

Letter to the Editor

On Peer Review

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Purpose: This letter briefly reviews ideas about the purpose and benefits of peer review and reaches some idealistic conclusions about the process.

Method: The author uses both literature review and meditation born of long experience.

Results: From a cynical perspective, peer review constitutes an adversarial process featuring domination of the weak by the strong and exploitation of authors and reviewers by editors and publishers, resulting in suppression of new ideas, delayed publication of important research, and bad feelings ranging from confusion to fury. More optimistically, peer review can be viewed as a system in which reviewers and editors volunteer thousands of hours

to work together with authors, to the end of furthering human knowledge.

Conclusion: Editors and authors will encounter both peer-review cynics and idealists in their careers, but in the author's experience the second are far more prevalent. Reviewers and editors can help increase the positive benefits of peer review (and improve the culture of science) by viewing the system as one in which they work with authors on behalf of high-quality publications and better science. Authors can contribute by preparing papers carefully prior to submission and by interpreting reviewers' and editors' suggestions in this collegial spirit, however difficult this may be in some cases.

It is unusual to encounter a researcher who doesn't have something bad to say about peer review. Authors sigh, "I get so annoyed every time I re-read the reviewer comments." "How could they misunderstand us so completely?" "I can't understand what the reviewer is suggesting, or why!" "I changed that in the last round of review and now they want me to change it back?!" Reviewers in turn bemoan poor scholarship ("Edward Sapir answered that question in 1926!"), complain about errors of grammar or usage, question why authors undertook a study to begin with, or lament the seemingly never-ending requests to review. Although most authors will agree that, at least sometimes, the review process has resulted in improvements to their papers, a sense of personal injury and discontent pervades many casual discussions about review. As an author I appreciate these sentiments, but as Editor emerita for Speech at *JSLHR* I have also come to appreciate the different purposes peer review has for the editors, reviewers, and authors who participate in the process. As a result, my view of the process is significantly more positive than it was before my tenure as Editor. This letter argues that cynical views misrepresent peer review, and that idealistic views more accurately reflect the tangible and intangible benefits of the process to everyone involved.

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What Is the Purpose of Peer Review? A Top-Down View

Although many authors routinely ask colleagues for comments before submitting a paper for publication, few would voluntarily put themselves through the peer-review process unless forced to. In fact, formal peer review is not meant to be either a service to authors or a rite of passage, but rather is initiated and governed by scholarly journals for the purpose of deciding what should or should not be published (e.g., Pierce, 2000; Siedlecki, 2015). As a result, from an editor's point of view, peer review acts only indirectly to improve papers or educate researchers (Pierce, 2000), and an editor may consider a number of factors apart from theoretical importance or scientific merit when making a decision about a paper. These may include the journal's scope of coverage, availability of reviewers, the size of the audience the article may attract, possible effects on journal impact factors, creating an impression of exclusivity, and the effects of all these factors on the reputation of "their" journal. In this top-down view, reviewers are tools to these ends, and authors are supplicants at the door of power.

The peer-review process in this perspective also serves as a filter for scientific information. A published paper becomes part of the scholarly literature in a discipline, a piece of the accumulated knowledge in a research area (American Psychological Association, 2010). Peer review is thus a kind of negotiation between an author and an editor

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about whether a particular piece of research is part of our accumulated knowledge, or not (Goodman, Berlin, Fletcher, & Fletcher, 1994; cited by Gitanjali, 2001). Unfortunately, it is possible for this filtering function to devolve into gate-keeping, with established researchers seemingly blocking publication of new ideas or approaches that contradict existing theory or practice. When this happens, review can seem subjective, prejudicial, crude, biased, and secretive (Sylvia & Herbel, 2001), rather than being a fair and impartial assessment of a piece of work (e.g., Siedlecki, 2015).

Although peer review is the only quality control available in scientific publishing, awareness of its limitations contributes additional bad feelings to the process. As Lock wrote, “All peer review can reasonably do is detect major defects of originality and scientific credibility, together with commenting on important omissions, the rigor of the arguments and defects in writing style” (Lock, 1994, p. 61). Peer review cannot consistently detect or prevent duplicate publications, and unfortunately it cannot be counted on to detect research fraud. Adding to the unpleasantness of having the imperfections in one’s work pointed out and the extra effort needed for revisions, review can take months to complete, resulting in significant delays in publication. For a paper that is strong to begin with, these delays can be very long relative to the value added by review. Finally, peer review is expensive. Manuscript management systems like ScholarOne (Thomson Reuters, New York, NY) or Editorial Manager (Aries Systems Corporation, North Andover, MA) are costly to develop and maintain, and review requires many, many hours of reviewers’ and editors’ time, plus time from authors to make revisions (which may involve gathering additional data—another cost).

