

Considering and Reconsidering Peer Review

The second Monday of September marks the beginning of Peer Review Week 2017. Peer review—and a singular dedication to guiding manuscripts, authors, and reviewers through the review process to the best of our ability—is a pillar on which this and many other journals place their relevance. Yet, for a journal, it is worth examining factors that influence the peer review process and when it breaks down, even if this threatens to undermine our own relevance.

Peer review takes time. Those who have ever invited reviewers to review a manuscript know that recruiting a qualified, trusted, and currently available group of reviewers is a critical, and possibly time consuming, process. Perhaps nothing is more important to the utility of the peer review process than having a good panel of reviewers. Then, of course, reviewers need sufficient time to evaluate a paper. Sometimes, reviewers with the most relevant expertise will have an opening in their schedules to comment on a paper right away. But more often, reviewing papers must be fit into travel schedules, teaching loads, grant study sections, and the conducting of one's own research. As an editor, I prefer to wait for an incisive review tomorrow than receive a perfunctory one today.

Peer review is a form of communication and is thus constrained by the fundamental properties of the communication medium in which it occurs. Often, reviewers are invited by email, submit a written review through a website, and then the authors of the paper receive those comments in another email. An asynchronous process like this does not lend itself readily to real-time, rapid-fire communication between the parties involved—for example, to resolve misunderstandings. In some cases, reviews are annotated with the identity of the reviewers. Discussion of such annotation and other forms of transparency are a theme of this year's Peer Review Week (<https://scholarlykitchen.sspnet.org/2017/08/03/transparent-peer-review-mean-important/>). But regardless of how a review is conducted—open or closed, pre or post publication, or single or double blinded—these properties of the mode of communication place constraints on the review process with potential pos-

itive and negative consequences. How should these pros and cons be balanced?

Peer review is an intentional process. In some cases, the intent of review is to assess the technical soundness of a set of results. In other cases, peer review aims to evaluate the suitability of findings for widespread deployment in clinical medical practice. In still other cases, the review process provides an opportunity for a particular scientific community to assess the relevance of a manuscript to that community. This intentionality adds texture and nuance to the review process in ways that can be both beneficial and a source of confusion. What's more, different journals, editors, authors, reviewers, and even readers may all bring their own personal takes on the intent of review. This must be accounted for, and ideally, proactively managed.

These factors of intent, time, and communication constraints provide a framework for understanding why peer review breaks down in particular instances and what can be done to adapt current practices. For example, some systems biology studies that do not result in molecular mechanistic insight may find themselves at odds with a review process whose intent is to assess the robustness, generality, and novelty of molecular-level findings. The time it takes to review papers that report the results of benchmarking different methods may work counter to the immediacy of those results, especially for rapidly developing technologies. Research consortia or standards bodies seeking to catalyze discussion and achieve community consensus around standard operating procedures or best practices may benefit from different approaches to engaging and communicating with the scientific community during a peer review process.

We look forward to refining and applying this framework, in concert with our community of readers, authors, and reviewers, to thoughtfully consider and reconsider our practices of peer review.

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