We won’t be...

BULLIED INTO BAD SCIENCE

Dr. Corina Logan
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Dr. Laurent Gatto, Dr. Ross Mounce, Dr. Stephen Eglen, Dr. Adrian Currie, Dr. Lauren Maggio
www.BulliedIntoBadScience.org
Slides CC-BY-SA 4.0 at osf.io/sy9f7/
We won’t be...

ECRs often feel pressured into taking actions against our ethics to pursue an academic career (e.g., publishing in particular journals)

www.BulliedIntoBadScience.org
ECRs often feel pressured into taking actions against our ethics to pursue an academic career (e.g., publishing in particular journals)

People who are not bullied are able to:
READ, UNDERSTAND, and VERIFY research
GENERATE and DISSEminate research

www.BulliedIntoBadScience.org
How BIBS started...

Many ECRs at Cambridge felt pressured into publishing in particular journals and not to use open practices

We met and strategized at...

http://www.openconcam.org
How BIBS started...

December 2016: University of Cambridge signed a 5yr Elsevier contract despite researcher opposition

160 UK universities

~£40 million/yr to Elsevier

1) No cost increase
2) Offset APCs
3) No confidentiality
4) 3yr contract, not 5
5) Pricing not based on ‘historic spend’

How BIBS started...

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Jisc

ELSEVIER

1) No cost increase
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3) No confidentiality
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How BIBS started...

Rampage formed

Stephen Eglen
Maths

Tim Gowers
Maths

Yvonne Nobis
Betty & Gordon Moore Library

Laurent Gatto
Biochemistry

Peter Murray Rust
Chemistry

Rupert Gatti
Economics

Photos © University of Cambridge
How BIBS started...

Rampage formed

Stephen Eglen
Maths

Yvonne Nobis
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Our efforts to change Cambridge failed
How BIBS started...

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Rupert Gatti
Economics

Our efforts to change Cambridge failed

Need to put pressure on decision makers and
change our behavior as researchers
How BIBS works to change behavior

- **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
- Submitted written evidence to the UK Parliament Science and Technology Committee inquiry on Research Integrity
BIBS principles

People who are not bullied are able to:

READ, UNDERSTAND, and VERIFY research
- Paywall vs. Open access
- Jargon vs. Write for a broad audience
- Closed vs. Transparent research process

GENERATE and DISSEMINATE research
- Perception of prestige vs. Tackle implicit biases
- Select based on metrics vs. Access to opportunity
- Wealth vs. Ability

How can we remove these inequities?
What can we do?

Researchers:

Connect the costs of publishing with our publishing choices

Change our behavior to stop exploiting ourselves and discriminating against other researchers and the public

...because all of the options we need exist right now
Exploitative route

Academia

goal=share research

Paper 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

Paper published

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Logan 2017 F1000Research
Exploitative route

Academia
goal=share research

Profits
go to

Shareholders
goal=maximize profits

$5000

$1850 (37%)

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Exploitative route

Academics perform quality control at no cost to publishers

What services do publishers actually provide?

£1.9 billion/yr in kind globally for reviewers

Editor / reviewer time

Paper published

$0

$5000

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Profits go to

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Exploitative route

Editor / reviewer time

Available to read by scholarly rich

PAYWALL

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Exploitative route

Indirect discrimination

Patient MD Public

Other researchers

PAYWALL

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Patient MD Public

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Available to read by scholarly rich

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(37%) Shareholders

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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 $0-2900^1

Paper published (100% OA journal)

Ethical route

OA APC $0-2900\(^1\)

Editor / reviewer time

Paper published (100% OA journal)

£1.9 billion/yr in kind globally for reviewers

Academia

goal=share research

Academia
goal=share research

Profits contribute to academia through the publisher

OA APC $0-2900¹

Editor / reviewer time

Paper published (100% OA journal)

£1.9 billion/yr in kind globally for reviewers

Academia

Available to read by public

Profits contribute to academia through the publisher

OA APC
$0-2900¹

Editor / reviewer time

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goal=share research

Ethical route
Academia

goal=share research

Available to read by public

Profits contribute to academia through the publisher

Public funds research

Paper published (100% OA journal)

