics** - Koffi (2021) *AEA Papers and Proc*
- **Social Science** - Kozlowski et al (2022). *Nature*
- **Medicine** - Chatterjee & Werner (2021) *JAMA Netw Open.* 2021

# Traditional metrics are problematic:

They don't reflect quality



Wang et al. 2017. [Research policy](#)

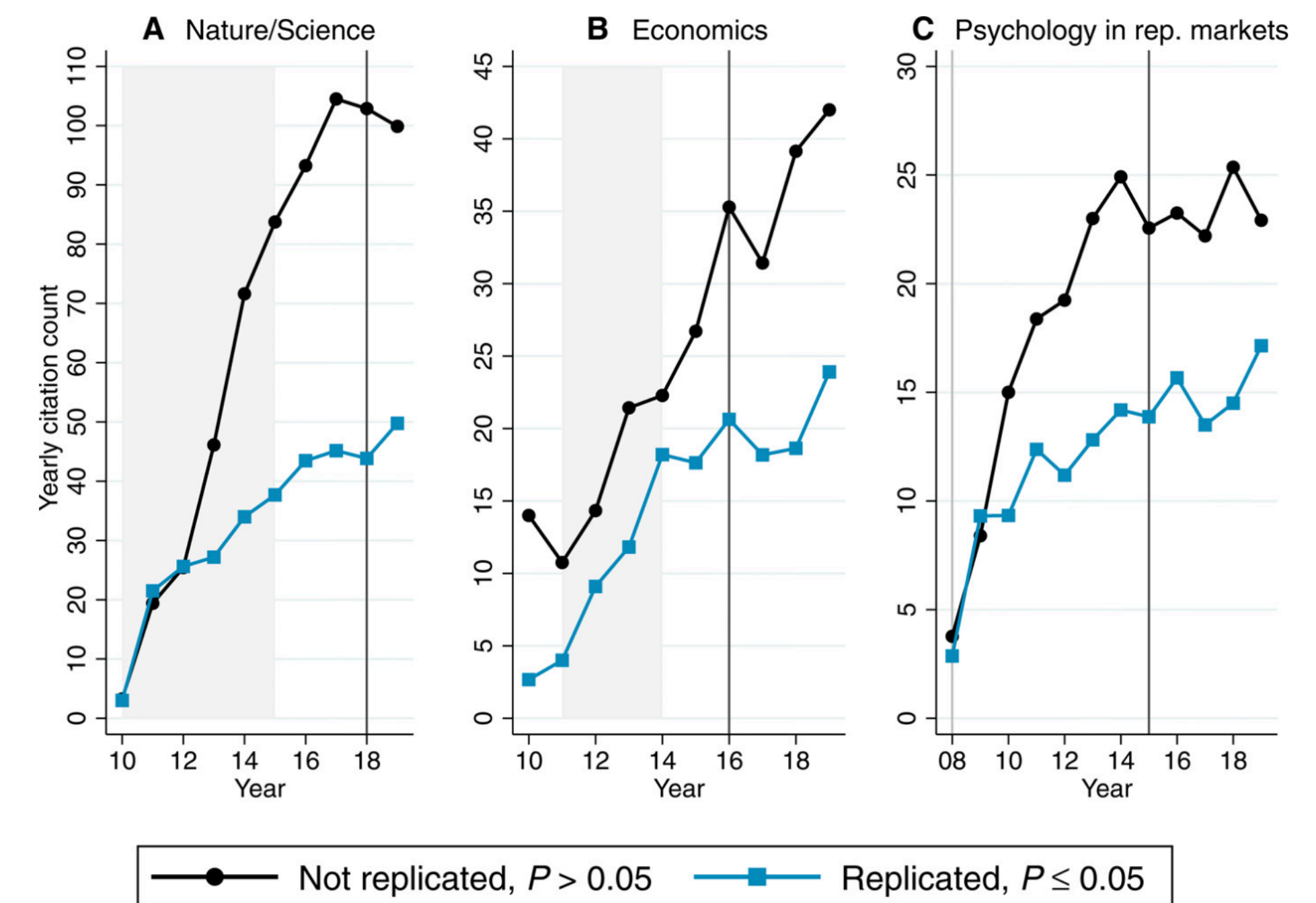


Dougherty & Horne (2022). [Royal Society Open Science](#).

Citation counts and journal impact factors do not capture some indicators of research quality in the behavioural and brain sciences

Michael R. Dougherty and Zachary Horne

Published: 17 August 2022 | <https://doi.org/10.1098/rsos.220334>



RESEARCH ARTICLE | SCIENTIFIC COMMUNITY

f t in

**Nonreplicable publications are cited more than replicable ones**

MARTA SERRA-GARCIA AND URI GNEEZY [Authors Info & Affiliations](#)

SCIENCE ADVANCES • 21 May 2021 • Vol 7, Issue 21 • DOI:10.1126/sciadv.abd1705

20,075 52

🔔 📖 🗣️ 📄

Bias against novelty in science: A cautionary tale for users of bibliometric indicators

Jian Wang<sup>a,b</sup>, Reinhilde Veugelers<sup>a,c,d</sup>, Paula Stephan<sup>e,f</sup>

# Why did we undertake reform efforts?

## It was necessary

- A need to build a more **trustworthy and reproducible science**. Need to incentivize research practices that support trust, transparency, and reproducibility.
- **How we do research has changed**. Collaboration, multi-authorship, secondary data, more normative
- **More interest amongst young faculty** in having an actual impact. Community/societal impact is more typical of social-justice minded individuals
- Broader recognition that **existing system is ‘broken’**
  - Not good for either scientists or the science
- **Traditional ‘metrics’ or benchmarks are seriously problematic**
- **Universities are re-orienting themselves around values**

# What did we do?

What would the evaluation system look like if it were built to accommodate modern approaches to science?



