

The Dark Side of Peer Review

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To identify or not to identify? The rift widens.

Debates surrounding anonymous versus eponymous peer review are some of the most polarised in scholarly communication. Speak to one researcher, and they will tell you stories of the wonderful collaborations they gained after signing a review. Speak to another, and you will elicit outrage as they tell a much darker tale of targeted abuse they suffered for the same practice. Different levels of bi-directional transparency during peer review mean very diverse things to different demographics, and consequentially have led to much resistance to the idea and implementation of any system of 'open peer review'. Challenges surrounding reviewer transparency are invariably social, rather than technical. This is because transparency is strongly coupled to behaviour, and also to the perception of how behaviours will change based on reciprocal identification.

Proponents of traditional double-blind peer review claim that it was designed to protect reviewers and authors, so that evaluation remains impartial and focussed on the research, rather than being *ad hominem*. Here, the lack of transparency is supposed to protect reviewers from potential backlashes for fully expressing themselves, and increase the honesty of their assessments. However, it is rarely that simple in reality, and reciprocal anonymity can be difficult to protect. There are ways in which identities can be revealed, either with or without malicious intent. Those who favour anonymity claim that identification leads to less critical and skewed reviews, is biased by community selectivity, and leads to reviewers being even stricter within an already conservative environment, thus imposing further potential prevention on the publication of research.

Opponents of double-blind peer review claim that anonymity can lead to reviewers being more aggressive, biased, and politicised in their language than they otherwise would be. This is because there are no negative repercussions for their actions, and therefore anonymity is seen to be protective in a different manner. Proponents of identification therefore claim it has the potential to encourage increased civility, accountability, and more thoughtful reviews, as well as extending the process to become more of an ongoing, community-driven dialogue rather than a singular event with a definitive finality. Furthermore, by protecting the identity of reviewers, an aspect of the prestige, quality, and validation associated with the review process is lost, leaving researchers to speculate on this post-publication. Transparency gained from signing peer reviews can resolve competition and conflicts that can potentially arise due to the fact that referees are often the closest competitors to the authors, as they will naturally tend to be the most competent to assess the research.

A process in which reviewers are identified but the authors are not may seem the 'middle ground,' but imposes a skew in accountability upon the reviewers, while authors remain relatively protected from any potential prejudices against them. Justification for this 'single blind' process lies in the validation that transparency provides, as any corruption should be mitigated due to the additional

exposure that transparency provides. This brief summary of the arguments for and against transparency in peer review highlights its often over-lapping, and sometimes conflicting, nature, and it remains inherently unclear whether transparency is objectively good or bad.

What does the research say?

Research has shown that the philosophical debates surrounding identification are strongly reflected in the attitudes of researchers. Some studies have highlighted an overwhelming preference towards blinding from reviewers from some research communities^{1,2}. Others have found that where the majority of reviewers signed their reviews or were more willing to do so, they also became of higher quality and more courteous, although also took longer to complete^{3,4}. Randomised trials have found that blinding improves the quality of reviews, and that authors become less upset by 'negative' comments if they are aware of the identity of reviewers⁵. Other randomised trials at a larger scale found almost the exact opposite, and that blinding reviewers has no bearing on the overall quality of reviews^{6,7}, or even sometimes having a negative impact on quality⁸. The majority of additional evidence suggests that anonymity has little impact on the quality or speed of the review or of acceptance rates^{9,10}, but revealing the identity of reviewers may lower the likelihood that someone will accept an invitation to review⁷.

This small sample from a range of population-level studies into identification preferences exposes a rather complex, and incomplete, picture. They have produced different, and often conflicting, results on the impact of author and reviewer transparency on bias, ultimately creating little overall consensus on the system-wide practice of peer review. What is becoming increasingly clear is that simple calls for 'more transparency' or 'less transparency' end up over-simplifying an inherently complex, multi-dimensional, and often highly nuanced issue. It is, however, inescapable to conclude from the polarisation of the discussions around peer review that it is anything but objective, rarely impartial or evidence-based, and definitely not as simple as we often regard it to be.