OA APC $0-2900\(^1\)

Editor / reviewer time

£1.9 billion/yr in kind globally for reviewers

**Ethical route**

- **Public funds research**
- **Available to read by public**
- **Academia**
  - goal=share research
- **Profits contribute to academia through the publisher**
- **OA APC $0-2900^1**
- **£1.9 billion/yr in kind globally for reviewers**
- **Editor / reviewer time**
- **Paper published (100% OA journal)**

+ **readers**
+ **citations**
+ **media**
+ **jobs**
+ **funding^2**

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BIBS principles

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How can we remove these inequities?
Prestige = barrier to knowledge generation

Open Global South conference 2017 UC Davis Library & UC Law

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

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

1https://livestream.com/UCDavis/OpenDigitalSouth2017/videos/157043119
https://twitter.com/ariannabec/status/867808894613020672
https://twitter.com/rach_scholcomm/status/867889362070941696
Barriers to accessing knowledge

Elsevier continues to be among the biggest barriers towards public access to research, preventing its use as a fundamental right for education & advancement of our society. #DemocratiseKnowledge bit.ly/2DAxW2n

Barriers to accessing knowledge

Only people like ourselves can access the knowledge we generate: English-speaking academics at wealthy universities\(^1,2\)

This **blocks progress** in research and applications

**Increasing diversity** in research and researchers can help address this limitation\(^3\)

---

Elsevier continues to be among the biggest barriers towards public access to research, preventing its use as a fundamental right for education & advancement of our society—\#DemocratiseKnowledge bit.ly/2DAxW2n

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$^{1}$Amano & Sutherland 2013 Proceedings B,

$^{2}$Amano et al. 2016 PLOS Biology,

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How can we remove these inequities?
How BIBS works with others to change behavior

Data Champion at the University of Cambridge: Laurent Gatto

Advised on how to handle data; supported Findable, Accessible, Interoperable, and Reusable (FAIR) practices

Publishing data = 9-50% more citations

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How can we remove these inequities?
How BIBS works with others to change behavior

Managing board member: Corina Logan (& Dieter Lukas)
Implemented peer review of preregistrations

Prevents wasting resources by improving research before it begins, allows quality checking

Reader sees...

Plan -> Peer review -> Preprint -> Peer review -> Paper

https://ecology.peercommunityin.org, slides for open peer review talk at JSM: https://osf.io/gwzh6/
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How can we remove these inequities?
How BIBS works with others to change behavior

Editors4BetterResearch with Chris Chambers & Brad Wyble

Together with @LoganCorina and @bradpwyble we are soon launching a new initiative called Editors4BetterResearch to help identify journal editors who support reproducible open practices.

https://twitter.com/chrisdc77/status/1014871210616872960
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How can we remove these inequities?
Developing best practices: Making my lab transparent and open

- All studies preregistered (GitHub) and peer reviewed (PCI Ecology) before data collection begins

- Final results published in 100% OA journals at ethical publishers - data & R code published as well
Developing best practices: Making my lab transparent and open

- All studies **preregistered** (GitHub) and **peer reviewed** (PCI Ecology) before data collection begins

- Final results published in 100% OA journals at ethical publishers - data & R code published as well

- Automating the workflow
Being open & transparent saves time & improves research

All programs = free to use
Being open & transparent saves time & improves research

All programs = free to use
Being open & transparent saves time & improves research

Coordinate team

OSF
Google Photos
Google
WhatsApp
Trello
 slack

Preregister

GitHub

rmarkdown

Peer review #1

All programs = free to use
Being open & transparent saves time & improves research

Coordinate team
- OSF
- Google Photos
- Google
- WhatsApp
- Trello
- slack

Hypotheses

Preregister

GitHub

3D print & laser cut apparatuses

Code experiments

Papers

GitHub

FreeCAD

Psychopy

Peer Community In Ecology

Free and transparent preprint and postprint recommendations in ecology

All programs = free to use
Being open & transparent saves time & improves research