# Incentives Matter

When a measure becomes a target, it ceases to be a good measure -  
*Goodhart's Law*

Faculty will learn how to game the system, whether they do so implicitly or explicitly. The goal then is to create measures and incentives such that 'gaming' becomes a pro-social **behavior**.

P&T policies codify the incentives!

# What might we want our faculty to game?

## Inclusiveness

High quality **reproducible science**

**Societal** benefit

**Engagement** with community

**Enhanced accessibility** of our work to the **communities** we serve

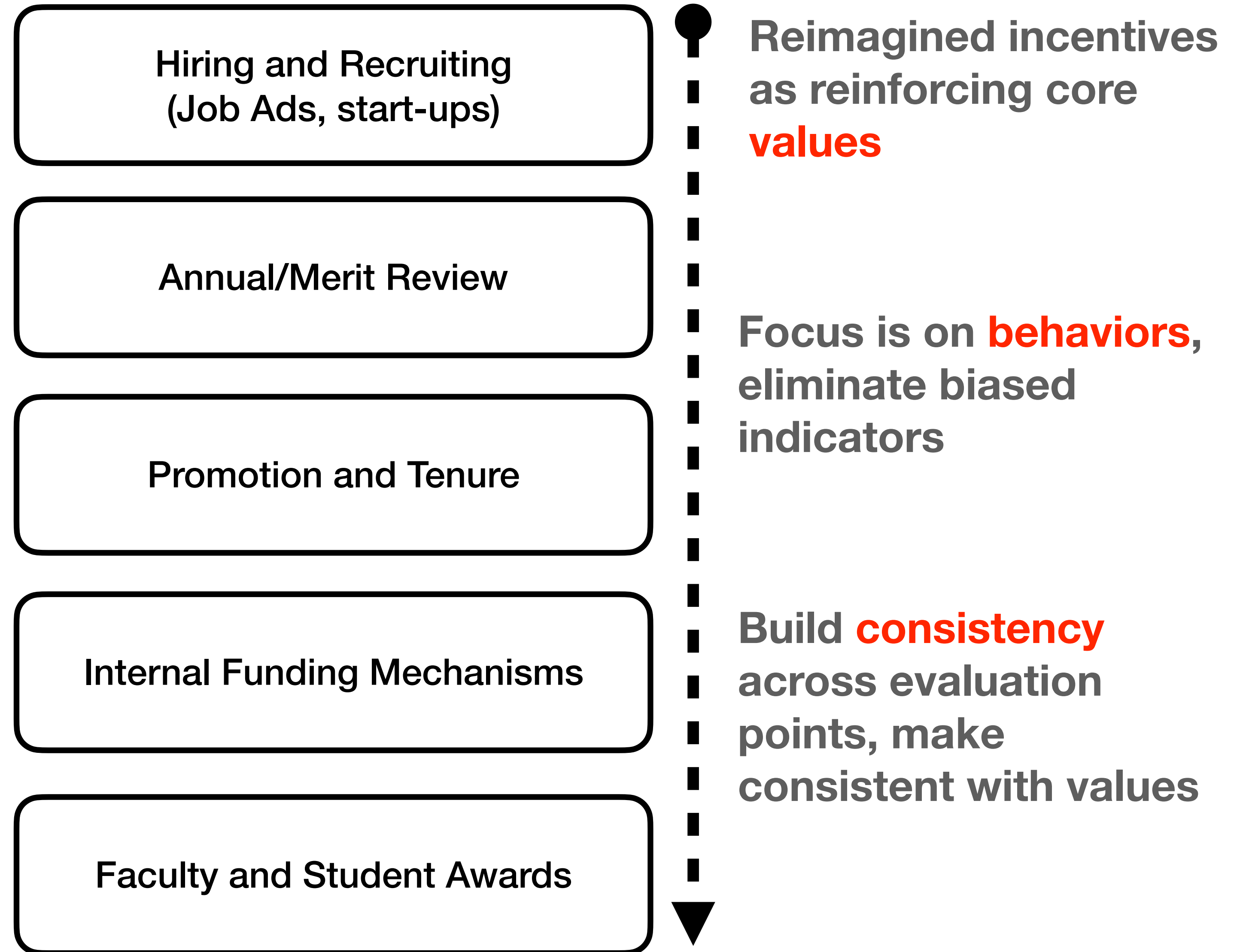
**Improved accessibility** of diverse communities to the scientific community

**Acceleration science** through better sharing and communication

## Things that influenced UMD

- Several **NASEM** reports on research integrity and open science (2017; 2018; 2019; 2020)
- **Anna Scheel's** paper on registered reports
- **Issues with reproducibility** in PsycScience (and beyond)
- **Roberts et al. (2020)** Racial inequality in psychological research. PPS
- **Moher et al. (2018)** Assessing scientists for hiring, promotion, and tenure. PLOS
- **Wang et al (2020)** Gendered citation practices in the field of communications
- **White et al (2021)**. Race, gender and scholarly impact: Disparities for women and faculty of color in clinical psychology. J. Clin. Psychology
- **Boyer** report & **Kellogg** Commission Report
- **Realization** that ERC's actually care about social justice issues, want to solve real-world problems, and want to democratize research and data (OS!)
- **Change is coming one way or another.** May as well be out front.

Starting in 2017, we underwent a multiyear effort to overhaul our entire evaluation system.



Hiring and Recruiting  
(Job Ads, start-ups)

Annual/Merit Review

**Promotion and Tenure**

Internal Funding Mechanisms

Faculty and Student Awards

### Key Features

1. Wanted to 'enable' pathways to tenure, not prevent them
2. Criteria focus on values, and they're infused throughout
3. Heavy focus on social justice, broadly defined
4. Envisions an important role for transparency and openness in research and teaching
5. CV's are annotated to reflect actual work products!
6. Recognize value of all work products, not just publications
7. Eliminated impact factors and citations
8. Wanted to empower intellectual risk taking, not inhibit it
9. Substance over quantity

### Some useful observations

1. Unanimously voted in (27-0)
2. Faculty can see a clearer path to tenure.
3. Many faculty 'thanked me'
4. Recognize and value important service or shared governance roles (associate chairs, DCT, etc)
5. Effort supported by my dean and associate provost for faculty affairs.