In summary, it is not difficult to understand why authors may resent peer review. They have little control of the process, which is not primarily designed to further their ends or improve their work. Editors are seemingly both in control and inaccessible; the reviewers are anonymous adversaries (more about this in a moment); the authors themselves are helpless petitioners. This situation, stated thusly, is reminiscent of perhaps the most cynical statement about science ever published, the *Unabomber Manifesto*:

With possible rare exceptions, [a scientist’s] motive is neither curiosity nor a desire to benefit humanity but the need to go through the power process.... Other motives do play a role for many scientists. Money and status for example. Some scientists may be persons of the type who have an insatiable drive for status...and this may provide much of the motivation for their work.... Also, science and technology constitute a mass power movement, and many scientists gratify their need for power through identification with this mass movement.... Thus science marches on blindly, without regard to the real welfare of the human race or to any other standard, obedient only to the psychological needs of

the scientists and of the government officials and corporation executives who provide the funds for research. (Kaczynski, 1995, para. 89–92)

Why Do People Review?

An obvious question arises from this top-down view of peer review. Editors may be motivated to participate in the process by a desire for power and authors by a need for publications, but why would anyone agree to review a paper? Everything seemingly argues against reviewing. First, it’s hard work—sometimes very hard—and consumes cognitive resources that may be needed for writing one’s own papers. The work is seldom recognized and never paid. Writing a thorough review takes time, sometimes a lot of time—from several hours to several days for a long or difficult paper; and a thorough, thoughtful review seldom receives more thanks or recognition than a single paragraph providing a few cursory observations. The effort can feel wasted, for example when authors dispute or ignore the reviewers’ suggestions or an editor overrules their recommendations, or when a paper is so poorly written that one struggles to understand it, much less say anything constructive. Finally, benefits to the reviewer can seem paltry in comparison to the effort required. For example, the *JSLHR* webpage includes this inspiring list:

- Include it on your curriculum vitae.
- Get an insider’s knowledge of the peer-review process.
- Read cutting edge research before anyone else.
- Contribute further to your field.
- Work with other editors and associate editors.
- Get recognized in the print issue of the journal and online. (American Speech-Language-Hearing Association, 2016)

Given the huge discrepancy between who does the work and who benefits from it, and given the constant need for more and more reviewers, it is hard to understand how a system of peer review can survive (Grudin, 1988; cited by Nobarany, Booth, and Hsieh, 2015); and yet it flourishes. Why do reviewers—who, although the most numerous players in the game, have the least to gain and the most to lose—agree to participate in such an unbalanced system?

In the top-down view of peer review described above, one reason might be the exercise of power. However, a number of studies suggest that in fact reviewers are motivated by altruism and a desire to be of service to their profession, and not by a taste for peer-to-peer combat. In a survey of over 4,000 researchers in a variety of disciplines, 90% reported they review papers to play an active role in the scientific community, and 85% just enjoy helping authors improve their papers (Mulligan & Raphael, 2010). A metareview of seven such studies (Nobarany et al., 2015)

found that most reviewers are motivated by a desire to stay up to date and learn, a sense of responsibility and a desire to help their profession, by a wish to improve the quality of papers, and by the fact that they enjoy reviewing. In contrast, only a minority of reviewers (on the order of 30%) reported reviewing for personal gain of some kind, such as currying favor with editors or seeking personal recognition. Reviewers donate their time to improve their critical thinking and that of the authors, to give feedback to their peers, and to advocate for quality in an area they care about (Nobarany et al., 2015). In fact, participation in peer review may be the most important and direct way most of us have to influence our discipline.

Considering peer review from the perspective of reviewers can also lead to a more benign view of the process as a whole. Structurally, reviewers are a hinge between editors and authors, and as such they help both achieve their objectives. The most useful commentaries, from an editorial point of view, do not just state that a paper should or should not be published; they state the reasons why and point out areas that are satisfactory or problematic. This helps editors make better-informed decisions, but improvement in a paper is also an inevitable byproduct of the process, even though the goal of peer review is not to improve papers. Thus, because reviewers' work aids both authors and editors, their participation allows us to view a seemingly oppositional process as one where all parties in fact are working together in the production of better papers.

