Value-led research evaluation: a practical guide for open research

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Research Evaluation Group

Overview

- The negative impact of poor research evaluation practice on open research

- The problem of leaping to 'open' alternatives
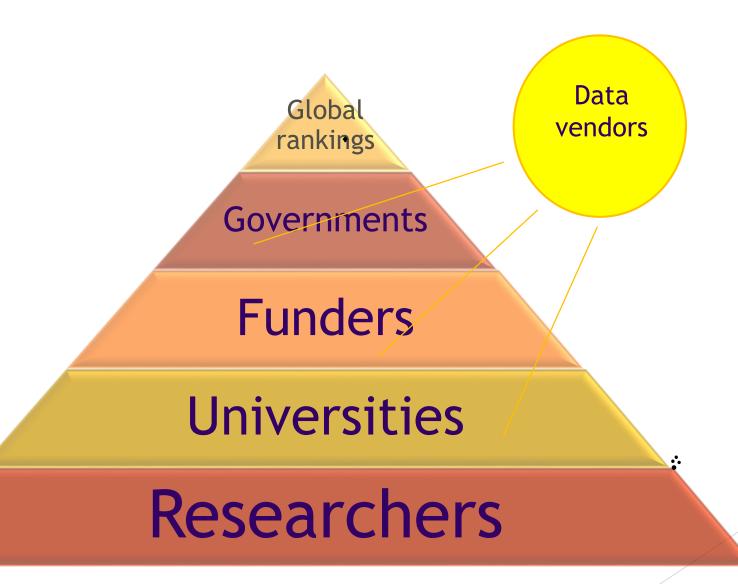
- The INORMS SCOPE framework: a practical solution

Campbell's Law

▶ "The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor."
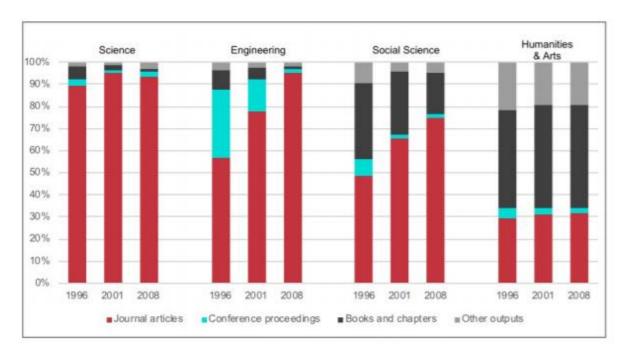
OR

▶ What you measure is what you'll get

The research evaluation food chain

What's wrong with publication-dominant research evaluation systems?
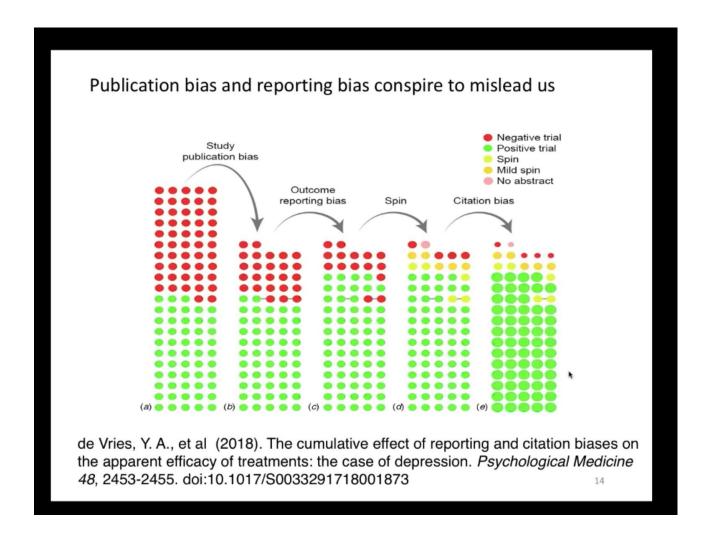
They discourage bibliodiversity

Figure 24 Submissions to the REF classified by area of research and type of publication, 1996 – 2008

