Journal Peer Review: What Are the Challenges and What Might be Done?

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Abstract

Peer review remains the golden standard of scientific practice, but one that was never easily accepted, and often subjected to different criticisms. This has become more acute in recent years. Some of the challenges faced are lengthy review periods, difficulties by editors in finding willing reviewers, biased reviews, and a lack of incentive or recognition of the reviewers. What can be done to improve the journal peer review process?

Due to the recent wave of massification of knowledge production, as part of "publish or perish" (in some cases "publish and perish") dynamics, the increased volume of manuscript submissions to journals has overburdened those involved in peer review management and activities (i.e., editors and reviewers). This challenge is particularly serious in international peer-reviewed journals that are indexed by the Web of Knowledge and Scopus. These journals tend to be the most scientifically recognized, and therefore used by universities when it comes to recruitment, promotion, and other evaluations of academics. Such data is also used by funding agencies when it comes to evaluating projects and institutions.

Researchers also rely on publications in these journals to demonstrate research proficiency and ability. In the context of a fast massification of knowledge production (and competition), many authors complain that peer reviews take too long. They worry that the research findings may become outdated by the time the journal accepts the manuscript for publication. It is even worse in case the manuscript is rejected, and the authors need to resubmit. Authors also complain that the reviews often come back with unfair and ungrounded decisions, sometimes based on rushed, poor-quality, unconstructive comments, and the reviewers' biased opinions, including ideological biases. Although double-blind review was introduced to mitigate biases related to authors' gender, ethnicity, nationality, institutional reputation, or previous accomplishments, several journals continue to rely on single-blind review. Even with double-blind review processes the current peer review system continues to struggle with a multitude of biases, reliability, or dubious ethical standards.

Editors of international peer-reviewed journals complain that they receive too many submissions, while struggling to find available quality reviewers. The rejection rate of invitations to review manuscripts is rising, and those that do quality reviews tend to be overwhelmed with nonstop solicitations to review. There are reports of editors who need to send more than 20 review invitations to find one willing reviewer for a single manuscript. Part of the challenge here may relate to the fact that editorial boards tend to be dominated by researchers from developed countries, often English-speaking communities, and may rely too much on reviewer pools with similar backgrounds and epistemologies. This may have two effects: underrepresentation of reviewers from nonmainstream topics and developing countries, which may cause them to continue to be isolated from global science while preventing new ideas from emerging, and untapping of a potentially important pool of reviewers that could mitigate challenges such as time to review, and even possibly, the quality of reviews.

Researchers who are getting a deluge of invitations to review must decide how many and which manuscripts to review, considering growing workloads and the need to publish themselves, sometimes for the sake of career survival or progression. Researchers are often forced to be highly selective in accepting review invitations. It is important to consider that serving as a reviewer is a largely invisible type of service work that is often not recognized in the institution where the reviewer works. For a long time, it has been voluntary work that relies only on goodwill, scientific and academic citizenship, and identity and duty towards one's community.

The peer-review system as we know it today is relatively recent, but the peer-review crisis is part of the continuous development of science, and the current solutions presented continue to rely on the central tenets of the peer-review system suggesting

that the practice is more likely to be finetuned and improved, rather than outright replaced by a new system.

What Might Be Done?

There have been discussions around possible solutions to improve peer review, and some disciplines have initiated different practices. We highlight these possible solutions around three axes.

Being more inclusive. The work that peer-reviewers do in service of the scientific community is invaluable. While the pool of peer-reviewers used is limited, there may be the possibility to extend it significantly. This can be done by opening the pool of reviewers to groups that so far have been engaged in peer review only in limited ways. Women researchers, for example, are less often invited to do reviews compared to men. Researchers from developing countries can also be more engaged in peer-review activities, and so can PhD students and postdocs. There is a growing set of resources and training on reviewing provided by journals, researchers, and scientific communities that can be used to train and give competencies to these groups to do more reviews for journals, but they need to be engaged and encouraged by journals and publishers.

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Providing incentives. It is becoming clear that simply relying on the prosocial and voluntary behaviors of researchers to do reviews is not sufficient. This is not to argue that these values do not serve as a key motivation to review, but other incentives are needed. Incentives such as paying to review may create perverse effects, but other incentives such as a journal waiving article processing fees for open access publications for reviewers after completing a few reviews for the journal could be implemented. Having peer review acknowledged in project and career evaluations may also instill a much needed institutional recognition.

Improving transparency. Although double-blind review process has improved transparency, it does not suffice. Submissions to journals should probably engage in a "triple-blind" review, where editors are also left blind about who the authors and their institutions may be. There should also be an effort to mitigate some problematic bias-related issues.

Conclusion

The solutions above can be synergetic and contribute to potentially mitigating some of the issues related to the peer-review process. Others can be devised, too, and those that have been devised so far—some more out of the box than others—tend to maintain existing key elements of the peer-reviewing process at their core. The current challenges related to peer review are concerning, but they also represent opportunities for peer review to adapt to a fast-evolving scientific system that would be more participatory, complex and global, and to drive forth a more inclusive, transparent, and fairly rewarded assessment of scientific works. ◢

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