Hypotheses

- Coordinate team
- OSF
- Google Photos
- Google
- WhatsApp
- Trello
- slack

Collect data on laptops
- Google Sheets
- Prim8 Software

3D print & laser cut apparatuses
- GitHub
- FreeCAD

Code experiments
- GitHub
- PsychoPy

Preregister
- GitHub
- markdown

Peer review #1
- Peer Community In Ecology

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Hypotheses
- OSF
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Coordinate team

Collect data on laptops
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3D print & laser cut apparatuses
- GitHub
- FreeCAD

Code experiments
- GitHub
- Psychopy

Back up data
- KEEPER

Peer review #1
- Peer Community In Ecology

All programs = free to use
Being open & transparent saves time & improves research

Coordinate team

OSF
Google Photos
Google
WhatsApp
Trello
slack

Collect data on laptops

GitHub
bioRxiv

Prereg ➟ Preprint

Peer review #2

Peer Community In
Ecology
Free and transparent preprint and postprint recommendations in ecology

Hypotheses

Preregister

GitHub
rmarkdown

Peer review #1

GitHub
FreeCAD

3D print & laser cut apparatuses

Back up data

KEEPER

All programs = free to use

3D print & laser cut apparatuses

Code experiments

Psychopy
Psychology software in Python

All programs = free to use
Developing best practices: Making my lab transparent and open

Essential requirements in job adverts:\(^1\):
- require evidence/willingness to engage in open practices
Developing best practices: Making my lab transparent and open

Essential requirements in job adverts:\(^1\):
  • require evidence/willingness to engage in open practices

Chris Chambers (Cardiff) & Felix Schönbrodt (LMU)

Level 0 = no commitment to open research

Level 3 = only those with proven track record of open practices are interviewed/hired

Chris Chambers (@chrisdc77)

We're developing a scheme to promote #openscience in hiring policies. @nicebread303 & I need your feedback please!

Open Hiring Policy - Modular Certification Initiative
Open Hiring Practices: Modular Certification Initiative Summary and aims: One potentially powerful way to normalise open scientific practices is to explicitly value them in hiring policies ... docs.google.com

\(^1\) twitter.com/chrisdc77/status/871733428433104897, osf.io/afwre & jobs.zeit.de/jobs/muenchen_professur_w3_fuer_sozialpsychologie_121431.html
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How can we remove these inequities?
Developing best practices: Making my lab transparent and open

1https://sfdora.org, 2Filardo et al. 2016 BMJ
Developing best practices: Making my lab transparent and open

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

For example, women are less likely to be first authors of papers in journals with high impact factors\(^2\)

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\(^1\)https://sfdora.org, \(^2\)Filardo et al. 2016 BMJ
Implicit biases block assessment of quality: Women’s research rated lower quality
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Knobloch-Westerwick et al. 2013 Sci Comm (Fig 1)
Implicit biases block assessment of quality: Women’s research rated lower quality

Risk taking (publishing research) is more costly for women (lower payoff)

Knobloch-Westerwick et al. 2013 *Sci Comm* (Fig 1)
Women are **NOT** more risk averse than men

Prof Michelle Ryan, 9 May 2017, Gender in STEM conference, Cambridge (pub in prep.)
Women are **NOT** more risk averse than men

Differences in Ambition?

Surgeons

<table>
<thead>
<tr>
<th>Year</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st yr</td>
<td>5.5</td>
<td>5.25</td>
</tr>
<tr>
<td>3rd yr</td>
<td>5.75</td>
<td>5.5</td>
</tr>
</tbody>
</table>

The Police service

Promotion Ambition

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage Officers</th>
</tr>
</thead>
<tbody>
<tr>
<td>new</td>
<td>male: 60, female: 55</td>
</tr>
<tr>
<td>3 years</td>
<td>male: 70, female: 65</td>
</tr>
<tr>
<td>5 years</td>
<td>male: 75, female: 70</td>
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Prof Michelle Ryan, 9 May 2017, Gender in STEM conference, Cambridge (pub 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.
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)
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% Non-supportive workplace culture
- 14% Balancing family and work
- 11% Inadequate training/information
- 7% Personal issues
- 7% Changing career direction
- Other

n=954 female alumna of Murray Edwards College 2014

Tackling implicit biases: My biases changing my behavior
Tackling implicit biases: changing my behavior