The interplay of transparency and bias

This debate of reviewer identification is not to be taken lightly, and is partly the cause of general attitude of conservatism to it by the research community, as it comes up as the most prominent resistance factor in almost every discussion about open peer review. Junior researchers and those in positions of relatively less power, including demographics that are already marginalised or under-represented in particular, are perhaps the most conservative in this area. They may be afraid that by signing overly critical reviews (i.e., those which investigate the research more thoroughly, or are more expressive), they will become targets for retaliatory backlashes from more senior researchers. In this case, the justification for reviewer identification is to protect those demographics from bad behaviour.

There have also been numerous studies that have revealed bias against women in scholarly publishing to varying degrees^{11, 12, 13, 14, 15, 16, 17, 18}, indicative of wider-scale issues with the representation of women in research¹⁹. However, at the present, there is no consistent story as to the extent of such bias, as well as that based on nationality, institute, or language, in a modern research environment.²⁰ There is no longer the question of whether peer review is biased, but what these dimensions of bias are, what the causes of them appear to be, and what the solutions we can implement to mitigate them.

Transparency as a mechanism for a better scholarly culture

Through all of this debate, it remains largely unclear how the widely-exclaimed but poorly documented potential abuse of signed-reviews, and harassment of particular demographics, is notably different from what exists in a closed system. At least part of this is probably because such retaliatory behaviour occurs in private. Such is probably the main reason why this abuse has not formally been documented as a direct consequence of reviewer identification. Proponents of identification here will claim that the reason for this is because reviewing with prior knowledge of identification prevents backlashes of any sort as reviewers do not want to tarnish their reputation in public. Indeed, publishers that have long had a process of reviewer identification, such as *BioMed Central* and *Frontiers*, do not seem to be suffering from serial harassers, but rather appear to be thriving. Nonetheless, the attitudes of many researchers towards reviewer identification suggest that there is still a strong social stigma associated with it that needs addressing.

In an ideal peer review system, we would hope that strong, honest, and constructive criticism is well received by researchers. Yet, it seems that there is the very real perception, and often reality, that this is not the case. Whatever form the negative behaviour takes, retaliations to referees represent serious cases of academic misconduct. We need to be absolutely clear though that this is not a direct consequence of reviewer identification, but rather that transparency facilitates it. However, taking a step back, we should recognise that this is more about a failure of the academic system to recognise the existence of inappropriate behaviour and take action against it, rather than a failure of open peer review.

What we should be mindful of is the fact that bias and negative behaviour already occurs as part of the peer review system, including for double-blind peer review, despite generally being considered as more conservative or protective. This suggests that bias is a more general issue within peer review and academia more broadly, and we should be careful not to attribute it exclusively to any particular mode or trait of peer review. Increased transparency helps to highlight where such incidents happen, and can therefore aid mitigating and tackling the potential issues of misconduct. The Committee on Publication Ethics, COPE, already provides advice to editors on how to handle cases of peer review misconduct. COPE could be extended to provide the basis for developing a formal mechanism for preventing, managing and resolving misconduct that arises from reviewer identification. This highlights the doubled-edged sword that transparency brings, by facilitating increased interaction, some of which might be negative, but then also providing the basis for dealing with any issues. Furthermore, in a closed system, it is much more difficult to prevent or deal with cases of misconduct due to the secrecy involved in the process.

If the main purpose of transparency as a mechanism is accountability, then we have to firstly recognise that this is almost entirely absent at the present, and secondly that it will not result from the process naturally. Accountability has to be built into the structure of the peer review system, which means that when issues and concerns are raised then they are sufficiently dealt with. This will be an extremely important social factor to consider in any future development of peer review, and one which can ultimately be used to foster a fairer, more inclusive, and equitable system of peer review. Any future system should be flexible, and allow referees to have the choice of identification.

The fact that remains that we cannot have calls for increased transparency in peer review without first providing solutions for the perceived risks associated with it. In turn, we cannot perform any sort of evidence-based risk assessment, as much of the process still remains concealed by the 'black box' of peer review. In the future, by emphasising both the different and common values across research communities, it is likely that we will see a new diversity of processes developed, and different experimentations with reviewer transparency. Remaining ignorant of the existing diversity

of practices and inherent biases in peer review, as both social and physical processes, would be an unwise approach for future innovations.

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