How to improve the value of your research by making it verifiable
Early Career Researchers (ECRs) often feel pressured into taking actions against our ethics to pursue an academic career (e.g., publishing in particular journals)

ECRs: Sign the petition to help us change academic culture
Non-ECRs: Join the list of supporters by valuing open practices, especially when making decisions about hiring, promotion, and grants

We won’t be…

Corina Logan & Laurent Gatto
Ross Mounce, Stephen Eglen, Adrian Currie, Lauren Maggio

Leading individuals and institutions in adopting open practices to improve research rigor

www.BulliedIntoBadScience.org #BulliedIntoBadScience
Conducting & evaluating research depends on the ability to:

1. read, understand, and verify it. Massive amounts of money paid to publishers = barrier to researchers, academia, and the public

2. have anyone generate and disseminate it, regardless of wealth, access to opportunity, perception of prestige, and evaluator implicit biases
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How scholarly publishing works
Exploitative route

Academia

goal=share research

Article published

1 Van Noorden 2013 nature.com/news/open-access-the-true-cost-of-science-publishing-1.12676
2 Nosek & Bar-Anan 2012 J Psych Inquiry
   Logan 2017 F1000Research
Exploitative route

Academia

$0

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$0

$5000

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Exploitative route

Profits go to

$0

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4Research Information Network 2008
Logan 2017 F1000Research
Exploitative route

Academia

goal=share research

Profits
go to

Shareholders

goal=maximize profits

$5000

$0

$1850

(37%)

$1,126,760

1Van Noorden 2013
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Exploitative route

Academics perform quality control at no cost to publishers

What services do publishers actually provide?

Academia

goal=share research

Profits go to

$1850

(37%)

Shareholders

goal=maximize profits

£1.9 billion/yr in kind globally for reviewers

Editor / reviewer time

Article published

$0

$5000

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Exploitative route

£1.9 billion/yr in kind globally for reviewers

Editor / reviewer time

$0

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(37%)

Available to read by scholarly rich

Academia

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PAYWALL

Article published

Van Noorden 2013 nature.com/news/open-access-the-true-cost-of-science-publishing-1.12676,
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Exploitative route

Indirect discrimination

Patient MD Public

Other researchers

Available to read by scholarly rich

PAYWALL

Academia goal=share research

Profits go to

Shareholders goal=maximize profits

£1.9 billion/yr in kind globally for reviewers

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Exploitative route

Indirect discrimination

Patient MD Public

Other researchers

Academia

Available to read by scholarly rich

Public funds research

Editor / reviewer time

£1.9 billion/yr in kind globally for reviewers

£0

$5000

$0

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Profits go to

Shareholders

goal=maximize profits

PAYWALL

£1.9 billion/yr in kind globally for reviewers

Article published

PUBLIC

funds research

PAYWALL

$5000

The ethical framework

1) Researchers and publishers have a responsibility to the public to provide them with free access to publicly funded products, which are a common good\(^1,2\)

2) Publishers of research products have a responsibility to researchers to value the generation and packaging of knowledge\(^3\)

3) Researchers have a responsibility to the public to conduct rigorous research because it will serve as the foundation for the advancement of discoveries, it provides the best value for money, and earns public trust\(^4\)

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\(^1\) Stilgoe et al. 2013 Res Policy
\(^2\) Woodward 1990 Library Trends
\(^3\) Fuchs & Sandoval 2013 TripleC: Communication, Capitalism & Critique
\(^4\) Nosek & Bar-Anan 2012 J Psych Inquiry

Logan 2017 F1000Research
Ethical route

Academia

goal=share research

OA APC
$0-2900\textsuperscript{1}

Article published
(100% OA journal)

\textsuperscript{1}SPARC http://sparceurope.org/oaca/, \textsuperscript{2}McKiernan et al. 2016 eLife, Tennant et al. 2016 F1000Research, Logan 2017 F1000Research
Academia goal=share research

Article published (100% OA journal)

Editor / reviewer time

£1.9 billion/yr in kind globally for reviewers

OA APC $0-2900¹

Ethical route

Academia
goal=share research

Profits contribute to academia through the publisher

Editor / reviewer time

Article published (100% OA journal)

