Commentary: Peer review in scientific publication

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It has been at least eight weeks since you submitted your manuscript for publication in that scientific journal you like so much. Finally the day arrives for the journal’s decision on the manuscript that took you the better part of five years to generate. You immediately see the word regret and as your eyes focus, you see that the manuscript has been declined; the reviewers rejected it. Flushed, confused, and hurt, you quickly open the comments of the reviewers. “As soon as I saw Schneegurt’s name on the paper, I knew that it wouldn’t be any good.” “I’m not sure what your goals may be but you should consider looking for a different profession.” “While I’m not an expert in this area or familiar with these methods,” followed by negative detailed comments about the methods. Yes, these are all inappropriate comments that I’ve received over the years from peer reviewers. Clearly, peer-review is not only about the reviewers. Editors need to have a role as gatekeepers against biased and unprofessional reviews.

As you read into the review of your manuscript further, you will see comments that make sense. Perhaps you should have applied an additional statistic or presented another piece of control data. You may see other comments, however, that seem as if the reviewer hadn’t even read the manuscript. While you may understand some of the criticism, particular comments seem unsubstantiated. You try to guess whom in your field could have made such comments. What is appropriate for a reviewer to say? Where should the editor step in while monitoring a review process? Why do we occasionally feel cheated by peer review?

There are obvious ethical issues that arise during peer review of manuscripts submitted for publication in scientific journals. In the fifth commentary of my series on the ethics and practice of scientific publication, I will discuss issues surrounding the peer review of scientific manuscripts. This series is sponsored by Sigma Xi, The Scientific Research Society, and is inspired by their free publication, For the Record, which discusses publication ethics (Sigma Xi 2011). Journals tend to rely on the ethics guidelines distributed by the Committee on Publication Ethics (COPE), a comprehensive treatment of these issues. Valuable guidelines also are available from American Journal Experts, American Institute of Physics, and Science magazine.

Review of our efforts by knowledgeable peers in our field has become the standard for publication in scientific journals, the awarding of research grants, and the tenure and promotion process for science faculty (Spier 2002). Why? It is a good system with a strong rationale - only those intimately knowledgeable in your area of science can accurately evaluate the value and novelty of your work. Peer review allows the community to collectively set standards for scientific rigor, integrity, and accuracy. Vetting by experts seems indispensible for ensuring the quality of scientific publications. Only an expert will know whether the work is novel and valuable. An expert will be more likely to notice plagiarism, deception, and duplicate publications. Experts understand the methods, the data, and their interpretation, and as publishing researchers themselves, they have an obligation to participate in peer review without compensation.

The peer review system only works if reviewers exhibit professional integrity. The reviewer not only needs competence in the subject area, they must provide objective, impartial, and unbiased reviews of manuscripts seeking publication.