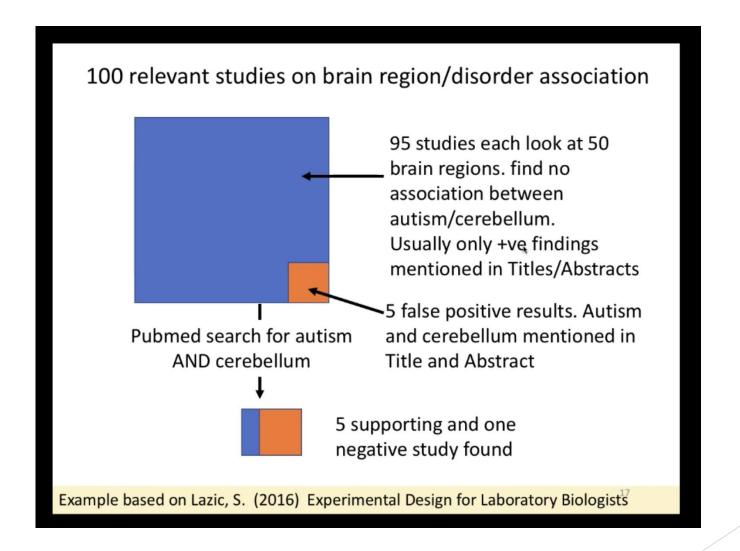Source: based on (Adams & Gurney, 2014)

Review of the Research Excellence Framework Evidence Report (2018)
Technopolis Group

They skew the scholarly record

From Professor Dorothy Bishop presentation to King's Open Research Conference June 2020

...which distorts science

100 relevant studies on brain region/disorder association

95 studies each look at 50 brain regions. find no association between autism/cerebellum. Usually only +ve findings mentioned in Titles/Abstracts

Pubmed search for autism AND cerebellum

5 false positive results. Autism and cerebellum mentioned in Title and Abstract

5 supporting and one negative study found

Example based on Lazic, S. (2016) Experimental Design for Laboratory Biologists

They disadvantage the global south

They disadvantage those for whom English is a second language

Journal selection criteria

To be considered for review, all journal titles should meet all of these minimum criteria:

- Consist of peer-reviewed content and have a publicly available description of the peer review process
- Be published on a regular basis and have an International Standard Serial Number (ISSN) as registered with the ISSN International Centre ↗
- Have content that is relevant for and readable by an international audience, meaning: have references in Roman script and have English language abstracts and titles
- Have a publicly available publication ethics and publication malpractice statement

They disadvantage those in Arts & Humanities

Table 3. Percentage of citations found by each data source, relative to the total number of citations found overall and by broad areas.

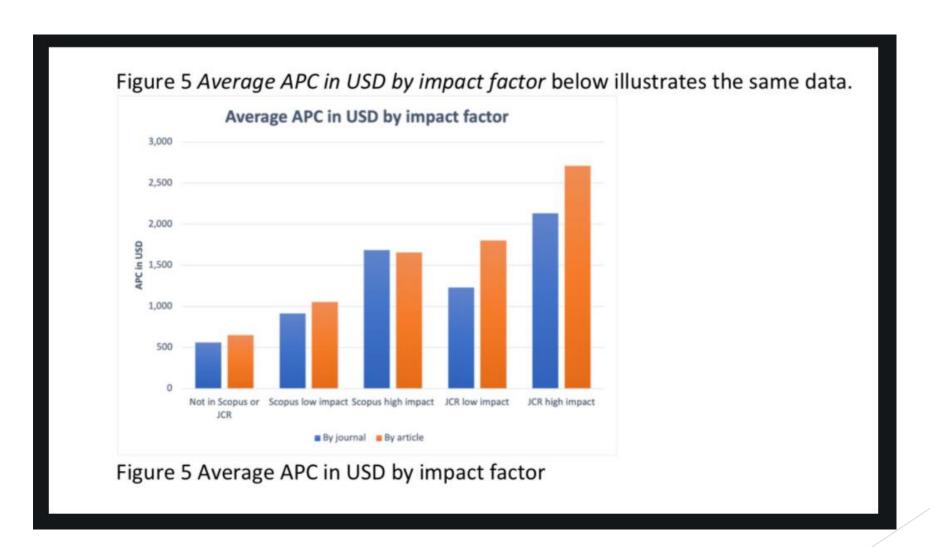|	N	% of citations found (relative to N)					
		Google Scholar	Microsoft Academic	Scopus	Dimensions	Web of Science	COCI
Humanities, Literature & Arts	89,337	87	39	31	29	25	18
Social Sciences	406,661	88	47	40	36	33	20
Business, Economics & Management	235,338	88	47	34	32	29	19
Engineering & Computer Science	691,164	88	63	61	54	48	30
Physics & Mathematics	317,320	90	57	64	59	59	36
Health & Medical Sciences	1,001,507	85	63	59	58	51	27
Life Sciences & Earth Sciences	571,817	89	68	64	63	60	32
Chemical & Material Sciences	253,990	90	69	75	72	72	32

