Open Peer Review: How and Why

TONY ROSS-HELLAUER

PEERE Training School on Peer Review
University of Split School of Medicine, 15-17 May 2018
Q. Why do science?
Peer review as altruism or aggression?
Q. Why do science?
A. Because the world is endlessly fascinating?
A. Intrinsic motivation?
If I have seen further it is by standing on the shoulders of giants.

Isaac Newton
Peer review as altruism?

As being a good academic citizen?
Q. Why do science?
Q. Why do science?
A. Status?
Careers outside science

Non-university
Research (industry,
government etc.)

Early Career
Research

Permanent
Research Staff

Professor

53%

30%

47%

26.5%

17%

3.5%

0.45%


@tonyR_H / OPR How & Why / PEERE Training School, Split, May 2018
Authors are like ...

Publish

Publish or Perish

Publish in High Impact Journals or Perish

Publish Frequently in High Impact Journals and Maybe You Won’t Perish

facebook.com/pedromics
Reviewers are like ...
Peer review as aggression?
(We’re getting to Open Peer Review, I promise!)
Peer review is generally:

**Anonymous:** reviewers unknown to authors, or both authors and reviewers unknown to each other

**Opaque:** neither the process nor the reviews are made public

**Selective:** reviewers selected by editors
In other words, peer review is a black-box. Decisions are made in the shadows.
Peer review is the bedrock of scholarly quality assurance …

... but ...

1. It’s not as old as we might think

2. It’s got problems
Peer review as we understand it has only been in broad use since the 1950s

Einstein Versus the *Physical Review*

*Dear Sir,*

*We (Mr. Rosen and I) had sent you our manuscript for publication and had not authorized you to show it to specialists before it is printed. I see no reason to address the—in any case erroneous—comments of your anonymous expert. On the basis of this incident I prefer to publish the paper elsewhere.*
Problems with peer review

- Time
- Accountability & bias
- Lack of incentives
- Wasted effort
Open Science
Bad systems > good people?

The incentives underlying science ... 
(publications = citations = career advancement) 
... do not necessarily promote the best science
Science is a human activity. And people are fallible ...

In publish or perish culture, fraud and error are more common than we might want to admit ...

Retractions on the rise

<table>
<thead>
<tr>
<th>Year</th>
<th>Retracted Articles</th>
<th>Percent Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 2015</td>
<td>684</td>
<td></td>
</tr>
<tr>
<td>FY 2014</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>FY 2013</td>
<td>467</td>
<td></td>
</tr>
</tbody>
</table>
At the same time … knowledge is a public good and should be accessible to everyone, right?
Principles of Open Science

- Transparency
- Accountability
- Inclusivity
- Responsibility
- Community & Collaboration
- Visibility
- Rigour
- Equality
- Public good
- Reproducibility
- Findability
- Accessibility
- Interoperability
- Re-usability
- Innovation
Open Science is more than just Open Access

Opening up scientific processes and products from all levels to everyone …

- Open Access to publications
- FAIR Data
- Open Source software
- Open methods, protocols & materials
- Citizen Science
- Open Evaluation / Open Peer Review
Q. What is open peer review?
A. It’s complicated
“Open Peer Review” encompasses diverse constellations of many distinct aspects

** 122 definitions collected and analysed **
** 22 distinct configurations of 7 traits identified **

** Primary aspects **
- Open identities
- Open reports
- Open participation

** Secondary aspects **
- Open interaction
- Open pre-review manuscripts
- Open final-version commenting
- Open platforms

Distribution of OPR traits amongst definitions

## 22 unique configurations of OPR traits

<table>
<thead>
<tr>
<th>n=</th>
<th>Open identities</th>
<th>Open reports</th>
<th>Open participation</th>
<th>Open interaction</th>
<th>Open pre-review manuscripts</th>
<th>Open final-version commenting</th>
<th>Open platforms</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OPEN IDENTITIES
Authors and reviewers are aware of each other’s identities

Positives

• Foster increased accountability and quality by linking scholars’ names to their judgements
• Increased transparency could help avoid conflicts of interest
• More civil language (in review and response)

Negatives

• Without protection of anonymity, reviewers might blunt their opinions for fear of reprisals (esp. from senior peers)
• “Blind” peer review potentially protects reviewers from social biases (and “double blind” also protects authors)
OPEN REPORTS

Review reports are published alongside the relevant work

Positives

• Reports contain valuable contextual information
• Open reports to wider scrutiny
• Perhaps increase review quality
• Enable credit and reward for review work
• Help train young researchers in peer reviewing

Negatives

• Higher refusal rates amongst potential reviewers, as well as an increase in time taken to write review
• Undesirable exposure of criticism (esp. for early career researchers)
OPEN PARTICIPATION

The wider community are able to contribute to the review process

Positives

• Brings greater inclusivity to peer review by expanding the potential pool of reviewers, including to those non-traditional research actors
• Support cross-disciplinary dialogue, avoid silos
• Potentially much increase number of reviewers

Negatives

• Difficulties motivating self-selecting commentators to take part and deliver useful critique
• Self-selecting reviewers tend to leave less “in-depth” responses
• Could just add noise to discussion
Open peer review in use

