

How to Referee a Research Paper

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(with help from Roy Levin, Jim Horning, and Bob Ritchie)

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To start let's imagine that an author has sent his new paper to a journal to be considered for publication. The journal's editor must decide if the paper should be published and, if it is to be published, how it can be improved. The editor is responsible for ensuring that published papers are significant, accurate, and clear, as well as for the timely publication of important material. To accomplish this the editor sends the paper to three to five experts, or *referees*, for analysis. Based on the referee's reports the editor will decide to do one of three things with the paper:

1. Reject.
2. Unconditionally accept.
3. Accept on the condition that the author makes certain minor revisions. These revisions are usually based on suggestions that the referees have made.
4. Return for major revision to be followed by another round of refereeing.

There is an important difference between a *review* and *referee's report*. The purpose of a review is to evaluate the final form of a paper for a general audience. Book reviews, movie reviews, and other sorts of reviews are analogs in other fields. The purpose of a referee's report is to provide constructive criticism on an intermediate form of a paper for an audience of two: the editor and the author.

To this end, a referee's report should include:

1. Simple things like the name of the paper, its author, the referee's name, and the date of the report.
2. A brief discussion of the manuscript's content, its importance, and its relation to other works in the field.
3. A recommendation as to whether the editor should publish the paper or not. The recommendation should be made on the grounds of the paper's importance, originality, and clarity. Different referees sometimes will make different recommendations, and the editor will typically make his or her own decision.

A referee can also suggest that the paper is more appropriate for another journal. For example, the paper might be too theoretical for a general audience.

4. Information relevant to making the publish/don't publish decision. Basically, the reasons for the recommendation should be documented, together with any factors that might tend to shift the balance the other way. For example, say: "this is a rehash of material originally published in..." instead of "this isn't very original"; "it will be important for..." not just "this is novel"; include statements like "the strong points are... but it suffers from the following defects...".
5. Constructive criticism for the author. How could the manuscript be improved? Why isn't it publishable? What specified errors should be corrected? What relevant work should be compared, or at least referenced? How could the organization of the paper be improved? How could the English be improved?

The finished report should be concise, clear, and convincing. Although editors sometimes read papers themselves, they usually prefer reports that do not assume that they have read the paper or that they are experts in its specialty.

I like to structure my reports in two sections: general comments and specific comments. General

comments are organized along thematic lines. Specific comments follow the order of the text in the paper, pointing out things that I didn't understand, inaccuracies, misspelled words, clumsy wording, etc. If you have caustic comments to make, put them in a cover letter or in a separate section so the editor can easily excise them before he sends the report to the author. The cover letter is also useful to transmit other information, e.g. "I also refereed this paper for journal X -- why is the author submitting it multiple places?"

Here are some things to keep in mind when you write a report:

1. Take quick turn-around seriously. Nothing is worse than agreeing to do it and delaying months. A timely return with other suggested potential referees is infinitely better.
Delays in refereeing tend to make journals seem like old news, publishing "new work" that is in fact several years old. For many journals, the delays in refereeing are the primary contributor to the long interval between submission of a manuscript and its publication.
2. If you agree to referee something, recall you are the quality control for the correctness of the asserted results, so take that part seriously.
3. Read the paper, draft or sketch a report immediately, ignoring second thoughts. Then set the report aside for a few days. If on rereading your draft it still seems right, polish it a bit and send it off. If it needs modification or you have second thoughts, now is the time to change it.
4. Remember the editor is the final arbiter, and he or she wants your honest and best judgement, even if you are not completely sure it is correct. You are not the only referee, and if you are wrong, the others will catch it, or the author can correct you on rebuttal.
5. Beginning referees often feel that they never get a paper that really falls within their realm of expertise. This is probably because beginning referees are usually Ph.D. students who have been concentrating on a very specific topic. Don't refuse to referee a paper just because it isn't directly related to your thesis topic. Read the papers referenced by the manuscript to learn about the subject area. You will learn a lot from the process.
6. Refereeing is part of the tax on competent professionals for publishing their own work. Failure to pay the tax will diminish your standing in the professional community.
However, there are many good reasons for not agreeing to referee a specific paper. If you know you can't referee the paper in a reasonable amount of time (leaving tomorrow for a two month vacation), if you have a complete lack of interest in the subject area (why did they send me a paper on ardvarks?), or if the area is truly above your head (Unified field theory?), then decline.
7. Remember, your primary responsibility is to the readership of the journal. Fairness to the author is important (you will be one too!), but definitely secondary. Don't recommend acceptance of a substandard paper just because the author has worked hard. An editor can more easily soften a too-critical report than toughen a lax one.
8. You should be objective. If you disagree with the approach of the author, it may be that neither yours nor the author's approach has been definitively proved superior. Thus, you should set aside this disagreement to evaluate the paper objectively.
9. You should not take unfair advantage of the unpublished results you read in manuscripts.
10. Try not to be too authoritarian in your report.

Have fun!