Google Scholar, Microsoft Academic, Scopus, Dimensions, Web of Science, and OpenCitations' COCI: a multidisciplinary comparison of coverage via citations. Martin Martin et al. (2019)

They lead to closed outputs rather than open

23%

Journal articles in Web of Science over the past 5 years with a free version available

They lead to a link between JIFs and APCs

Figure 5 *Average APC in USD by impact factor* below illustrates the same data.

Average APC in USD by impact factor

Figure 5 Average APC in USD by impact factor

Heather Morrison et al, 2021, https://sustainingknowledgecommons.org/2021/06/24/open-access-article-processing-charges-2011-2021/

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PUSHING
THE FRONTIERS
OF INNOVATIVE
RESEARCH

ole in universities

Open Science and
its role in universities:

research. In order for these goals to be achieved, universities
should align their assessment, reward and evaluation systems
with Open Science developments.[9]

Mutual Learning Exercise

Open Science: Altmetrics and Rewards
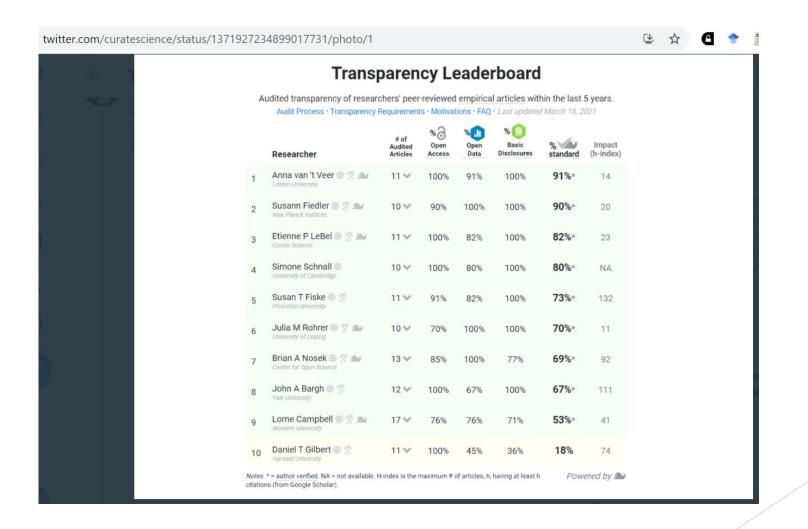
Horizon 2020 Policy Support Facility

ANNEXE I - NEXT GENERATION INDICATORS

The focus is on internal comparison over time, which means that for some of the more progressive metrics, each university can develop suitable ways to measure it internally. If, at a later stage, it becomes desirable to make the metrics fully comparable between universities some measuring details need to be aligned. The metrics are made as SMART as possible and when possible, open metrics have been chosen. Open is, in this context, defined as both available and free of charge. The aim has been to focus on one set of metrics, not on two (or more) versions of the metrics. Size-independent metrics are preferred (e.g. percentage), but for some metrics it was found that absolute numbers better serve the purpose of showing progress for internal comparison over time.

