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EDITORIAL

Recognition and reward in peer review: The ReviewerCredits vision

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Peer review is the cornerstone of academic publishing. We use and cite research articles that have been peer reviewed; we trust these articles as researchers and consider them valuable for re-use and re-evaluation in our own work.

Journals around the world have used the peer review process since the 1960-70s as the prime mechanism to maintain the integrity and quality of scholarly publications and drive their own value for researchers compared to others. It is a global standard for authors to try and get their work published in peer reviewed journals; otherwise, they may end up wasting research efforts. This is because individuals and organizations inside, and outside, of academia (*e.g.*, news outlets) are generally more likely to trust research that has been peer reviewed, and, in academia, peer reviewed works are much more likely to be cited.

Peer review has also survived all changes to the business of academic publishing over the years, including the widespread proliferation of this pre-publication checking and improving model that now encompasses about 50% of all published articles today. So far, peer review has also survived the emergence of preprints. Their promise – immediate publication at the expense of, or in the absence of peer review – has, to a certain degree, challenged assumptions inherent to the predominant mode of article publishing, but has not swept it away. Even the ever-growing number of papers submitted to journals around

the world has not led the ecosystem to abandon peer review as a core component of its model.

Despite its obvious merits, peer review has always been a problem for publishers, journal editors, and – most importantly – researchers themselves. And this is never more the case than now: Journals increasingly need to spend more and more time searching for suitable peer reviewers to work on research articles, often sending out high double-digit numbers of emails per paper just to secure a “pair of eyes” to evaluate submitted work. We refer to this as the “One in Ten Phenomenon,” and indeed, throughout the Covid-19 pandemic, the situation got even worse. More and more research was being sent to journals, with less and less reviewers agreeing to undertake the task. According to one study,¹ peer review invitation acceptance rates dropped by almost 15% between 2020 and 2021 alone.

What can be done? How can journals solve this “reviewer finding” problem while at the same time ensuring that researchers feel they are getting something out of the often-thankless task of being asked to consider the merits of submitted research articles?

Here we discuss trust and reviewer recognition as well as rewards in peer review from an author’s (researcher) and then an editor’s perspective. We present the ReviewerCredits vision for peer review and explain how we work with journals and editors to make this process fairer, more effective, and equitable for all. Appropri-

ate peer review of research is perhaps even more important in the medical sciences than in other areas, but – as across academic publishing – the current system is stretched to the limit.

Peer review: an author's perspective

Authors have a dual role in peer review because they are also potential peer reviewers that journals wish to attract in the future. Even so, author-reviewers often seem to view the peer review process as somewhat of a nightmare – an ordeal they need to survive to get work published. It is, therefore, with a sense of great relief, that papers eventually get accepted.

Indeed, one of the main areas of confusion for authors globally is not only “How does my paper get evaluated?” but also “How are peer reviewers selected?” Moreover, how does the external review process work?

We note that perhaps the most important issue with peer review globally is one of the most important responsibilities almost always left to journal editors – even if the actual work gets often delegated to publishers' in-house editorial staff: Effectively selecting peer reviewers. Editors, above all, are looking for credibility and subject area expertise in reviewers. A good and effective peer reviewer has technical expertise and knowledge in the field and a fair and constructive attitude. They must, of course, have no potential conflicts of interest. Attractive peer reviewers are also familiar with journal standards and have good attention to detail while seeing the bigger picture. Editors also seek to increase diversity in the reviewer pool, honor author exclusions (where possible), involve as many reviewers as needed (usually three, but could be more), and remain alert to inappropriate behavior. Finally, they are custodians of their journal's longer-term quality metrics which are so important to researchers submitting their articles: The Impact Factor and several other quantitative ways to measure success. It's almost impossible for editors to balance all these issues.