# Example Criteria and Values

Quality and *potential* for Impact (6 of 9 criteria)

- Application of basic science for addressing real-world problem and/or societal needs. (**Community**)
- Involvement in community-engaged research aimed at addressing relevant social issues that leads to publication or public policy. (**Public/Inclusion**)
- Research that addresses gaps in the literature as they pertain to historically under-represented groups. (**Diversity/Inclusion**)
- Commitment to providing equitable access to scholarly research through open access (**Access/Openness**)
- Development of research tools, code, data, and *open sharing* of those resources (**Openness/Transparency**)
- Evidence of adhering to standards for conducting transparent, ethically sound, and *reproducible* research (**Rigor/Integrity**)



# Annotation of Research

## Mapping Criteria to Reporting

### Traditional CV:

- Promotes bean counting
- Hides content and contribution
- Ignores work products

### Annotated CV:

- Provides richer context
- Makes work products visible
- Provides opportunity to highlight what matters

Johnson, D. J., Ampofo, D., Erbas, S. A. \*, Robey, A., Calvert, H. \*, Garriques, V. R. \*, Gulbransen, L. \*, Hatch, J. \*, Iqbal, R. \*, Lewis, M. \*, Stern, E. \*, & Dougherty, M. R. (2021). Cognitive Control and the Implicit Association Test: A Replication of Siegel, Dougherty, and Huber (2012). *Collabra: Psychology* 4 January 2021; 7 (1): 27356. doi: <https://doi.org/10.1525/collabra.27356>



Johnson, D. J., Ampofo, D., Erbas, S. A. \*, Robey, A., Calvert, H. \*, Garriques, V. R. \*, Gulbransen, L. \*, Hatch, J. \*, Iqbal, R. \*, Lewis, M. \*, Stern, E. \*, & Dougherty, M. R. (2021). Cognitive Control and the Implicit Association Test: A Replication of Siegel, Dougherty, and Huber (2012). *Collabra: Psychology* 4 January 2021; 7 (1): 27356. doi: <https://doi.org/10.1525/collabra.27356>

- **Article type:** Empirical
- **Data:** Original data.
- **Number of experiments:** 2 experiments.
- **Data type and sample size:** Behavioral data; IAT, AMP, & Stroop. Study 1 (N=148); Study 2 (N=218).
- **Reproducibility:** Open data and open analysis code (osf.io/973ez); pre-registered. (<https://osf.io/dgxut/>). Paper open access.
- **Role:** Secondary. Conceptualized idea; assisted with methods; verified that models ran; and provided critical edits. UG students are denoted with asterisks. Robey, Johnson, and Ampofo are post doctoral students or graduate students. Johnson and Robey led the project.
- **Contribution:** Paper presents 2 failed replications of a study that I published in 2012. The study was carried out as part of an open-science training seminar with undergraduate students.

# How did I do it?

# How did I do it?

- Establish principles around which reform will take place.
- Leverage **data** and consensus **reports**
  - I tried to stay away from opinion or assertion and tried to anchor our approach in data, consensus reports, and authoritative sources
- Used intentional strategies to build **awareness, engagement, and support**



# Guiding Principles

**Approval Date:** April 27, 2022

**Vote of tenure-track faculty:** 27 approve, 0 disapprove, 0 abstain

## Overarching principles (not part of criteria)

Evidence based approach



- Evaluative criteria should be informed by empirical data and or by published consensus recommendations and best practices in as much as possible

Centered on values and mission



- Procedures should reflect the core values of the department and university.

Minimize sources of bias the can drive inequities



- Evaluation should center on aspects of the work products that are under the control of the candidate in as much as possible. Avoid reputation-based metrics that are (a) out of the control of the candidate and (b) prone to known sources of bias

Reflect modern approaches to science



- Evaluation process should better accommodate and capture modern approaches to science (e.g., team science, use of secondary data). Multi-authored publication is the norm, and there is a need to better capture authorship roles to document contributions.

Recognize diverse approaches



- Procedures and criteria should accommodate the diversity of approaches to scholarship and research within psychology and acknowledge that people's approach to science may be very different from one another.

Inclusive of practices



- Procedures and criteria should recognize value and difficulty doing work with hard-to-reach populations, community engaged work, and/or approaches to open science

Broaden what counts



- Procedures should recognize the multitude of research products that people produce as part of their research program (creation of open datasets, creation of openly available research tools and software, etc)

Recognize that roles change across the career



- Pathway to full that could entail greater emphasis on instruction and service as reflected in the departmental workload policy.

# Data and consensus reports

## We did research!

- **National Academies Reports** on Research Integrity, Open Science, and Reproducibility
- **Reviewed** bibliometrics literature
  - Analyzed bibliometrics for 46,000+ articles
  - Does the data support their use? (no)
- **Reviewed consensus** reports on faculty evaluation
  - Declaration on Research Assessment ([sfdora.org](https://www.sfdora.org/)); Leiden Manifesto
  - Moher et al.
- **Looked at other data** on inequities

# Strategies and process

## Administrators support

- Talked with associate dean and associate provost for faculty affairs.
  - Found surprising allies
  - Senior leadership was tuned into issues of research integrity, equity, hidden labor, mid-career stagnation
- Administrators supportive, but wanted to see reforms emerging from the faculty
- Not everything we wanted to do was on every administrator's radar; so I put it on their radar
- Cleared for take off

# Strategies and process

## Laying groundwork

- Weekly sharing of information
- Enticed faculty to engage with the literature (used ice cream contests)
- Leveraged power of repetition
- Create reinforcing vectors
  - Changed job ads; open access in start-ups; funding mechanism to support activities

# Strategies and process

## Getting faculty on board

- Built working group strategically
  - Created small-diverse working group of the easily persuadable (sympathetic and thoughtful of the issues)
  - Don't waste time on those who won't need convincing
  - Use the power of many voices to bring traditional powerbrokers onboard
- Incorporate whole department feedback strategically
  - Build support starting with most junior and worked up to full
- Minimized workload on everyone. I did all the heavy lifting, used committee to refine and edit
- Minimize threat. We tried to ensure faculty that our approach was about opening up pathways, not about mandating them.