#	NAME	DESCRIPTION/DEFINITION	SOURCE	CATEGORY	RATIONALE / DISCUSSION
			(OPEN) SCIENCE		
1	Open access publications	Share of publications published open access	SCOPUS, Web of Science, CWTS Leiden Ranking (WoS based), Unsub (formerly Unpaywall)	Output	This indicator is to check the state of institutions on their way towards 100% open access (= available and free). The indicator is needed in a 5-10 year perspective, after that we are hopefully close to 100%.
2	Top 10% most cited publications	Share of the publications that, compared to all other publications in the same field and in the same year, belong to the top 10% most cited publications, excluding author self-citations. Recommended to use bibliometric data from a professional supplier or ranker.	CWTS Leiden Ranking (WoS based) or UMR "Top Cited Publications" (WoS based) or SciVal (Scopus based)	Output; Impact	This is a good indicator for measuring impact and 'quality' of an entity. It can also be used for specific research fields/subjects.
3	Citation impact	Average number of citations of the publications, normalised for field and publication year. Excluding author self-citations. Recommended to use bibliometric data from a professional supplier or ranker.	CWTS Leiden Ranking "MNCS" (WoS based) or UMR "Citation Rate" (WoS based) or SciVal "FWCI" (Scopus based)	Impact	Together with indicator 2, this metric helps indicate the strength or weakness in the publication pattern of an entity. Can also be used for specific research fields/subjects.
4	Interdisciplinary publications	Share of publications within the field's top 10% of publications with the highest interdisciplinarity scores. Recommended to use bibliometric data from a professional supplier or ranker.	UMR (WoS based)	Output	Interdisciplinary research is needed to tackle big societal challenges. It is desirable that this kind of research is as open as possible. It is important to have in mind that disciplinary research is also needed.
5	Publications with non-academic sector	Share of publications that have at least one co-author from the non-academic sector. This sector includes e.g. private hospitals and clinics, governmental and	Scopus, Web of Science, University repositories	Process; Output; Impact	To collaborate and publish research done outside the academic sector indicates engagement in society. Indicator 7 in open innovation constitutes part of this metric, but this

Transparency 'leaderboard'...

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AUGUST 21, 2018

Measuring openness: should we be careful what we wish for?

Is the best way of incentivising open scholarship to measure it? Lizzie Gadd is not so sure.

There is a lot of talk at the moment about measuring open scholarship as means of incentivising it. For example, the European Commission's recently

Search …

Measuring openness: Challenge #1

- **Openness and quality are not the same thing**

"Open science is just good science".
(Always?)

"Closed science is bad science".
(Really?)

"If it's not open, is it really research?"
(Erm, yes?)

Measuring openness: Challenge #2

- **Is openness mature enough to be measured?**

Introducing the INORMS SCOPE model

1. Start with what you value
2. Context considerations
3. Options for evaluating
4. Probe deeply
5. Evaluate

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Start with what you value

- Not what others' value
- Not with what you used to value
- Not by the availability of data

The Streetlight effect:
Measuring by available data not by mission

What do we value about open?

▶ **Openness itself, or what openness leads to?**

- Openness improves RESEARCH QUALITY by emphasising rigour and reproducibility as embodied in pre-registration, open methods and open data.
- Openness accelerates RESEARCH IMPACT through prompt publication of accessible and more readily understandable outputs, and through engagement with the communities on which our research impacts.
- Openness enhances RESEARCH VISIBILITY by making the whole research lifecycle more transparent and accessible

Loughborough University

Open Research Position Statement

Context: Why and what are you measuring?

		Country	HEI	Group	Individual
Analysis	To understand	Low impact	Low impact	Medium impact	Medium impact
Advocacy	To show off	Low impact	Low impact	Medium impact	Medium impact
Accountability	To monitor	Low impact	Medium impact	Medium impact	High impact
Acclaim	To benchmark	Medium impact	High impact	High impact	High impact
Adaptation	To incentivise	Medium impact	High impact	High impact	High impact
Allocation	To reward	High impact	High impact	High impact	High impact

Low impact
Medium impact
High impact

Understand who & why you're evaluating

		Country	HEI	Group	
Analysis	To understand				
Advocacy	To show off				
Accountability	To monit				
Acclaim					
Adapt					
Allocati					

🟩	Low impact
🟨	Medium impact
🟥	High impact

DISCIPLINE!

Contexts for evaluating open research

Purpose	Example
Analysis: to understand	Studying the uptake of open research practices
Advocacy: to 'show off'	Promoting the number of items on your institutional repository
Accountability: to monitor	Monitoring open research trends in your research group
Acclaim: to benchmark	Comparing your OA engagement with other HEIs
Adaptation: to incentivise	Setting funder OA policy expectations
Allocation: to reward	Including OR requirements on RPT criteria

Options: you have them!

- ▶ Is your indicator a suitable proxy for what you are evaluating?

- ▶ Quantitative measures are for quantifiable things...

  - ▶ Citations, publications, money, students

- ▶ Qualitative measures for qualifiable things...

