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Peerless Evaluation

It is estimated that 1.3 million articles are published each year after undergoing scholarly peer review (1). Because peer review plays a seminal role in scientific publication, it is essential to know how stakeholders who participate in the process perceive it and whether or not they feel it can be improved or replaced.

Toward evaluating perceptions of the peer review process, the UK-based nonprofit organization Sense About Science recently released the preliminary results of a massive survey involving over 4,000 authors and reviewers, mostly engaged in research in science, technology, or medicine (2). The results of the study demonstrate that scientists highly value peer review, with roughly two-thirds of those surveyed indicating satisfaction with the current system. Further, scientists overwhelmingly believe that the quality of their own manuscripts is improved through peer review and that the system allows for effective control of scientific communication.

The survey also reveals that scientists participate in the peer review process for altruistic reasons. Scientists review because they want to perform a constructive role in the community and around 50% of those surveyed spent 6 hours or more on the last paper they agreed to review. But scientists are also aware of the time and commitment required in the process, and a little over half mentioned that they would be more compelled to participate if incentivized or recognized in some way for their efforts. Options discussed in the survey included acknowledgment in the journal, accreditation with professional societies, and offering reduced submission fees when reviewers submit their own work to journals.

Although most scientists value peer review, it is worth noting that few think that it is currently perfect. In the survey, only about one-third of respondents felt that peer review could not be improved in any way. Among the items scientists wish for is the desire for peer review to detect plagiarism and other ethical violations; however, scientists are unsure if that would be possible under the present system. Scientists would also like peer review to ensure the proper acknowledgment of earlier work but are divided on whether this is possible too.

Another conclusion of the survey is that scientists favor anonymity in the review process. Most scientists prefer that journals not reveal the identities of reviewers, and this is the norm for most scientific journals including *ACS Chemical Biology* (3). Interestingly enough, around three-quarters of scientists surveyed also wanted the identities of authors to be hidden from reviewers. Of course, in practice, this is a tricky task because even if names and affiliations are removed during review, a quick glance through the introduction of the paper or the references is often all it takes to correctly guess the identities of one or more of the authors.

The preliminary report also opened up additional areas worth exploring. In the survey, 75% of respondents were male and over half were under the age of forty-five. Only about a third of respondents indicated that they believed peer review was biased against authors from developing countries; then again, over half of all respondents were from North America and Western Europe. Out of the researchers surveyed, only 6% identified chemistry as their primary field of research. An intriguing question emerges: do perceptions of peer review vary among the various disciplines and among different demographic groups? And what about specific cases such as reviews? Do reviewers approach peer review with respect to these manuscript types differently from review of primary research articles?

In addition, surveys such as this one provide some ideas of what scientists want peer review to do, but little on implementation. After all, saying something needs improvement is one thing, but knowing *how* to do it is another matter altogether.

To be fair, the full report, slated for publication later in the year, might address some of these questions. But the fact that these questions are being asked is important too. Down the road, peer review may become obsolete, evolve into something different, or be essentially unchanged. Ultimately, finding out what authors and reviewers want is a right step in evaluating the evaluation process.

Anirban Mahapatra

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