Did you know that the number of peer-reviewed journals has steadily grown by 3.5% per year for over the past three centuries? In fact, a rigorous peer review process is considered to be an indication of a journal’s quality, and most journals rely on peer review to ensure that only the best research gets accepted for publication. This often results in journals having high rejection rates, for example, as high as 90% in the case of many Wiley journals. Peer review is considered the pillar that upholds the credibility and integrity of the scientific record. However, in its conventional form, peer review has drawn some criticism for issues like lack of transparency and inconsistency in output. To address these issues, several innovations in peer review have been introduced (new models, reviewer recognition, and more). This article explores the evolution of peer review and how industry experts see it shaping up in the future.
Challenges associated with peer review

Despite its merits, peer review has some limitations that threaten to weaken the entire scholarly publishing system:

• **Lack of transparency**: Anonymity forms the basis of traditional single-blind or double-blind peer review. This lack of transparency can make the system vulnerable to manipulation, as seen in recent cases of fake peer review and mass retractions, and can lead to a general lack of trust in the process.

• **Lack of recognition**: Peer review is a voluntary task, and reviewers typically do not stand to gain any recognition or monetary compensation for the time and effort they spend in evaluating research papers. Therefore, journal editors often find it difficult to find and appoint suitable reviewers.

• **Lack of training and standardization**: The peer review process varies from journal to journal due to the lack of standardization. Moreover, the absence of systematic training or onboarding process for reviewers leads to inconsistencies in reviewer evaluations.

How peer review has evolved in response to challenges

To overcome some of these limitations, and in response to global movements in publishing (e.g., the open science movement), various new models of peer review have emerged, for example,

• **open peer review** (where the reviewers’ identities are disclosed to editors, authors, and readers),

• **collaborative peer review** (where peer reviewers and authors are allowed to interact and discuss recommended changes to the manuscript),

• **post-publication peer review** (where readers are allowed to offer feedback and comments on a paper after it is published),

• and **transferable or cascading peer review** (where a rejected manuscript may be transferred to another journal, usually under the same publisher, along with the original peer review reports).

Each of these models attempts to refine the peer review process for greater transparency and efficiency. In parallel, efforts are also being made toward recognizing and rewarding peer reviewers. To address the lack of formal training for new reviewers, some publishers and organizations have begun to offer peer review training to groom reviewers.

Where is peer review headed?

Despite the challenges involved, industry leaders believe that peer review will continue to play a crucial role in the scholarly publishing process and that technology will revolutionize the future of peer review. “If you look at the underlying reason for peer review it’s to validate quality. The need for validation is now stronger than ever due to the proliferation of published research,” opines Deborah Wyatt: VP, APAC Society Services, at Wiley.

She continues, “Machine learning and artificial intelligence might also play a role in reviewer selection in the next decade as journal editors and publishers push for further process efficiencies to keep up with demand.” Indeed, some companies are taking initiatives in this direction, for example, by supporting peer review with technologies like blockchain.

Addressing one of the major problems of peer review—the lack of a standardization—Richard Donnelly, Professor in Medicine at the University of Nottingham, and Editor-in-Chief of *Diabetes, Obesity, and Metabolism*, says, “At present most peer review is based on free text comments and global assessments. I do think that developing a more quantitative scoring system to be used by reviewers and feeding back these aggregated scores to authors would be helpful.”

On the issue of building trust through transparency, Chris Graf, Director, Research Integrity and Publication Ethics at Wiley, and Co-Chair of COPE, states that, “The future lies in ensuring the integrity of the publishing process through embracing transparency without breaching confidentiality.”

To sum up, peer review has been and remains the backbone of scholarly publishing. The entire academic community – including healthcare practitioners, authors, publishers, and reviewers themselves – is embracing and looking forward to innovations that address issues of reliability, transparency, and standardization in peer review.
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