Being a Reviewer

If the balance between cynicism and idealism in peer review hangs on reviewers as part of the process, what makes a good reviewer or a good review? Fortunately, the qualities that are most helpful to editors are also in general the most helpful to authors. A good review assesses the novelty and potential impact of a paper, which in turn entails identifying flaws in argumentation and weaknesses in the motivation for the study, theoretical limitations of the approach, lacunae in literature reviews, problems with methodology and analyses, and conclusions that do not follow from the data or do not address the initial hypotheses (e.g., Alam & Patel, 2015; Pierce, 2009). A good review may also address minor problems with English usage or style, but it is not the job of the reviewer (or the editor, despite the job title) to provide major editorial services to authors.

Writing a good review uses many of the same critical thinking and argumentation skills as writing a good paper. Good reviewing requires idealism (Goldbeck-Wood, 1998; cited by Sylvia & Herbel, 2001), as argued above, but also collegiality. Remember, this is *peer* review. Good reviewers read papers as if they themselves were the author, and they prepare their comments in the same spirit. At the same time, authors should take great care in preparing their manuscripts, making sure their logic is consistent, their hypotheses clearly stated and motivated by their literature

review, and their grammar, spelling, and usage all consistent with correct written English. Nothing is more disheartening for a reviewer than a paper that may contain an interesting idea but is so poorly written that it seemingly needs rewriting from top to bottom. Submitting such papers for publication places an undue and unfair burden on the reviewer, undermines the extent to which even the most conscientious peer review can provide useful feedback, and thus wastes everyone's time. Consideration and respect throughout the peer review process enhance the intellectual climate in which we all work. Only in this way can we countermand cynical views of science and scientists.

Responding to Reviews: The Author's Role in Peer Review

And what of the author? Beyond submitting a well-written paper for review, authors may feel a bit passive (or helpless) during peer review, waiting (and waiting) for others to decide the fate of their work. Once the reviews come, they may be angered, or frustrated, or simply annoyed by the demands the reviewers make. After all, a paper submitted is a paper finished, and re-opening a long-finished project once one has moved on to the next requires shifting of mental gears and re-allocation of precious time to a project that is (or was) over.

Perhaps the best response an author can make to a set of reviews (other than a sigh) is to view the comments as a gift from a well-meaning colleague who has donated time and effort to the paper and who has not benefited personally from that donation (Cheng & Xiang, 2013; Pierce, 2009). When comments seemingly miss or misinterpret a point, this is not necessarily a sign of stupidity or perversity on the reviewer's part; instead, it could mean that the paper is not as clear on the point in question as the authors thought. Accepting comments in this spirit can help identify less-than-ideally written parts of a paper. A paper that is clearly written is easier to understand, and papers that are understandable are read more often—and cited more often—than papers that readers find impenetrable. Thus, the decision to accept review as a beneficial activity rather than a painful nuisance can, in the end, result in works that reach as many people as possible and have the maximum impact on future scientific work.

Conclusions

In conclusion, at its best the peer-review process is collegial, not adversarial. The decision about what papers should be published—about what belongs in the knowledge base of a discipline—is built up out of the contributions of authors, reviewers, and editors, in the same way that the literature is built up from many individual contributions over time. Although the process seems inherently hierarchical (authors submit papers, editors pass judgment), it is possible to view everyone involved as being on the side

of the science, with the shared goal of making the science shine. A focus on the reviewer's role in the process makes it clear that peer review does much more than identify which papers should be published. We work together to tighten arguments, find and correct lapses of logic or clarity, and suggest overlooked opportunities for interpretation. Authors benefit because better papers are more often cited, reach as many people as possible, and have the maximum impact on future scientific work. Reviewers benefit through knowledge gained, from the impact their work has on their discipline, from the intellectual challenge, and through the pleasure that an altruistic act can provide. Finally, editors gain confidence in their decisions to accept a paper when they are informed by careful, thorough, thoughtful reviews, and they have the pleasure of seeing papers and journal reputations improve as part of the process. Even when review becomes adversarial, as sometimes happens, behaving *as if* it were collegial can improve an author's chances of a positive publication decision. Approached from this point of view, the rewards of editing and reviewing exceed the demands (great as those may be) and are one of the real benefits of a career in science.

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