Toss the water, keep the child

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Comment on: **D Fisher & N Parisis**
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See reply: **D Fisher & N Parisis** (in this issue)

The peer-review model of academic publishing has lately been a subject of much discussion and criticism. In their recent opinion paper and the following commentary [1,2], Daniel Fisher and Nikolaos Parisis criticize it as outdated and harmful to the progress of science because it stifles new ideas, has a tendency to bow to authorities, and vests a small number of the reviewers with the power to decide whether or not to accept research results [1,2]. Much of their criticism reflects widespread frustration with the publishing practices of some high-profile journals, which place large emphasis on the predicted impact of the published work, which makes them prone to subjectivity and bias. Nobel Prize winner Randy Schekman—who famously declared boycott of the high-profile “luxury” journals—called the editorial policies of journals that artificially hike up the impact factor by selectively pursuing hot topics and restricting the number of publications “as damaging to science as the bonus culture is to banking” [3].

As Daniel Fisher and Nikolaos Parisis correctly state, future impact of a paper cannot be reliably predicted, no matter how knowledgeable or well-intended reviewers and editors are [1]. However, these problems have more to do with the editorial policies of journals that “aggressively curate their brands, in ways more conducive to selling subscriptions than to stimulating the most important research” [3] than with failings of the peer-review system. Peer review plays a key role in ensuring quality control and lending credibility to published research. It is not perfect and, like any

evaluation system implemented by humans, is prone to bias.

However, there are ways to mitigate these inherent biases. For example, the US National Science Foundation (NSF), which uses peer review for its funding decisions, provides training to reviewers and the program directors in order to reduce the effects of implicit bias. Such measures can easily be implemented for journal peer review and include increasing the reviewers’ awareness of how implicit biases may affect evaluations, implementation of explicit and consistent criteria to judge the quality of research, and instructing reviewers to rate the manuscripts based on those specific criteria rather than making global judgments and to point to specific evidence that supports the rating [4]. Other bias-reducing approaches may include editorial policies that emphasize novelty and technical quality rather than perceived future importance; double-blind reviewing; and practices that increase reviewers’ accountability, transparency of the review process, and rewarding good practices by reviewers’ recognition (who contribute their time and expertise to the peer-review process for little gain to themselves).

No doubt, the peer-review system can be improved. However, in many and perhaps most cases, it works just fine. A lot of outstanding research gets published, albeit not all of it is in high-profile journals. There is no evidence that the peer-review system stifles innovation; in the past few years, the NSF funding system led to the discovery of the gravitational waves, genome editing, optogenetics, and many other exciting breakthroughs. Abandoning peer review in favor of a Wild West-type publishing where everyone can stake their claim by freely publishing their results online is going to create more problems than it solves. It is unlikely that in

the absence of pre-publication quality control no “shoddily performed work or whimsical ideas” [2] will be published, especially in these days when the competition for limited resources and the pressure to publish are extremely high. In addition to the difficulties of navigating a potential tsunami of unvalidated online information, such approach would undermine the credibility of the scientific community.

What we need instead is a change in the scientific culture that moves from bean counting the number of publications and impact points to a holistic assessment of the impact of each group’s research in their specific field, and supports and mentors young researchers to get their work out most effectively. Such change should start with the research community and extend to the university administrators and funding agencies, and it will be the only effective means to pull the rug from under the feet of those who make their profits by riding the high-impact wave and harm science in the process.

Conflict of interest

The author serves as a managing editor and an editorial board member of five academic journals and receives a stipend for the editorial services for one of these journals. The opinions expressed here are author’s own and do not necessarily reflect the opinions of the editorial boards or journal publishers she is involved with.

References

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