

## **Charity is welcome: The international benefits and pitfalls of peer Review**

Peer review is the traditional method for validating academic work and this process is not without complications. Debates about the way peer reviewing is accomplished, the hazy but sensational world of retractions and the costs of publishing for authors are taking center stage. In no other field do people conceive and build the work, pay for it, inspect it, distribute it and buy it back again for their continued survival. Still after all this investment they can struggle for rights of access. In order to stem the tide of discontent, incentives for peer reviewers were introduced. The authors investigate the many faceted approaches to incentivize the process of peer review and consider what value they add, if any. The authors explore other avenues to benefit the largely anonymous and uncredited work of peer reviewers who remain the sentinels of the world of published evidence.

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# CHARITY IS WELCOME: THE INTERNATIONAL BENEFITS AND PITFALLS OF PEER REVIEW

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## ABSTRACT

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Peer review is the traditional method for validating academic work and this process is not without complications. Debates about the way peer reviewing is accomplished, the hazy but sensational world of retractions and the costs of publishing for authors are taking center stage. In no other field do people conceive and build the work, pay for it, inspect it, distribute it and buy it back again for their continued survival. Still after all this investment they can struggle for rights of access. In order to stem the tide of discontent, incentives for peer reviewers were introduced. The authors investigate the many faceted approaches to incentivize the process of peer review and consider what value they add, if any. The authors explore other avenues to benefit the largely anonymous and un-credited work of peer reviewers who remain the sentinels of the world of published evidence.

COMING TO GRIPS WITH SHIFTING POWER

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Through the power of peer review academic futures are built and destroyed. Until recently, peer reviewers were also authors and there were implicit and unspoken rules about how to review. The power has shifted and now patients are reviewers in major high impact journals and citizen scientists who were once content to bask in the shadow of named authors are coming out of the closet to claim their place in science and healthcare. Today this is considered cutting edge but in the 1700s the concept of peer review was just emerging.

The Royal Society of Edinburgh in 1731 who published *Medical Essays and Observations*, is widely considered to be the first peer reviewed publication. Review systems and publication ethics are evolving to meet the changing needs of their generations and this generation is no exception. There are many areas where power moves for those who firmly grasp the steering wheel including the world of academic publication. Power is not easily yielded to the unheard voice or the heartfelt needs of the peer reviewer. In a bid to quiet the discontent, suggestions for incentives around peer review have become a mainstay in academic discourses. [1]

This is unlikely to be a winning strategy as incentives are not enough. We can picture ourselves as authors who are expected to quietly comply without a fight, resigned to changes recommended by strangers otherwise known as “the reviewers” The submission process is automated and faceless as a life time of work can be judged amongst the published or the rejected.

You don't take criticism well or just toughen up if you want to succeed is the refrain from the accepted ones. Do others share thoughts of mutiny? History shows they do.

Even the indomitable Albert Einstein in 1936 was not pleased by the critical review levelled at his work “Do gravitational waves exist?” Instead of compliance, Einstein withdrew the work criticized by an anonymous referee for the journal *Physical Review*. The letter succinct and indignant says it all:

*Dear Sir,*

*We (Mr. Rosen and I) had sent you our manuscript for publication and had not authorized you to show it to specialists before it is printed. I see no reason to address the—in any case erroneous—comments of your anonymous expert. On the basis of this incident I prefer to publish the paper elsewhere.*

*Respectfully,*

*Albert Einstein*

Einstein did go on to publish the article in the Journal of the Franklin Institute (Philadelphia). History informs us that the published version was quite different from the version that was originally submitted to Physical Review. The anonymous reviewer may have shaped that work but he or she remains nameless, unpaid and uncredited. The incident that outraged Einstein is standard practice in today's scholarly publication system. Is it really unthinkable in today's world that a scientist would share in Einstein's outrage after seeing a referee's commentary? [2]

In 2014 a group of forty Australia scientists submitted a petition, it was titled "Journal reviewing and editing: Institutional support is necessary" [3]. They aimed to garner the attention of agencies leading science and research and point to the lack of respect and recognition offered for the work of reviewing and editing as conducted by academics. They called for paid incorporation of these activities into the mainstream. They wanted no more eighteen hour marathons of working a full day and then going home to edit and review. Unfortunately, though passions were shared there was little problem solving done and the need to devise a method for uniform accreditation remained unexplored.

## CAN WE PAY DOWN FEELINGS WITH INCENTIVES?

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Will money fix it and if so how much will it take? The answer to this obvious alternative is that it depends on how it is offered.

The Collabra solution [4] is to share a point-based system from which reviewers, senior editors and handling editors are compensated according to review or editing involvement. They propose the charge of \$875 as an initial author processing charges and will then deposit \$250 in a "research community fund", to sustain a system to allow payments to peer reviewers. [5]

However, before any further discussions on incentives for peer review can take place, another critical and much debated issue needs to be resolved: whether to make peer review an open process or keep the reviewers and authors blinded to each others' identity. With strong arguments on both sides of the chasm, this is a debate that has split the publishing academia wide apart. Some studies show open peer review results in better, more detailed reviews, although there seems to be a trend towards more frequent favorable recommendations causing some to express reservations about the validity of open review. [6]

One interesting solutions is to build a common database of potential reviewers that could be shared across a publishing house or within a professional body. Publishers could then consent peer reviewers and position them in a Global Reviewer Index Directory. Reviewers could be trained and orientated to cultivate cohorts of ideal reviewers. In this way tailor-made support could meet targeted demands. Some suggest rating reviewers although this creates extra resource

costs for limited benefit. It may be better to recognize that poor reviewers will be offered fewer paper to review thus self-limiting the credits they can gain.