  - ▶ Quality, excellence, value

- ▶ Be careful if using quantitative indicators as a proxy for qualitative things

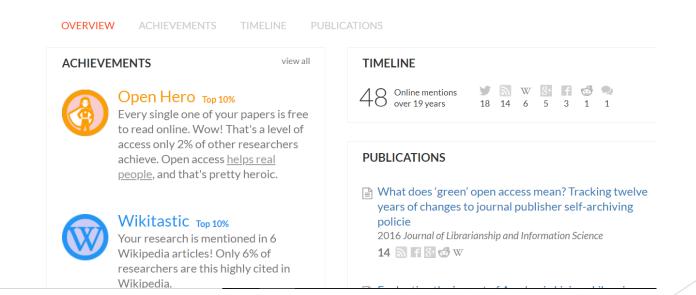 - ▶ Citations ≠ quality

  - ▶ Ranking position ≠ excellence

OPTIONS for evaluating
Open Research in these contexts

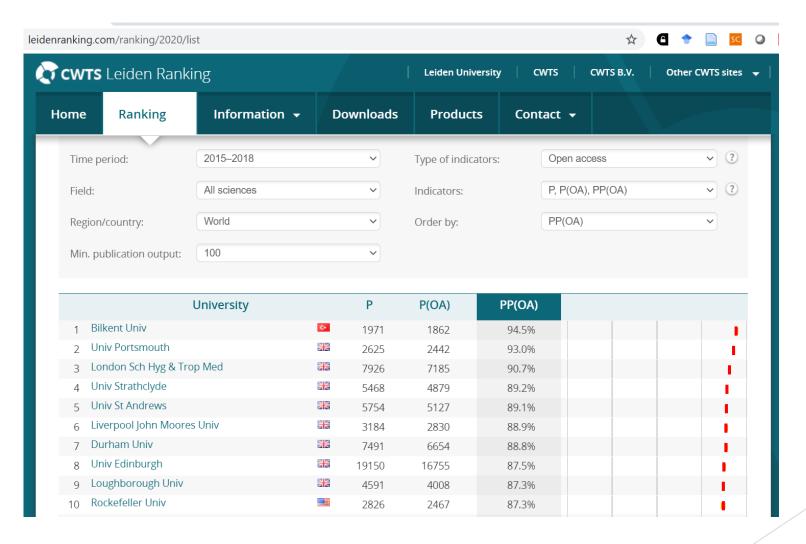# Analysis: COKI Open Knowledge Dashboards

Advocacy: Open Hero badges

Accountability:
Leiden Open Access Ranking

The image shows a browser window at leidenranking.com/ranking/2020/list displaying the CWTS Leiden Ranking page.

Navigation: Home | Ranking | Information | Downloads | Products | Contact

Filters:
- Time period: 2015–2018
- Field: All sciences
- Region/country: World
- Min. publication output: 100
- Type of indicators: Open access
- Indicators: P, P(OA), PP(OA)
- Order by: PP(OA)

	University		P	P(OA)	PP(OA)
1	Bilkent Univ	🇹🇷	1971	1862	94.5%
2	Univ Portsmouth	🇬🇧	2625	2442	93.0%
3	London Sch Hyg & Trop Med	🇬🇧	7926	7185	90.7%
4	Univ Strathclyde	🇬🇧	5468	4879	89.2%
5	Univ St Andrews	🇬🇧	5754	5127	89.1%
6	Liverpool John Moores Univ	🇬🇧	3184	2830	88.9%
7	Durham Univ	🇬🇧	7491	6654	88.8%
8	Univ Edinburgh	🇬🇧	19150	16755	87.5%
9	Loughborough Univ	🇬🇧	4591	4008	87.3%
10	Rockefeller Univ	🇺🇸	2826	2467	87.3%

Acclaim: Reporting guidelines league table

Check for updates

RESEARCH ARTICLE

Turning the tables: A university league-table based on quality not quantity [version 1; peer review: 2 approved]

Adrian G. Barnett [iD][1], David Moher [iD][2]

[1]School of Public Health and Social Work & Institute of Health and Biomedical Innovation, Queensland University of Technology, Brisbane, QLD, 4059, Australia
[2]Centre for Journalology, Ottawa Hospital Research Institute, Ottawa, Ontario, ON K1H 8L6, Canada

Open Peer Review

Reviewer Status ✔ ✔

Invited Reviewers

Abstract

Adaptation: UK REF Open Access Policy

Proportion of all articles accessible immediately on publication

global — 18% 2014 — 24% 2016

UK — 20% 2014 — 37% 2016

https://www.universitiesuk.ac.uk/policy-and-analysis/reports/Documents/2017/monitoring-transition-open-access-2017.pdf

Allocation: Promotion criteria

UCL Academic Careers Framework

July 2018

Indicators of impact

Examples of impact that would be typically expected of an individual working at this grade.