## Lay groundwork before you begin: The Slow Bleed

- Generate list of values
- Create departmental values statement
- Share sfdora.org **early** and **often**
- NASEM reports
- Boyer report

- Engage with Faculty affairs
- Leverage CGS/ HELIOS/ NIH/ OSTP
- Discuss with dean
- Gather support from leaders
- Educate those in need

Create small but diverse  
Team: Assistant,  
Associate, Full

Develop criteria: Use  
consensus reports, rely  
on data, reference  
mission statement

Assistant

Associate

Full

Refine as faculty.  
Stick to values.  
Justify criteria by  
data or consensus

### Consider

- How historical approaches create systemic barriers
- Community Engaged work as valuable and important
- Real-world societal impact
- How changes achieve anti-racism objectives
- How open science advances DEI, impacts through access, enhances inclusion

### Build Consensus 2

- Know the data
- Keep meeting centered on values
- Compromise

# Thank you!

Resources for reform available on OSF: <https://osf.io/pfwtx/>

Working with an organization that might want to engage? Let me know!

email me: [mdougher@umd.edu](mailto:mdougher@umd.edu)



# Summary: What did I learn?

## **Faculty want to do the right thing**

Faculty were already making prosocial decisions (where to publish; use of Open Education Resources)

Some were excited to be able to pursue new projects with the community

Others just thanked me

**We've been doing it one way for so long**, faculty have a hard time imagining something different

**It takes time** to socialize and educate

Passing a policy like this requires **intentionality** and **persistence**

**Administrators are totally open** to new ways of doing things - this was the easy part!



# Ongoing Efforts



**The Team**  
Greg Tanenbaum  
Erin McKiernan  
Caitlin Carter

- Working with a team from the Open Science Research Funders Group ([orfg.org](http://orfg.org)) to run workshops
  - Online information sharing ‘workshops’ with Psychology Department chairs
  - Hands-on activities based workshops
    - Council of Graduate Departments of Psychology (COGDOP) x 2
    - Association for Psychological Science
    - American Anthropological Association
- Open invitation to anyone who wants us to run a workshop



**Not included in presentation**

# Annotation of Research

## Mapping Criteria to Reporting

Template for annotating research products.
<b>Article Type:</b> Review;theoretical;empirical;quantitative;commentary.
<b>Data:</b> Original;archival;previously published;etc
<b>Characteristics of Sample and Studies:</b> Provide details regarding sample size and number of studies to contextualize the scope of published number of work, if applicable. Specifics will depend on particular research protocol and type of paper
<b>Data type:</b> Describe properties of the data useful for contextualizing research (e.g., Behavioral, fMRI, genetic, longitudinal, internet, unique populations, simulation, internet laboratory/clinical/simulation/ and (or) unique sample characteristics
<b>Reproducibility:</b> describe efforts to enhance reproducibility, such as inclusion of replications, open data, open code, etc.
<b>Authorship role:</b> Provide details of specific role played on the published work (e.g., CRediT, see <a href="https://casrai.org/credit/">https://casrai.org/credit/</a> for example authorship role designations)
<b>Contribution of work or other comments:</b> What unique contribution did the work make to science? What features of the article are you most proud of? How does this work related to your research philosophy or approach? Were there any unique challenges to completing the work? What novel methods or non-publication products developed as part of the work? How did the pandemic impact the creation of this work (e.g., delays in data collection, or other barriers that may have affected this scholarship)

Table 1: **Annotated CV format [see 3]. Further detail and justification for categories is provided on <https://osf.io/gp5qt>.**

# Resources that emphasize need for transparency and openness

National Academies of Sciences Engineering and Medicine. **Fostering Integrity in Research.** The National Academies Press, Washington, DC, 2017.

National Academies of Sciences Engineering and Medicine. **Open Science by Design: Realizing a Vision for 21st Century Research.** The National Academies Press, Washington, DC, 2018.

National Academies of Sciences Engineering and Medicine. **Reproducibility and Replicability in Science.** The National Academies Press, Washington, DC, 2019.

National Academies of Sciences Engineering and Medicine. **Enhancing Scientific Reproducibility in Biomedical Research Through Transparent Reporting: Proceedings of a Workshop.** The National Academies Press, Washington, DC, 2020

National Academies of Sciences Engineering, and Medicine. **Advancing Antiracism, diversity, equity, and inclusion, in STEMM Organizations: Beyond Broadening Participation.**

David Moher, Florian Naudet, Ioana A. Cristea, Frank Miedema, John P. A. Ioannidis, and Steven N. Goodman. Assessing scientists for hiring, promotion, and tenure. *PLOS Biology*, 16(3):1–20, 2018.

Dougherty MR, Slevc LR, Grand JA. Making Research Evaluation More Transparent: Aligning Research Philosophy, Institutional Values, and Reporting. *Perspectives on Psychological Science*. 2019;14(3):361–375

Michael C. Frank. N-best evaluation for academic hiring and promotion. *Trends in Cognitive Sciences*, 23(12):983–985, Dec 2019.

D. Hicks, P. Wouters, L. Waltman, S. de Rijcke, and I. Rafols. Bibliometrics: The Leiden Manifesto for research metrics. *Nature*, 520:429–431, 2015.