£1.9 billion/yr in kind globally for reviewers

OA APC $0-2900\textsuperscript{1}

\textsuperscript{1}SPARC http://sparceurope.org/oaca/, \textsuperscript{2}McKiernan et al. 2016 eLife, Tennant et al. 2016 F1000Research, Logan 2017 F1000Research
Academia

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Ethical route

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Ethical route

Academia

Goal: Share research

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Editor / reviewer time

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+ readers
+ citations
+ media
+ jobs
+ funding

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Closed peer review = unverifiable
Closed peer review prevents verifiability of the evaluation of the research process

- Prohibits quality control
- Reviews can be inadequate, biased, subjective
- Editors = key to high standards in research and ethics

My closed peer review horror story

- I reviewed an article, raised many issues, some insurmountable
My closed peer review horror story

- I reviewed an article, raised many issues, some insurmountable
- Decision = Major Revision
My closed peer review horror story

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• Not cc’ed on further decisions, no re-review
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- Asked to publish a response to accepted article. Accepted version didn’t address comments; many factual errors
My closed peer review horror story

• I reviewed an article, raised many issues, some insurmountable

• Decision = **Major Revision**

• Not cc’ed on further decisions, **no re-review**

• Asked to publish a response to accepted article. **Accepted version didn’t address comments**; many factual errors

• Executive editor + handling editor + president of society refused to acknowledge they accepted the article without proper revision and didn’t seem to care it was low quality / incorrect
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- I am mentioned in Acknowledgements
I control where I donate my reviewer/editor time

Reviewing Ethics

If I am invited to review a paper for a journal and/or publisher that is not aligned with my commitment to conducting rigorous science, I accept the review, write the below text in the Comments to the Authors section, and submit the review. I got this idea from the Peer Reviewers' Openness Initiative and modified it to suit my particular ethics.

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My goal is to ethically conduct and promote rigorous science. I avoid exploiting myself as a scientist, I facilitate equality and diversity by ensuring that no one is discriminated against when reading scientific literature I contribute to, and I keep funds in academia (see my paper, presentation, and website for background). I use the mechanism of transparency to achieve my goal so anyone can evaluate my contributions at every step of the process.

Therefore, I am only willing to review papers that:

1) are going to be published gold open access under a CC-BY license,

2) will publish the review history alongside the paper,

3) are submitted to a journal where 100% of the articles are open access, and

4) are submitted to a journal that is published by an academic non-profit organization, or a for-profit corporation that a) has low or no article processing charges, and/or b) heavily invests profits in academia, and/or c) are working to modernize publishing infrastructure for researchers

I am not willing to review this paper at this journal because criteria 2-4 are not met, and it is unclear whether criterion 1 is met.

Sincerely,
Corina Logan
Max Planck Institute for Evolutionary Anthropology

http://www.corinalogan.com/ethics.html
Peer review of preregistrations at PCI

Prevents wasting resources by improving research before it begins

“Flexible registered report”

Allows verification of research process and evaluation process

https://ecology.peercommunityin.org, slides for open peer review talk at JSM: https://osf.io/gwzh6/
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Making my research readable and verifiable = better & faster
Making my research readable & verifiable saves time and increases its value

Above the line = open tool
Below = not open
Open = free to use
Most=free to use, all=free for public to read, some=open source

See GenR blog for a conversion of this work flow to all open source tools:
https://genr.eu/wp/making-research-workflow-open-source/

I describe what I love about my workflow at MPI Innovators blog
https://innovatingscholcomm.mpdl.mpg.de/2019/06/10/corinas-workflow/
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**Incentivizing open, evaluating ability**
Barriers to knowledge generation

Only people like us can access the knowledge we generate: English-speaking academics at wealthy institutions\textsuperscript{1,2} = blocks progress in research & applications

Increasing diversity in research & researchers can help address this limitation\textsuperscript{3}

\textbf{Arianna Becerril} @ariannabec · 25 May 2017

Two different models, hey latin people we're doing good in #OpenAccess #OpenGlobalSouth #DangerousAPC amp.theguardian.com/higher-educati.

