ORI

Introduction to the Responsible Conduct of Research

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illustrations by David Zinn
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Peer review—evaluation by colleagues with similar knowledge and experience—is an essential component of research and the self-regulation of professions. The average person does not have the knowledge and experience needed to assess the quality and importance of research. Peers do. Therefore many important decisions about research depend on advice from peers, including:

- which projects to fund (grant reviews),
- which research findings to publish (manuscript reviews),
- which scholars to hire and promote (personnel reviews), and
- which research is reliable (literature reviews and expert testimony).

The quality of the decisions made in each case depends heavily on the quality of peer review.

Case Study

Dr. Sung L. is struggling with the decision whether to agree to review the work of an advanced graduate student at another university for publication in the major journal in his field. He is familiar with the student’s work and attended a session several months ago at which she presented a brief report on her work. It clearly overlaps with his research in a number of ways, which is one reason he has been asked to serve as a reviewer.

Dr. L. knows he is qualified to do the review and is confident he can provide an objective, constructive judgment of the student’s work. However, since his students are working on similar problems, he is concerned about the appearance of a conflict of interest. In addition, he is not sure he wants to learn more about the work in question until he publishes his own work, to avoid later charges that he unfairly used some of the student’s ideas. Finally, there is the matter of yet another lost weekend doing the review, when his department chair has already told him to cut down on unpaid professional service.

Should Dr. L. agree to do the review?

If he is uncertain about his responsibilities, where can he get advice?

Would the situation be different if he had been asked to review the student’s work for an appointment or promotion decision?
Peer review can make or break professional careers and directly influence public policy. The fate of entire research programs, health initiatives, or environmental and safety regulations can rest on peer assessment of proposed or completed research projects. For peer review to work, it must be:

- timely,
- thorough,
- constructive,
- free from personal bias, and
- respectful of the need for confidentiality.

Researchers who serve as peer reviewers should be mindful of the public as well as the professional consequences of their evaluations and exercise special care when making these evaluations.

10a. Meeting deadlines

The effort researchers put into peer review is for the most part not compensated. Researchers may receive reimbursement for travel and per diem when they attend special grant-review sessions and occasionally are paid a basic daily stipend, but this seldom covers the true cost of reviewing a manuscript or a stack of grant applications. As uncompensated effort, the time researchers devote to peer review can easily take second place to other obligations. Running a crucial experiment or submitting a grant application on time understandably is more important than reviewing someone else’s work.

However pressed you are for time, if you agree to do a review, you should find the time to meet your obligation in a timely manner. Research is competitive. Researchers are rewarded for discoveries. They should not lose their priority for a discovery due to the tardiness of a reviewer sending comments on a manuscript. Research is also useful. The announcement of discoveries that can benefit the public should not be delayed because someone who agreed to review a manuscript does not have the time to do the review.

Editors, program managers, and others who rely on peer review to make decisions generally provide a deadline for getting the review done when they first contact reviewers. Anyone who agrees to take on a peer review assignment under these conditions should meet the proposed deadline. If the time frame is not reasonable, either decline to do the review or ask for more time in advance. Do not delay someone else’s work just because you are short on time.
10b. Assessing quality

Journal editors, grant administrators, and others rely on peers to assess the quality of proposed and published research. Some parts of an application or manuscript can be checked fairly easily. Are the calculations correct? Is the method that has been used or proposed appropriate? Do the reported results support the conclusions? Other parts are more difficult to confirm. Have the data been accurately recorded and reported? Were the experiments run? Did the subjects give consent? Do the articles cited in the references and bibliography contain the information they are said to contain?

Peers who are asked to make judgments about the quality of a proposed or completed project must do their best to determine whether the work they have been asked to review is internally consistent and conforms to the practices of their field of research. This certainly includes:

- assessing whether the research methods are appropriate;
- checking calculations and/or confirming the logic of important arguments;
- making sure the conclusions are supported by the evidence presented; and
- confirming that the relevant literature has been consulted and cited.

At the very least, peer reviewers should be expected to assess whether the manuscript or proposal under review makes sense and conforms to accepted practices, based on the information presented.

Research that conforms to accepted practices can still have problems. Research quality can be compromised by:

- careless mistakes made in reporting data and/or listing citations;
- the deliberate fabrication and falsification of data;
- improper use of material by others (plagiarism);
- inaccurate reporting of conflicts of interest, contributors/authors; and
- the failure to mention important prior work, either by others or by the researcher submitting a paper for publication.

However, how much peer reviewers can or should do to detect these and other deceptive or sloppy practices remains subject to debate.