Journal publishers

- F1000Research
- PeerJ
- BMC
- the bmj
- SciPost
- The EMBO Journal
- eLIFE
- ROYAL SOCIETY OPEN SCIENCE
- Copernicus Publications
- Springer Nature
- Elsevier

Also being trialed for conferences

- OpenReview.net
- OpenUP

And books

- media commons press
  open scholarship in open formats

@tonyR_H / OPR How & Why / PEERE Training School, Split, May 2018
Attitudes to OPR
Survey on open peer review: Attitudes and experience amongst editors, authors and reviewers

Tony Ross-Hellauer¹*, Arvid Deppe², Birgit Schmidt³

¹ Know-Center GmbH, Graz, Austria, ² Kassel University Library, University of Kassel, Kassel, Germany, ³ State and University Library Goettingen, University of Goettingen, Goettingen, Germany

* tross@know-center.at

Abstract

Open peer review (OPR) is a cornerstone of the emergent Open Science agenda. Yet to date no large-scale survey of attitudes towards OPR amongst academic editors, authors, reviewers and publishers has been undertaken. This paper presents the findings of an online survey, conducted for the OpenAIRE2020 project during September and October 2016, that sought to bridge this information gap in order to aid the development of appropriate...
SURVEY RESULTS SUMMARY

• OPR is already mainstream
  • 76.2% have practical experience
  • 60% believe OPR should be common practice
• Positive reactions to most OPR traits (esp. open interaction, reports, participation)
• However, strong rejection of open identities (47.7% against)

Next steps
What do we need?

- More transparency – being clear on peer review policies and what the implications are for reviewers and authors
- More education – what OPR is, how to review responsibly
- Make reviews count more - make them citable, discoverable, and creditable
  - Exciting new Crossref announcement: https://www.crossref.org/blog/making-peer-reviews-citable-discoverable-and-creditable/
A lot of reticence is based on fear ...
“What is open peer review – and should I be doing it?”

Given the novelty of OPR and its slow but increasing adoption in science, it remains to be seen whether the risks to reviewers’ professional identities and time invested are borne out. It also isn’t clear to what extent having proof of one’s reviewing will serve as an effective professional cachet. Until there’s more data on how OPR affects not just authors but also reviewers, I think scientists ought to be wary of donating their time and resources to an uncertain process. On the other hand, we can’t obtain more data on the effects of open peer review if we don’t have willing participants.

And therein lies the paradox of OPR: We won’t know if it works until more of us try. So for the good of the future of science, perhaps we need to be willing to participate in an experiment of our own collective making.

Libby Pier, July 2017
https://libbypier.com/thoughts-musings/2017/7/14/what-is-open-peer-review
People should innovate, but we should also take an evidence-based approach!

OPR is a very complex issue – what should be made open, in which circumstances, at what stage, to whom?

- “The large number of possible configurations of options presents a tool-kit for differing communities to construct open peer review systems that reflect their own needs, preferences and goals.” (Ross-Hellauer, 2017)

We need more evidence to help judge effectiveness

- “[T]here is often little evidence to support or refute many of these claims [regarding OPR]” (Ross-Hellauer, 2017)

We need to

- Open up the data
- Agree priorities for research
TRANSPose is a new, grassroots initiative aiming to crowdsourcer a list of journal policies for (1) open peer review policies, (2) co-reviewer policies, and (3) pre-printing policies. We'll then look at a representative subset of journals in more detail to systematically taxonomize and analyse their stated peer review and preprinting policies. These initiatives will then be complemented by a strategic discussion on how journals could be persuaded to improve their policies. As a final step, we will work to foster data-sharing in order to more systematically test how these innovations affect the quality and efficiency of scholarly communications, as well as their effects on researchers. These actions will mitigate the risks that adopters of innovative practices run, clarifying options and providing evidence of systematic change.

https://transpose-publishing.github.io/
Doing open peer review

1. Understand what kind of open peer review you’re dealing with
2. Be respectful, constructive and clear in your criticisms and responses to criticism
3. Open peer review facilitates wider discussion
4. Use open peer review reports to learn
5. There is always room to practice open peer review even if it hasn’t been formally introduced
Re-cap: 3 primary traits of OPR

Open identities
Authors and reviewers are aware of each other’s identity

Open reports
Review reports published alongside relevant article

Open participation
Wider community able to contribute to review process
OPR – Advantages/Disadvantages

• Open reports & identities increase transparency and accountability
  • Enable credit
  • Spotlight potential conflicts of interest and bias
  • Better, more constructive reviews?
  • Published reports a great training resource

• Open participation enables greater inclusion

• But, question-marks about open identities!
Peer review as altruism or aggression?
Open Science Peer Review Oath

**Principle 1:** I will sign my name to my review

**Principle 2:** I will review with integrity

**Principle 3:** I will treat the review as a discourse with you; in particular, I will provide constructive criticism

**Principle 4:** I will be an ambassador for the practice of open science

(doi: 10.12688/f1000research.5686.2)
Thanks!

Email: tross@know-center.at
Twitter: @tonyR_H

This work was funded by the European Commission H2020 project OpenAIRE2020 (Grant agreement: 643410, Call: H2020-EINFRA-2014-1).