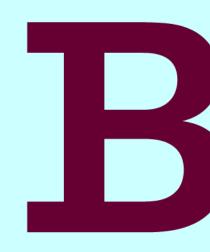


Peer Review: Strengths, a Few Weaknesses and Threats and Some Opportunities



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Structure

- OWhat does research tell us about the alleged weaknesses of PR?
- OPersonal reflections from the REF and journal editing
- OPossible developments of PR



Context and purpose of PR

Of course it depends on what you are trying to measure. E.g. bibliometrics may work to measure average research quality of a department – in the STEM subjects

[Abramo and D'Angelo, Scientometrics, 2011]

But for many purposes PR is the least bad option:

'it has been said that democracy is the worst form of Government except for all those other forms that have been tried from time to time'

Widespread acceptance for the REF:

Responses to the Call for Evidence reiterate the importance of peer review. They argue that, with the exception of some sub-disciplines, metrics capture only some dimensions of output quality. [Stern Review, para 36]

Panels should continue to assess on the basis of peer review. However, metrics should be provided to support panel members in their assessment, and panels should be transparent about their use. [Para 76]

And more generally:

Peer review is not perfect, but it is the least worst form of academic governance we have, and should remain the primary basis for assessing research papers, proposals and individuals, and for national assessment exercises like the REF. [J. Wilsdon et al., The Metric Tide, HEFCE, 2015]



Who's Afraid of Peer Review? [Bohannon, *Science*, 2013]

- Is there bias in respect of institution, geography, gender, etc? Evidence suggests in general not in relation to published papers [e.g. Benos et al., Advances on Physiol. Educ., 2007; Lee et al., Advances in Info. Science, 2013] and grant applications [Marsh et al., Amer. Psychologist, 2008]
 And seeking bias is to ask the wrong question
- O Conflicts of interest exist [Smith, *J. Royal Soc. Medicine*, 2006]. BUT does this invalidate the whole process, can't conflicts be exposed?
- **O** Review ratings of the same paper differ, but so what? There are many criteria for papers, and low reliability may mean high validity [Bornmann, *Human Architecture*, 2008]
- O Is the correlation between review assessments and the quality of the work as low as is claimed? No [Bornmann again]



Bornmann's sociology of science approach

O Traditional Mertonian approach. Science as: public, disinterested, open to scrutiny, and judged impartially. AND scientists cleave to these norms

OSocial constructionism: knowledge as socially constructed, not a search for 'truth'; the actual practice of scientists

OSocial systems [N. Luhmann]: the system not the individual, an autopoeitic system, and the evolution of knowledge



Personal experience

- Promotion cases and the like
- Grants: applicant and judge
- Journals: author and editor
- REF: 2 sub-panels



Some lessons

- The horror stories, of course
- Promotion cases: not driven by the h-index
- Grant applications:
 - Has the ground work been done?
 - Is there a distinct and lear idea here?
 - Is there a good chance of completion, e.g. does this derive meaningfully from prior work?
 - Does this all tie together, from overall location to specific RQs to methods [and even to 'paths to impact'?



• Editing:

- drawing out the 'real' contribution of a paper. Dangers of denying the authorial voice
- reviewing as an iterative process
- using reviews to guide a substantive decision, not averaging the numbers or saying 'deal with all of this'
- several dimensions of a decision not just one, e.g. fit with journal, novelty for potential readers, interest of the topic even if methods are limited, is tis distinct enough even if it cannot be faulted as Normal Science



The REF:

- 'credit where it is due'
- assessing research within its own paradigm
- -a particular process defined by O, R and S: some excellent papers do not fit this. 'Absence of evidence can imply evidence of absence'. BUT books etc evaluated on their merits
- controls on bias: sub-panel-wide reading of benchmark papers; sub-groups using same process and ad hoc advice from each other; accidental checks; inter-field calibration of overall grades



Possible developments

- Double blind review seen as a novelty in some fields
- Fully open review
- 'A priori': invited reviews plus opportunity for anyone to comment
- Hybrid systems: a panel of reviewers invited and paper is published if at least 3 will review and comment. Plus possibly more formal reviews, and further comment by author



O Informed PR?

'The literature does support the idea of supplementing peer review by bibliometrics (informed peer review). *Currently, this concept has not yet been formally operationalised*. Bibliometric data may counter specific weaknesses of peer review (its selectivity, particular forms of bias, etc.). Experiments with forms of informed peer review therefore seem the best way forward. Bibliometrics may also help to open up the process of disciplinary peer review to include criteria for societal impact of research' [Wilsdon report, Supplementary Report 1, p. 67, emphasis added].