There are limits to the amount of checking that is both reasonable and practical. Unless given permission to do so, reviewers should not discuss the work they are reviewing with the authors. In many cases, reviews are “blind” (no author identification), so reviewers could not check with...
authors even if they wanted to. In addition, it is not reasonable to expect reviewers to check every reference and detail. The fact remains, however, that peer reviewers frequently miss problems that might have been detected had the reviewer checked a little more carefully.

If you agree to serve as a peer reviewer, remember that you have essentially been asked to provide your stamp of approval for someone else’s work. In such circumstances, it is wise to do your homework. Do not give your stamp of approval too easily.

10c. Judging importance

In addition to quality, peer reviewers are also asked to make judgments about the importance of proposed or published research. They are asked to answer questions such as:
- Assuming a researcher could carry out a proposed research project, is it important to do so?
- Are these research results important enough to publish?
- Has a researcher made important contributions to a field of study?
- Is this evidence important enough to be used in setting policy?

Along with quality, judgments about importance essentially determine which research is funded or published and which researchers are hired and relied upon for advice.

Peer reviewers do not always make judgments about importance with an open mind. Studies have shown that they can be swayed by:
- the stature of the researcher who conducted the research or the institution at which the research was conducted;
- country of origin;
- a preference for one research method over another, e.g., a clinical versus a laboratory approach; and
- the outcome of the studies under review.

For the most part, these factors should not have a bearing on judgments about importance and yet they do. Each has been shown to influence the judgments peer reviewers make about the publication of research results (see articles by Callaham, Cho, Dickersin, Godlee, Jadad, and Link, Additional Reading).

There is no simple solution to the problem of bias in peer review. Peers frequently are not of one mind about what is or is not important. One reviewer may feel that a field of research should move in one direction, a second in an entirely different direction. Often, it takes time and more research to find out whether a line of investigation or a particular set of findings is important. Nonetheless, researchers can take steps to lessen the impact of bias on their judgments and to help others judge for themselves whether a researcher has biases.

One way to lessen the impact of bias is to write transparent reviews. By “transparent” is meant laying out clearly for anyone reading the review how it was prepared, the literature that was used, and the reviewer’s own possible biases. If reviewers fully and carefully explain how their judgments about importance were made, others can assess whether they want to accept those judgments.

A second way that has been proposed to lessen the impact of bias is to eliminate anonymous reviews. Some argue that this would lessen the candor and rigor of reviews; others that it would make reviewers more accountable. For the present, most reviews are anonymous, which places the burden for fairness on the reviewer. If you have strong feelings about a person or particular line of investigation, tell the person who asked you to do the review and consider whether you can, in fact, provide an impartial assessment.
10d. Preserving confidentiality

Some information that is shared during peer review is shared confidentially, that is, with the understanding that it will not be shared with anyone else without permission. Confidentiality is generally required during:

✓ grant reviews,
✓ manuscript reviews, and
✓ personnel reviews.

During grant and manuscript reviews, confidentiality helps protect ideas before they are funded or published. In personnel reviews, confidentiality is important to protect personal privacy.

Peer reviewers have an obligation to preserve confidentiality during the review process if they have been asked to do so. While this obligation might seem obvious, it can be compromised in some seemingly harmless and other more harmful ways. For example, although researchers sometimes do, it is not acceptable to do any of the following without getting permission:

✓ ask students or anyone else to conduct a review you were asked to do;
✓ use an idea or information contained in a grant proposal or unpublished manuscript before it becomes publicly available;
✓ discuss grant proposals or manuscripts you are reviewing with colleagues in your department or at a professional meeting;
✓ retain a copy of the reviewed material (generally manuscripts and grant proposals should be shredded or returned after the review is complete); and
✓ discuss personnel and hiring decisions with colleagues who are not part of the review process.

There may be times when some added advice during a review may be helpful, but reviewers should not seek this advice without getting permission. It may also be tempting to use information in a grant application or manuscript to speed up your own research, but until it has been made public, confidential information is not available for use, even to reviewers. If you are not comfortable protecting confidential information, then do not agree to be a peer reviewer.

Researchers who are in a position to pass judgment on the work of colleagues have significant power. They can hasten or slow that work; credit or discredit it. They have the power to shape entire fields of research and to influence public policy. If you have that power, make sure you use it responsibly and with some compassion, knowing that what you say and do directly affects the careers of other researchers.

Questions for discussion

1. What should researchers or students do if a colleague or mentor asks them to take a look at a manuscript they have not been authorized to review?

2. What information contained in a manuscript or proposal should reviewers be expected to check?

3. Should peer review be anonymous?

4. How can researchers who sit on committees that advise on research directions separate their own interests from the best interests of the field they are helping shape?

5. What would happen if the public lost confidence in peer review and looked for other mechanisms to judge the quality and importance of research?
Resources

Policies, Reports, and Policy Statements


General Information Web Sites


Additional Reading