When asked if they would like to review for a journal in general, especially early career researchers show a high degree of interest: Next to getting an actual article evaluated, an overwhelm-

ing majority sees it as part of their academic training and upbringing in their discipline. But when we talk to researchers about peer review *via* the ReviewerCredits platform, the feedback we get is very often that doing this work for journals is “a necessary evil.” Researchers feel that they are simply “expected” to perform journal peer review as part of their academic service. This is something that is expected: Researcher colleagues feel a strong desire to do a good job, of course, but also frustration that peer review is often not something that they are able to get credit for within their institution. Peer review is very often just not a task one can report on a CV, or to a university or research funding agency. It is just part of the working week. An inevitable, necessary contribution to academic scholarship. Quality-control of the scholarly record is part of a researcher's set of responsibilities to the academic community.

Sadly, publishers almost always miss addressing this very basic demand. A good number of academic researchers, when mined to perform peer review for journals, are early career researchers. Sometimes postdocs or just finished expert PhDs who have a handful of publications and a strong desire to advance and contribute to their field. These researchers are very often not provided with any training in peer review, previous research indicates 39% of all reviewers claimed they never received formal training. They are usually pulled into reviewing by their PIs or academic advisors and expected to ‘learn on the job’ when accepting to undertake to work on papers for journals, and, even more notably, many will not remain working in the academic sphere.

It is a fact that the attrition rate of young, early career researchers is very high. More than 80-90% of PhD students will not remain in academia post-PhD, and similar numbers are seen when considering the conversion from postdoctoral positions to early stage full academic roles. However, skills gained in early career academia are extremely transferable to other lines of work, perhaps most notably skills in peer review.

Thus, one of the best ways to recruit peer reviewers for journals is to focus on the needs – the skills – of researchers, rather than to focus simply on numbers or contact sheets. Attracting good, effective researchers to work on submitted

articles can be done by giving something back. Emphasizing the development of transferable skills, and by certifying and rewarding effective reviewers who do work for journals (e.g., the ReviewerCredits model) is important.

Peer review: an editor's perspective

As research “gatekeepers,” scholarly journals and their publishers are arguably on the frontlines of quality assurance in peer review and have the potential to lead the way in addressing many of the research integrity challenges currently faced across disciplines. These include biases against null and negative results, the potential for research spin, and the ongoing replication crisis.

Publishers place a huge amount of emphasis on finding subject-area specialists for good, fast, and effective peer review of research articles for their journals. It is not easy and becoming more and more of an issue across the scholarly publishing ecosystem. As noted earlier, high double-digit numbers of invitation emails often need to be sent out by an editor before a single reviewer accepts to “take on” a paper. Publishers think: *How can the peer review process be accelerated? How can we encourage researchers to ‘take on’ peer review? And: Once peer review is completed, how can we capture this researcher within our ecosystem so that they continue to work for this journal and use it, or one of our other journals, for their next paper and don't move off to work with one of our competitors?* Publishing academic research is their business, after all.

What steps are scholarly journals and publishers taking to fortify peer review and build trust in the process? Peer review transparency can help of course, including addressing such issues as:

- valuing research questions and methods over findings;
- employing more open peer review practices;
- developing shared peer review standards and taxonomies;
- facilitating the sharing of review reports across journals.

Over the course of digitization, academic publishing has benefited a lot from standardization. Most notably, the work of organizations like CrossRef has made singular pieces of academic

output interconnected, through hyperlinks and identifiers shared across the sector. It is striking that this is not the case for peer review. Until this day, and despite a high degree of sharing technology, publishers largely run information on peer reviewers in silos. Publishers are often wary of sharing “their” peer review database with others, even though – within subject areas – the names and contacts of researchers are almost certainly already present within the ecosystems of others. This is therefore one area within the publishing workflow where collaboration can benefit everyone.

Indeed, publishers' individual views and needs translate into the kinds of content created by publishers around the peer review process. Training courses, webinars, blogs, and so on are often geared towards “helping” researchers do better at peer reviewing papers. The onus is on the process – speed and efficiency – from the publisher's perspective. After all, they need willing, keen, and able researchers to work on improving articles before they are published.