San Fransisco Declaration on Research Assessment (DORA). [Sfdora.org](https://www.sfdora.org)

# Highlights

- **Expunged reputation-based metrics** from our evaluative systems (citations, impact factors, awards)
- **Centered evaluative criteria** on institutional and disciplinary **values**.
- **Reframed evaluative system** to emphasize those aspects of a candidates work that is under their control (tried to remove elements that were not under their control).
- **Reward *behaviors*** that support the university mission, good research behavior, and societal impact
- **Changed CV format** so that reporting of work lines up with criteria; **Redefine impact** to include both scientific *and* societal impact.

Educate

I shared papers on scholarship of evaluation with faculty regularly

Incentivize engagement (ice cream)

Set up contests to respond to prompts (e.g., [sfdora.org](http://sfdora.org))

Consistency of messages

Messaging was regular and consistent

Most time consuming

Engaged with senior leadership

Educated whoever I could, found surprising allies

Infused values everywhere

Job ads, policies, awards, statements

Used all of the levers I had at my disposal

Promotion letters, dean's meetings, etc



Unprecedented desire for change right now.  
International Efforts underway to foster change

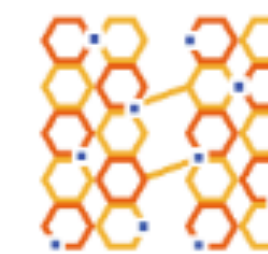
## Government



## International



## Higher Ed



Initiatives: Open Educational Resources



## Philanthropy



## Learned Societies

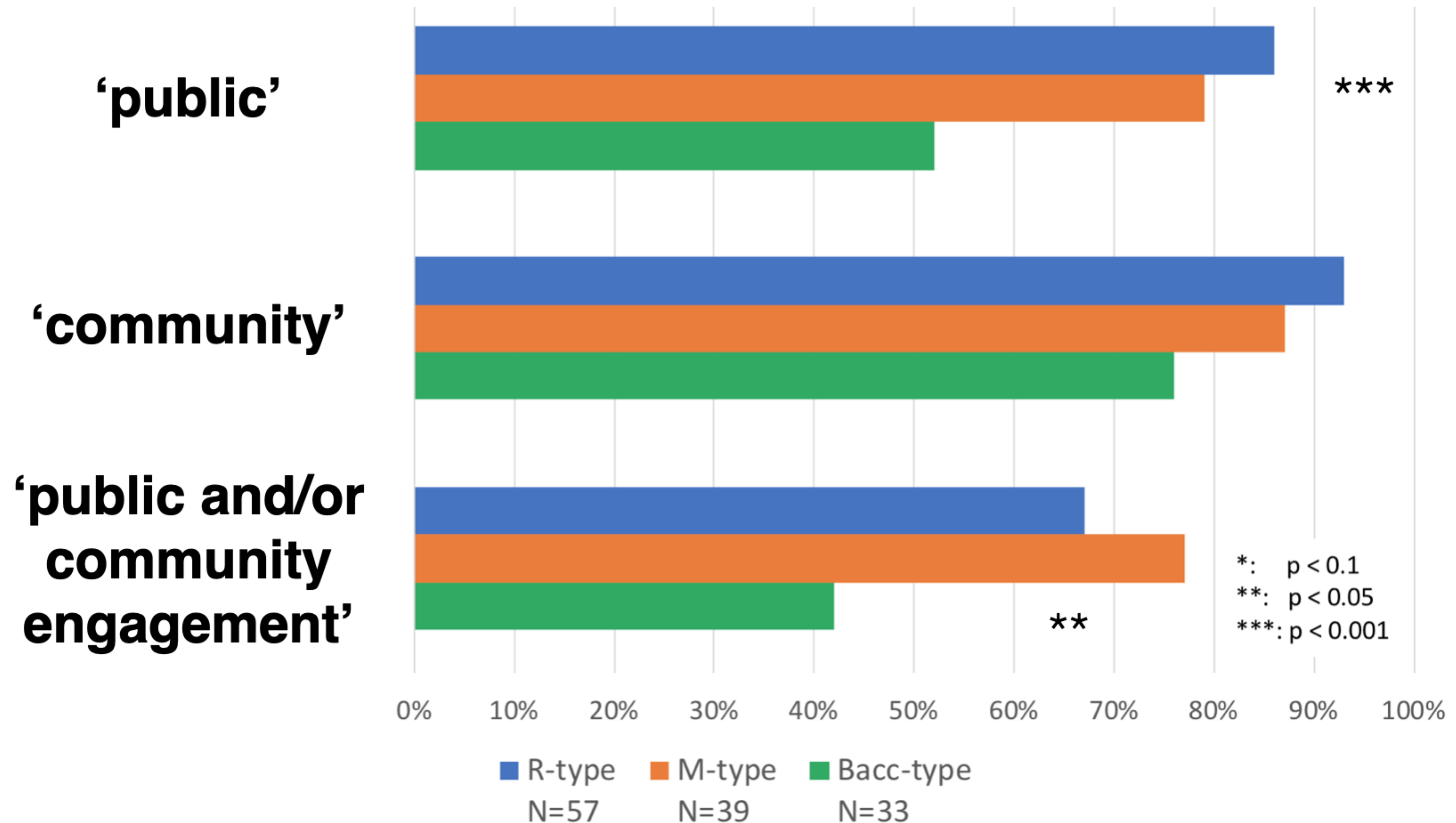


## Libraries

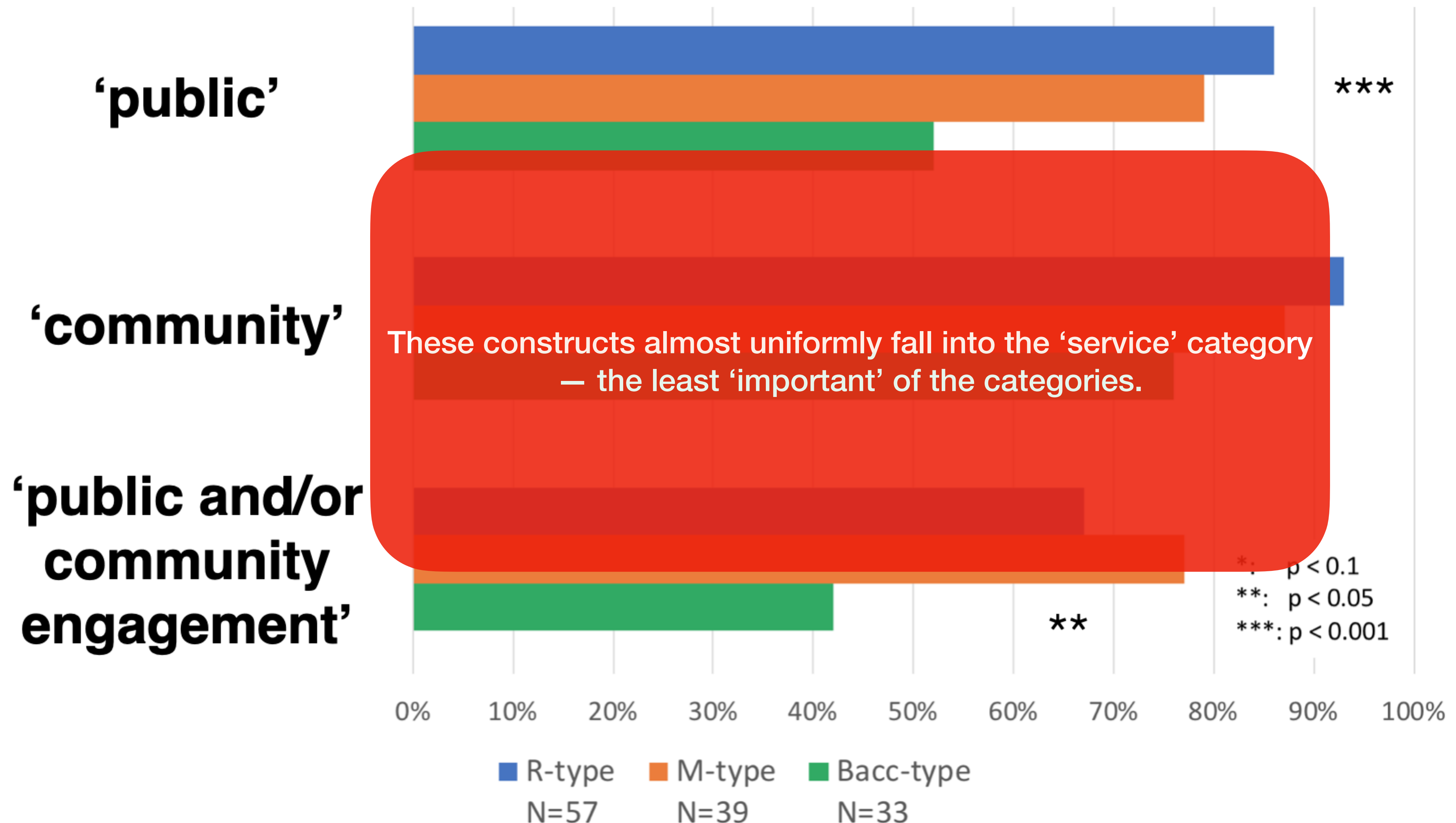




# Mentions in RPT docs by institution type

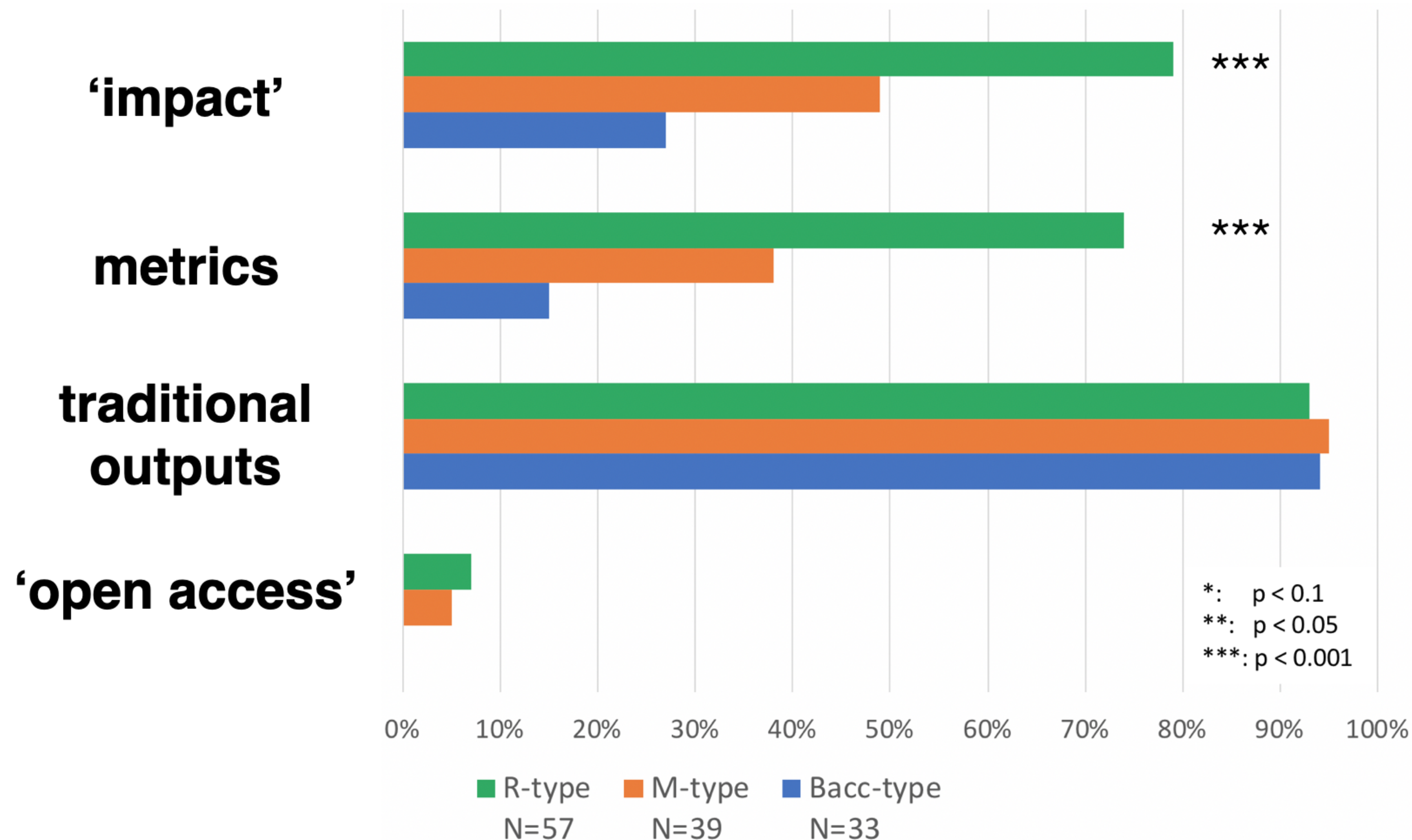


# Mentions in RPT docs by institution type



**What figures most prominently into research evaluation?**

# Mentions in RPT docs by institution type



# Misalignment between values and rewards

## Typical incentives

- Publication (**more** is better)
- Status
- **Reputation**
- **“Metrics”**
- **Where** published not **what** published
- Grant funding
- Awards
- **“Visibility**

## Stated values

- Advance research for **public good**
- Address societal problems