My biases

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

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

- Talking time calculator http://arementalkingtoomuch.com

- See someone who doesn’t look like you? Retrain your brain - label them: medical doctor, professor, something prestigious

- Consider the evidence before judging a top woman harshly

- Ensure 50% female speakers + other URMs in seminars/conferences (need to see role models). ALWAYS well qualified women - stop and think
Tackling implicit biases:
changing my behavior

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Request a woman scientist
500womenscientists.org
Prestige = blocks knowledge generation

Corin @ Logan
@LoganCorina

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

WhoseKnowledge? @WhoseKnowledge
Latin America has most #openaccess journals. >1000 journals in @RedeSciELO network. Have to prove credibility daily #OpenGlobalSouth

Is science only for the rich?

Around the world, poverty and social background remain huge barriers in scientific careers.

21 September 2016

https://twitter.com/LoganCorina/status/868491581145444352
https://www.nature.com/news/is-science-only-for-the-rich-1.20650?WT.mc_id=FBK_NatureNews&sf81929464=1
Prestige = blocks knowledge generation

A “good” CV is more an indicator of prestige and access to opportunity.

Is science only for the rich?
Around the world, poverty and social background remain huge barriers in scientific careers.
21 September 2016
Tackling prestige barriers

http://sacnas.org
Tackling prestige barriers

Recruit students via groups that support URMs (e.g., SACNAS)
Tackling prestige barriers

Recruit students via groups that support URMs (e.g., SACNAS)

Consider the background of the person behind the CV: do they have enough privilege to have access to opportunity?

http://sacnas.org
Recruit students via groups that support URMs (e.g., SACNAS)

Consider the background of the person behind the CV: do they have enough privilege to have access to opportunity?

Remove indicators of “quality” when evaluating researchers (journal name, impact factor, etc.). Instead, read their work.

http://sacnas.org
I have argued that...
I have argued that...

1) Scholarly publishing can exploit researchers, academia, the public

2) Publishing non-OA is discriminatory

3) Traditional academic practices are discriminatory

We can stop the exploitation and discrimination right now because...
- ethical OA options exist
- we can address our implicit biases
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
http://bulliedintobadscience.org/#ecrs:_sign_the_letter
We won’t be…

Senior researchers, librarians, research administrators, and more:

Join the list of **supporters** by valuing open practices, especially when making decisions about hiring, promotion, and grants

http://bulliedintobadscience.org/#non-ecrs:_support_the_campaign

Corina Logan & Laurent Gatto

BULLIED INTO BAD SCIENCE

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

www.BulliedIntoBadScience.org | Twitter: #BulliedIntoBadScience

Slides CC-BY-SA 4.0 at osf.io/sy9f7/
Ethical publishers to recommend

The easy way with APCs

The more technical way with no or low APCs

Ongoing conversation at: https://github.com/corinalogan/CuttingEdgeOAjournal
Ethical publishers to recommend

The easy way with APCs

- £50/pg
- £300/article

£ as needed to meet goals

£ + 37% profit margin

Price advantage over legacy publishers

The more technical way with no or low APCs

Ongoing conversation at: https://github.com/corinalogan/CuttingEdgeOAjournal
Ethical publishers to recommend

The easy way with APCs

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<th>Society Income</th>
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The more technical way with no or low APCs

Preprint server (bioRxiv) → Open Journals System → eLife Continuum → Journal website (GitHub)

Ongoing conversation at: https://github.com/corinalogan/CuttingEdgeOAjournal
Discrimination in success rates for GRANTS

Risk taking (applying) is **more costly for women** (lower payoff)

Discrimination in success rates for JOBS

Permanent faculty in Zoology, University of Cambridge (as of June 2017)

https://www.zoo.cam.ac.uk/directory/academic-staff
Discrimination in success rates for JOBS

Permanent faculty in Zoology, University of Cambridge (as of June 2017)

= 24

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https://www.zoo.cam.ac.uk/directory/academic-staff
Risk taking (applying/interviewing) is more costly for women (lower payoff) or are women more risk averse than men?

https://www.zoo.cam.ac.uk/directory/academic-staff