Academic publishing is experiencing a crisis around what is being called “research integrity.” To us, the term is misleading the conversation: Paper Mills and review cartels are not symptoms of a crisis in research, but rather reveal weaknesses in the research evaluation and the publishing processes. We would therefore argue that “publishing integrity” is a much more accurate description of the issues that need to be addressed by the players in the ecosystem.

How can this be done? By putting the researcher first (an often-misused claim) and training, recognizing and rewarding, peer reviewers. Training should emphasize the presentation of constructive positive feedback. This is a key transferable skill and one of our focuses at ReviewerCredits.

The ReviewerCredits vision

ReviewerCredits was created by researchers to make peer review visible on academic records and to reward time spent on this task. We also aim to rectify negative perceptions about peer review amongst both authors and editors in our vision for ReviewerCredits: we provide solutions for many

of the challenges authors face during the peer review process (and therefore publishers).

The model we have developed is based on reviewer verification, another key issue for publishers globally. As discussed, from the perspective of peer reviewers' and understanding their time constraints, publishers need to create a competitive incentive to other activities – first and foremost doing research or writing a paper – in favor of peer review. In a research climate increasingly characterized by a demand to hit different measurable performance indicators, how can researchers be expected to invest a substantial portion of their time on an 'invisible', unrewarded task? One peer review easily takes them four to six hours of work (or more if English language is an issue) – and research indicates that an aggregate of 15,000 years of peer review were conducted in 2020 alone.²

Ever more concerning, and where we are part of the solution, it is also the case that as a consequence of the way peer review is conducted, it is also often not possible for publishers to know who is working on their papers because peer review has been put into the hands of editors, or guest editors of special issues. In addition, incorrect, inaccurate or (rarely) fraudulent data has been uploaded onto the 'reviewer selector' platforms journals use. All in, this is a prime example of an industry completely missing, and failing to harness, the advantages of digitization.

How does ReviewerCredits help? When a potential peer reviewer registers on the platform (ideally using their ORCID id) that individual is cross-verified against their recent publications as well as *via* communication with co-authors. Researchers can import reviews into their profiles from the last 20 years *via* an ORCID id, as well as any new article, monograph, and conference paper peer reviews automatically or manually. This approach is unique in the publishing industry.

The platform offers biometric and academic KYC verification to do this and are thus able to be sure of the identity of ReviewerCredits registered peer reviewers when work and/or identities are passed to journals. Most importantly, reviewers can set their reviewing preferences – *e.g.*, how often and for which journals and publishers (and for which not) they wish to review. This 'implicit

contract' enables us to avoid massive spamming of reviewers' mailboxes. Together with partner Prophy, AI is used to match concepts from prior publications, research interests, and areas of study to align peer reviewers to journal articles. The system therefore ensures that researchers registered with us are sent good fit research from reputable journals. Working on these articles as a peer reviewer is therefore good for a researcher's career as well as for the journal.

Uniquely, ReviewerCredits journal and publisher partners are also given the opportunity to reward their reviewers. Partners award Credits to peer reviewers for work done, and these are accrued by researchers and can be redeemed for products and services useful for their work including publishing discounts, editorial and translation services. Giving due credit to researchers also increases review request acceptance.

Peer review is a vital component of the publishing ecosystem, yet little attention has been paid to address its specific challenges in the past decade. Publishers and libraries focused on making digital content more open and accessible – no doubt a worthwhile piece of work – but missed (with a few notable exceptions) out on those elements of the workflow that did not directly contribute to article output.

Now is the time to take the next steps in digitizing academic publishing, and peer review needs to be part of that.^{1, 2}

Key messages

- Peer review often goes unrewarded and unrecognized.
- Publishers struggle to match reviewers with articles using existing systems.
- ReviewerCredits provides a solution, *via* AI and an unique reviewer graph.

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Both authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

Authors' contributions

Both authors read and approved the final version of the manuscript.

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