- Serve **community/public**
- **Equitable** opportunities to create and distribute knowledge and resources
- Engage with **community**
- **Broaden access**



## OA.Works for MENTAL HEALTH



Photo by Matt Chesin

“I’m a student at the Cronkite Journalism school at Arizona State. I’m writing a story for my intermediate reporting class on firefighters who suffer from PTSD and I’d like to gain more insight and statistics.”

**Written in search of**

Firefighting and mental health:  
experiences of repeated exposure to  
trauma

## OA.Works for SOCIAL CHANGE



Photo by Tim Marshall

“I am writing a paper on the cultural competencies for working with at risk youth in Native communities.”

**Written in search of**

The relationship of adverse childhood experiences to ptsd, depression, poly-drug use and suicide attempt in reservation-based native american adolescents and young adults

## OA.Works for PERSONAL HEALTH



Photo by Galen Crout

“My husband has contracted Bell’s Palsy and I’ve been searching for a way to create a moisture chamber (without spending lots of money).”

**Written in search of**

Glad Press’n Seal for the Treatment of Chronic Exposure Keratopathy

**87% of institutions mention  
'community' in RPT docs**

**75% mention 'public'**

**64% mention  
'public engagement' and/or  
'community engagement'**



# Words and concepts of interest

**‘impact’**

**‘open access’**

**traditional outputs**

**(books, conference proceedings, grants,  
journal articles, monographs, presentations)**

**metrics**

**(citations, impact factor,  
acceptance/rejection rates)**

# Impact as Access

## Who has access to your research?

Typically academics in resource rich westernized institutions?

Who are we missing and who else might benefit from the research?

## What do people have access to?

Typically only a brief report summarizing research findings

What other work products might be useful for others to have access to?

## How can we broaden access?

Make more of our work available

Share freely and openly as much of the work product as possible (code, data, research instruments, reports)