Maybe knowing why reviewers decline a review could lead to creative ways of motivating their collaboration. It appears not enough time and a crushing workload is the primary issue [7].

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## LOOKING FOR IMPACT IN REVIEWERS

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What could change the tide, is to more likely to be money or meeting the dictates of a social norm?

Wikipedia introduced a token, informal reward system for reviewers, using barn stars, that increased productivity by 60%. [8] Could it be that building community in reviewing might reinforce positive behavioral traits and is so doing enhance productivity.

CME credits are successful as incentives and the leading journals now offer them for a complete review as an alternative to passive online learning. JAMA, NEJM and Annals of Internal Medicine already offer accredited CME points to reviewers. [9]. Although this is a beginning noted resistance to experimental excursions is faced in the time sensitive climate and fragile systems of publishers who for survival reasons tend to avoid experimentation with their systems. [10]

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## WHAT DOES WORK IN REVIEWING?

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Research by the Journal of Economic Perspectives randomized reviewers into four groups:

- a. Four-week deadline
- b. \$100 incentive for meeting the four-week deadline
- c. Reviewers were told four-week turnaround times would be published alongside the article
- d. Six weeks to review (control group)

Results: Shorter deadlines reduced turnover time. Cash incentives helped and had some lasting effect on performance when rewards were withdrawn. Those with money and status such as tenured professors responded better to a social incentive than to money. Review quality was unaffected and reviewer/editorial agreement was stable during the use of the incentives.

Contrary to these findings, other investigators report rewards seemed to engender deterioration in the quality of submitted reviews. [11] It appears some academics become reviewers to give back and the small cash award turns reviewing into a business transaction for which they feel their expertise is not adequately compensated.

Others propose including reviewers in the h-index factor meaning you could move up the ranks by reviewing not only authoring. The opposing view is that although multiple good reviews can improve research quality, the resource costs of yet another index are too high. [12]

PeerJ has an excellent working model and is enjoying widespread growth and adoption. They allow lifetime publication for rates as low as 99\$, in exchange for review work by submitting authors who are registered in the system and will undertake their fair share of review work. This provides dignity and a way to contribute particularly for early career researchers crippled by author processing fees and a limited budget. This model can work across cultures and scientific disciplines as PeerJ embodies the concept of author/reviewers as stake holders with community.

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## WHAT COULD GO WRONG IN PEER REVIEW

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Fear is a powerful force as is protecting the herd, it is for this reason that some junior authors fear retribution for negative reviews even when they are justified. As reviewers age this can become an engrained habit just like it is for zoo animals that don't understand they are stronger than the boundaries that keep them captive.[13]

When hierarchies are based on seniority or on the primacy of a professional relationship in medicine [14] a culture of "medical disrespect" emerges and corrupts best evidence application for patient care. There are concerns that malignant medical hierarchies can infiltrate the reviewing of scientific manuscripts and make open reviewing a threat to security and open science. [15,16] These are issues to face when considering how to credit fearful but willing reviewers. [17]

The pay-for-expedited review system is a time bomb as this favors a have/have not system and restricts publication routes for new authors. Open Access publication based on author processing fees are steep, some academics estimate the cost at 20,000.00 plus for prolific researchers per annum and that is not sustainable. Multiplying this pressure with expedited peer review for pay shuts out researchers from the developing world and limits discovery to those who have already done it with little opportunity for fresh discovery.

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## THE FUTURE OF SCHOLARLY PUBLISHING

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With international collaborations and heightened concerns for research integrity we may need to reassess who is responsible for the data. A spreadsheet tells no one how the data was collected. The same challenge is faced with the well intentioned call for transparency in research with all trials registered and all research reported. Authors often work in good faith from multiple continents on one paper. Whose responsibility is it for data? Some authors have not seen the

collection and were involved in the research in other ways. How will this be built into good methodological practice across cultures, disciplines and continents?

Journals of today have the challenging task of revisiting what it means to be an author. Citizen authors often have no institution to put in the journal forms and yet they may work side by side with academics or industry. It will be exciting to witness culturally outmoded forms replaced to handle the new streams of research knowledge.

Scientific data is produced at staggering rates, in 2010, it was estimated that seventy-five trials and eleven systematic reviews were produced daily [18].

*“If I read and memorized two medical journal articles every night, by the end of a year I’d be 400 years behind”. (Donald Lindberg, Director NLM)*

Information alone is not enough for scientific rigor or quality reviews, Peer Reviewing is a dynamic and growing force where individuals do what they choose to attend to. We progress as we consider not how to manipulate or control them but how to motivate, engage and prepare for them a community where they can belong [18]. In reviewing let us put aside the feeble weapons of blame and status and put on the armor of greatness and gentle mentoring. The sheer volume and complexity of possibilities makes taking a road that is new and untested both exciting and overwhelming. Proactive change in reviewing practices is inevitable. Encouragement to proceed can be gleaned from the history of Mother Teresa who changed the future for lepers in Calcutta by starting out to help just one [19]. Likewise Google became the largest search engine in the world by starting with a database built on search by the people and for the people with one word on a blank page [20]. The power of academic research stretches before us and as each one does their part the world of research can multiply one good review at a time.

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