Proactive engagement with research development issues across the faculty

Supervisor or second supervisor experience of research students

Findings supported/invitations extended to disseminate these at conferences and similar

Academic references from across discipline community

Paper co-authored with collaborator with evidence of impact within the discipline

Significant cultural, artistic or design outputs, as appropriate to the discipline

Conference speaker invitations, including as a consequence of submitting proposals to conference panels

Regular reviewer for research-focused journals

Collaborator in research grant application Successfully co-organised event aimed at an external audience.

Personal contribution to initiative to contribute to equalities and diversity objectives within field

Contributions to Open Source software, large scale computing projects

OS-CAM

Open Science Career Assessment Matrix (OS-CAM)	
Open science activities	**Possible evaluation criteria**
RESEARCH OUTPUT	
Research activity	Pushing forward the boundaries of open science as a research topic
Publications	Publishing in open access journals Self-archiving in open access repositories
Datasets and research results	Using the FAIR data principles Adopting quality standards in open data management and open datasets Making use of open data from other researchers
Open source	Using open source software and other open tools Developing new software and tools that are open to other users
Funding	Securing funding for open science activities
RESEARCH PROCESS	
Stakeholder engagement / citizen science	Actively engaging society and research users in the research process Sharing provisional research results with stakeholders through open platforms (e.g. Arxiv, Figshare) Involving stakeholders in peer review processes
Collaboration and Interdisciplinarity	Widening participation in research through open collaborative projects Engaging in team science through diverse cross-disciplinary teams
Research integrity	Being aware of the ethical and legal issues relating to data sharing, confidentiality, attribution and environmental impact of open science activities Fully recognizing the contribution of others in research projects, including collaborators, co-authors, citizens, open data providers
Risk management	Taking account of the risks involved in open science

https://ec.europa.eu/research/openscience/pdf/ospp_rewards_wg0312017.pdf

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MARCH 24, 2021

The challenge of measuring open research data

Lizzie Gadd & Gareth Cole discuss the practical challenges of monitoring progress towards institutional open research data ambitions.

Loughborough University has recently introduced a new Open Research Position Statement which sets out some clear ambitions for open access,

Search ...

PROBE

▶ Who might this discriminate against?

▶ What might the unintended consequences be?

▶ How might this be gamed?

▶ What is the cost-benefit?

Transparency Leaderboard

Audited transparency of researchers' peer-reviewed empirical articles within the last 5 years.
Audit Process · Transparency Requirements · Motivations · FAQ · Last updated March 16, 2021

	Researcher	# of Audited Articles	% Open Access	% Open Data	% Basic Disclosures	% standard	Impact (h-index)
1	Anna van 't Veer Leiden University	11	100%	91%	100%	91%*	14
2	Susann Fiedler Max Planck Institute	10	90%	100%	100%	90%*	20
3	Etienne P LeBel Curate Science	11	100%	82%	100%	82%*	23
4	Simone Schnall University of Cambridge	10	100%	80%	100%	80%*	NA
5	Susan T Fiske Princeton University	11	91%	82%	100%	73%*	132
6	Julia M Rohrer University of Leipzig	10	70%	100%	100%	70%*	11
7	Brian A Nosek Center for Open Science	13	85%	100%	77%	69%*	92
8	John A Bargh Yale University	12	100%	67%	100%	67%*	111
9	Lorne Campbell Western University	17	76%	76%	71%	53%*	41
10	Daniel T Gilbert Harvard University	11	100%	45%	36%	18%	74

Notes. * = author verified. NA = not available. H-index is the maximum # of articles, h, having at least h citations (from Google Scholar).

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E- Evaluate your evaluation

- Evaluation is cyclical and iterative
- Use SCOPE to re-evaluate your evaluation

Thanks for listening

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