## How might broadening access benefit society?

More people can learn from and benefit from science

More scientists can *participate* in science. More minds and more diverse voice accelerates sciences.



NEWS

## An easy way to boost a paper's citations

An analysis of over 50,000 *Science* papers suggests that it could pay to include more references.

Zoë Corbyn

A long reference list at the end of a research paper may be the key to ensuring that it is well cited, according to an analysis of

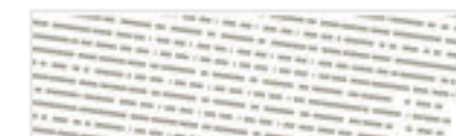


## Studies suggest 5 ways to increase citation counts

*There's no one way to 'game the system'.*

7 August 2019

Bec Crew



## How To Increase Citation Count For Any Research Paper In 10 Different Ways



**HOW TO INCREASE  
CITATION COUNT  
FOR ANY RESEARCH  
PAPER**



## 20 Tips to Increase Citation Count & Impact Factor of Research Papers

May 30, 2018 Rene Tetzner

Advice on Constructing Academic References & Bibliographies

### 20 Tips to Increase Citation Count & Impact Factor of Research Papers

For the scientists and other academics who publish their research as papers in scholarly journals, citations count, and not just as a measure of intellectual influence. High citation counts can contribute to employment, promotion, funding, speaking, collaboration and publication opportunities, so the desire to improve citation counts for each and every paper is virtually universal among researchers. The following tips for increasing citation counts focus on publishing research worth citing and ensuring that it (and its author) can be found by interested researchers and other readers.







## An easy way to boost a paper's citations

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## Studies suggest 5 ways to increase citation counts

*There's no one way to 'game the system'.*

7 August 2019

Bec Crew

Do citations belong on the lefthand side of the equation or the right?

How To Increase Citation Count For Any Research Paper In 10 Different Ways

HOW TO INCREASE  
CITATION COUNT  
FOR ANY RESEARCH  
PAPER

Is our goal to maximize citations, or is it to understand nature?

