Which Do you Trust More and Why?

Physics 496

Reviewing Papers & Writing Referee Reports

(Brian DeMarco, Lance Cooper, Tony Liss, Doug Beck, Celia Elliott)
What does a referee do for science?

- Safeguards the integrity of the archival literature
- Ensures $$ invested in research are spent wisely
- Ensures that people are rewarded on the merits of their work

Referees evaluate articles *before* they are published

- Ensures only credible, high-quality research is published
- Improves the quality of published papers
- Ensures papers are published in appropriate journals
Why referees are needed

An enormous number of scientific articles are submitted yearly (about 10,000 to Physical Review Letters)

Most journals rely on impartial external reviewers to help evaluate and decide the fate of submitted papers

This is generally performed as a service to the community, i.e., you don’t get paid to referee papers!

A referee is not your average reader

The average reader relies on peer-review to weed out questionable papers.

The referee (a peer) should be much more skeptical than the average reader.

Being skeptical is different from not believing.
Reviewing vs. reading a paper

As a reader, you are more likely to presume the details presented in the paper are true and correct (experts have already signed off on it)

As a referee, you have an obligation to carefully evaluate:

1. the “truth” of what is being presented
2. the originality and significance of the work
3. the suitability of the methods used
4. the validity of the conclusions drawn

You should have three objectives when refereeing a paper:

1. “Protecting the cathedral by testing the brick”
2. Helping the authors produce a better paper (clearer, more persuasive, more concise, more complete)
3. Maintaining your objectivity and professional ethics
Essential Components of a Good Referee Report

(1). Brief summary of the main points of the paper
   • to educate the editor
   • to convince the editor and other referees that you’ve actually read the paper (no joke!)

(2). Brief evaluations of the different criteria provided by the journal
   • the quality/appropriateness of the research methodologies and techniques
   • the quality of the logical arguments made to arrive at the key conclusions of the paper
   • the clarity of the presentation

(3). Highlights of the paper’s strengths as well as its weaknesses

(4). An explicit recommendation for or against publication
   Your recommendation can be equivocal if you provide sufficient discussion of the pros and cons of publication.
   If you do recommend rejecting a paper, you can suggest alternative journals to which the paper might be more appropriately submitted.

(5). List essential and suggested changes to the paper
   Even if you recommend rejecting the paper, your suggestions might allow the paper to be published elsewhere, or even in the same journal after revision.

Be clear and specific about your questions and suggestions so the authors can respond appropriately.
For **any** review

1. Briefly summarize the main points of the paper

2. Provide brief evaluations of the different criteria provided by the journal

3. List essential and suggested changes to the paper

4. Make an explicit recommendation about publishing the paper

“Review unto others…*

Do not personally criticize the authors; focus on improving the paper, not straightening out the researchers

Do not make statements or claims without providing examples, explanations, and evidence

Strive for the highest standards of objectivity and honesty

Do not use information obtained through review for personal benefit—ever!

*Professor Lance Cooper’s “Golden Rule for Referees”
For HW #6…

You will be assigned two articles to review

For each article, provide a written assessment, using the posted review criteria

First, write a one-paragraph summary of the article

Next, evaluate the contents of the article using the rubric; address each criterion

Finally, give specific suggestions for how the article could be improved

Remember to make positive comments as well as critical ones