\textbf{Rachael G. S.} @rach_scholcomm

#OpenGlobalSouth Do we agree on "access"? i.e. Who gets to read (access to scholarship) v. who gets to publish (access to publishing system)

4:45 PM - 25 May 2017

\textbf{Corin@ Logan} @LoganCorina

#Prestige=subjectively defined by the privileged. No wonder only privileged have it. Prestige=bad 4 science & bad 4 non-privileged scientists

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\textsuperscript{1}Amano & Sutherland 2013 Proceedings B, \textsuperscript{2}Amano et al. 2016 PLOS Biology, \textsuperscript{3}diversityinacademia.strikingly.com, livestream.com/UCDavis/OpenDigitalSouth2017/videos/157043119, blogs.scientificamerican.com/voices/diversity-in-stem-what-it-is-and-why-it-matters/, twitter.com/ariannabec/status/867808894613020672, twitter.com/rach_scholcomm/status/867889362070941696
Tackling the prestige barrier to knowledge generation

Essential requirements in job adverts:
- require evidence/willingness to engage in open practices
- assess research quality directly (DORA\(^1\))
- must be good role models for groups traditionally underrepresented in STEM

...because metrics can be gamed and are more a sign of privilege than quality

Increase diversity via...
- Sign & implement DORA sfdora.org
- Open Science Massive Online Open Course https://opensciencemooc.eu

\(^1\)osf.io/afwre/ & jobs.zeit.de/jobs/muenchen_professur_w3_fuer_sozialpsychologie_121431.html, twitter.com/chrisdc77/status/871733428433104897
Counteracting implicit biases to evaluate ability, not privilege

Women = less likely to be first authors of articles in journals with high impact factors\(^1\), thus men are more likely to have a “good” CV, but only because of implicit biases.

Women’s research rated lower quality than men’s\(^2\), thus risk taking (publishing) = more costly (lower payoff).

But are women more risk averse?

\(^1\)Filardo et al. 2016 BMJ, \(^2\)Knobloch-Westerwick et al. 2013 Sci Comm
Prof Michelle Ryan, 9 May 2017, Gender in STEM conference, Cambridge (in prep.)
Women are **NOT** more risk averse than men

Women are less likely to take risks
*(apply, interview, do research, ask for promotion, etc.)*
because they are *less likely to receive a reward* for such efforts

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“the underrepresentation of women at the top in terms of voluntary decisions not to pursue leadership may be a *strategic response to discrimination*” *(Ryan et al. 2007 Soc Pers Psych Compass, p. 267)*

---

Women are NOT more risk averse than men

Women are less likely to take risks (apply, interview, do research, ask for promotion, etc.) because they are less likely to receive a reward for such efforts.

“the underrepresentation of women at the top in terms of voluntary decisions not to pursue leadership may be a strategic response to discrimination” (Ryan et al. 2007 Soc Pers Psych Compass, p. 267)

Career challenges?

- 38% Challenges at the workplace
- 22% Balancing family and work
- 14% Inadequate training/information
- 11% Personal issues
- 7% Changing career direction
- 7% Other

n=954 female alumna of Murray Edwards College 2014

Prestige blocks knowledge generation: Tackling implicit biases

- Consider background of person behind the CV: do they have enough privilege to access opportunities considered “good”?

- Consider the evidence before judging a top woman harshly\(^1\)

- Discover your implicit biases
  
  https://implicit.harvard.edu

- Gender language calculator, use “they”, avoid names
  
  http://gender-decoder.katmatfield.com/about

- Call on a woman to ask the 1st question\(^2\)
  
  http://diversityinacademia.strikingly.com

- When offering an opportunity (e.g., job, seminar, etc.), recruit via groups that support Underrepresented Minorities in the sciences (URMs).
  ALWAYS well qualified URM - stop and think

Request a woman scientist
500womenscientists.org

\(^1\)Sandberg 2013 Lean In, \(^2\)Carter et al. 2018 PLOS ONE, twitter.com/LoganCorina/status/868491581145444352, nature.com/news/is-science-only-for-the-rich-1.20650?WT.mc_id=FBK_NatureNews&sf81929464=1
I have argued research value increases when...

1. one can read, understand, and verify it.
   Massive amounts of money paid to publishers = barrier to researchers, academia, and the public

2. anyone is able to generate and disseminate it, regardless of wealth, access to opportunity, perception of prestige, and evaluator implicit biases

We can stop exploiting and discriminating now because...
- ethical open options exist
- we can address our implicit biases