## 20 Tips to Increase Citation Count & Impact Factor of Research Papers

May 30, 2018 · René Fetzner

Advice on Constructing Academic References & Bibliographies

### 20 Tips to Increase Citation Count & Impact Factor of Research Papers

For the scientists and other academics who publish their research as papers in scholarly journals, citations count, and not just as a measure of intellectual influence. High citation counts can contribute to employment, promotion, funding, speaking, collaboration and publication opportunities, so the desire to improve citation counts for each and every paper is virtually universal among researchers. The following tips for increasing citation counts focus on publishing research worth citing and ensuring that it (and its author) can be found by interested researchers and other readers.

# You can't reward behaviors you can't see.

There's a need to fundamentally restructure CV's to allow faculty to showcase their *actual* work.

Maryland PSYC and U of Oregon PSYC have adopted an annotated CV format and philosophy statements (see Dougherty, Slevc & Grand, 2019)

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- **Article type:** Empirical
- **Data:** Original data.
- **Number of experiments:** 2 experiments.
- **Data type and sample size:** Behavioral data; IAT, AMP, & Stroop. Study 1 (N=148); Study 2 (N=218).
- **Reproducibility:** Open data and open analysis code (osf.io/973ez); pre-registered.(<https://osf.io/dgxut/>). Paper open access.
- **Role:** Secondary. Conceptualized idea; assisted with methods; verified that models ran; and provided critical edits. UG students are denoted with asterisks. Robey, Johnson, and Ampofo are post doctoral students or graduate students. Johnson and Robey led the project.
- **Contribution:** Paper presents 2 failed replications of a study that I published in 2012. The study was carried out as part of an open-science training seminar with undergraduate students.

# Examples of reform efforts: University of Maryland

Hiring and Recruiting (Job Ads, start-ups)

**Annual/Merit Review**

Promotion and Tenure

Internal Funding

Faculty Awards

## Key Features

1. Explicit criteria
2. Criteria included that reflect values.
3. Use structured decision tool (multi-attribute decision tool)
4. Weights for tool are crowdsourced by faculty (everyone decides how criteria are weighted)
5. CV's are annotated to reflect actual work products!
6. Faculty are rewarded for what they do, not where they publish



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## Some useful outcomes

1. Process naturally **accommodates tradeoffs!**
2. High interrater **reliability** (icc ~0.80)
3. Obtain a **performance profile** per faculty. Faculty can see where they excelled, and can see where others have excelled!
4. Strong evidence of **equity** both in evaluation, but also in \$\$ awarded for raises!
5. **Nobody complained!**

**Method designed to reduce reduce noise and bias in evaluation**

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“Broadening Participation”

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## Key Features

1. \$200,000 allocated to broaden access to psychological science
2. Broaden **access** to education (**O**pen **E**ducation **R**esources)
3. Broaden **participation** in research samples (Roberts et al.)
4. Broaden **involvement** in science (Community partnerships)
5. Broaden **pipeline** (Post-doctoral scholars, UG workshops, etc)
6. Broaden **access** to scholarship, research tools, and data (open science pipeline development)

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## Some useful outcomes

1. UG students are saving over **\$100k** per year on textbook costs
2. Two **community partnerships** have been formed
3. Supporting two **post doctoral** students



# Broadening what ‘counts’: Example from U of Maryland

- Pattern of *sustained* publication of research in peer reviewed outlets at a rate appropriate for one’s research program and approach to science, with consideration of research practices that may require additional time and effort for collecting and curating data (e.g., use of difficult to reach populations, community engaged research, open science methods, longitudinal design, and multi-method approaches).
- Extent to which publications reflect substantial (e.g., multiple studies, large samples, major theoretical or quantitative frameworks) versus smaller (e.g., more limited intellectual contribution, smaller samples) contributions relative to disciplinary standards.
- Publication of book chapters, editorials, popular science articles
- Curation or creation of new data sets that are made available publicly to the extent ethically possible.
- Creation and open sharing of research or analysis tools, research scales, behavioral computer code.

## Research

- Potential for advancing basic understanding of the psychological and brain sciences broadly construed
- Application of basic science for addressing real-world problem and/or societal needs.
- Involvement in community-engaged research aimed at addressing relevant social issues that leads to publication or public policy.<sup>1</sup>
- Research that addresses gaps in the literature as they pertain to historically under-represented groups.
- Methodological rigor demonstrated in selected published works provided by the candidate, assessed by disciplinary experts (external reviewers, and committee members within the candidates speciality area) [6]
- Evidence of adhering to standards for conducting transparent, ethically sound, and reproducible research
- Complete reporting of results; pre-registration; registered reports
- Development of research tools, instruments, code, and data and the open sharing of those resources to the extent ethically permitted (By definition, closed data, tools, and code cannot be impactful because it is not usable by others)
- Commitment to providing equitable access to scholarly articles through open access publication, green open-access options, and/or pre-print servers in accordance with UMD’s Equitable Access policy.

# Broadening what ‘counts’: Example from U of Maryland

## Teaching

- Evidence of teaching effectiveness as demonstrated on peer teaching evaluations. Peer teaching evaluations are weighted heavily in the overall assessment of teaching quality.
- Evidence of teaching effectiveness as demonstrated on student evaluations, *interpreted cautiously and with recognition of known biases and limitations of student evaluations*. [4]
- Delivery of teacher training workshops aimed at supporting the development of faculty and graduate students
- Creation of, or involvement in experiential- or service-learning programs that foster civic engagement or engagement with the local community
  - Creation of teaching materials and methods that incorporate diverse perspectives appropriate for the course content; creation of inclusive syllabi and course materials that represent the diversity of scholars
  - Engagement in training activities related to new teaching pedagogy, technology, or course innovation
  - Creation, use, and/or dissemination of Open Education Resources, technology (e.g., statistical software), or other material that reduce cost of education for students
  - Creation of new courses or curriculum to address needs or gaps in undergraduate and/or graduate education.
  - Creation or substantive revision of course material or teaching resources
  - Participation in activities that lead to major course re-designs
  - Scholarship related to teaching or pedagogy leading to dissemination in professional settings (e.g., conferences and publications)
  - Teaching innovation grants or awards (both internal and external)