

3: How to be a reviewer

Good peer reviewers play a crucial part in the advancement of science and are highly valued by journal editors, conference organisers and funding bodies. As open peer review becomes more widely practised, they are also gaining recognition from authors and other members of the scientific community. But becoming a good reviewer takes time and practice, and finding help or advice on how to review a piece of scientific work can be difficult. This chapter will tell you some of what you need to know.

Rules for reviewing anything

- Read the instructions to find out what you are being asked to do and why.
- If you receive no instructions and are not clear about what you are being invited to do, ask for more information or decline the request.
- Review the work not the person (unless you have been asked to do this), and don't try to be clever.
- Admit your limitations.
- Be as objective as possible and take account of (and declare) any conflicts of interests.

How to review journal articles

Being invited to review

The invitation to review may come by email, fax, post, or telephone. Some journals give only the title of the paper, while others send out the full paper and instructions on how to proceed. It is flattering to be invited, especially if the journal is well known. But before agreeing to review the manuscript, ask yourself the following questions.

- *Is the manuscript within my field of expertise?* If you haven't been given enough information to decide this, ask for more. Ideally the manuscript will be on a subject that you are

currently working on, since this means that you will be well up on the current literature. If you are not sure whether you know enough about the content or methods described in the article to produce a good review, say no to the invitation.

- *Am I happy with the journal's peer review process?* Some journals now have open peer review, which means that the author will be told who the reviewers are. Some also now ask reviewers to allow their signed comments to be posted on a website if the manuscript is accepted. Open review increases accountability and gives reviewers credit for the work they do. If you are not comfortable with open review, this is your chance to decline. Similarly, if you have strong feelings against anonymous review, or some other aspect of the peer review process, now is your chance to express them.
- *Do I have time to do this review?* Surveys of reviewers suggest that most reviewers take between two and five hours to complete a review, but if you are doing it for the first time, you should put aside between eight and twelve hours. Some reviews can take as long as 48 hours. Later on we'll describe what is involved in producing a proper peer review report, which may explain why it can take so long.
- *Can I meet the deadline?* Most journals ask reviewers to complete a review within 2–3 weeks. Some also have fast-track peer review procedures, which ask for a review within 48 hours. Remember how frustrating it is as an author to wait for a decision on a paper. Only agree to review if you can deliver the report on time.
- *Do I have any conflicts of interest?* These include anything that might unfairly affect your view of the manuscript, either positively or negatively, such as working closely with (or being married to) one of the authors, working in a rival group, working for or having shares in the company that makes the drug being tested, or working for a rival company. Some journals ask reviewers to declare conflicts of interest. If the journal doesn't ask, tell them anyway, and if you're not sure whether you have a conflict of interest or not, contact the editors and ask their advice.

If you decide NOT to accept the invitation to review

- Tell the journal immediately so that the editors can look for alternative reviewers.

- Suggest alternative reviewers if you can. Finding the right reviewers is one of the most difficult aspects of editorial peer review, so most editors will thank you for this.

If you agree to review

- Let the journal know and confirm the deadline. Ask for any additional information. If you are not familiar with the journal, ask the editorial office to send you a copy, and a copy of the instructions to authors.
- The journal is likely to provide you with some forms to complete, and some instructions for reviewers. Read these before embarking on your review.
- Having agreed to review the manuscript, do everything you can to submit your report on time. If circumstances change and you are unable to review the paper on time, let the journal know as soon as possible.
- Keep it confidential. While under review, the manuscript is a confidential document. Don't discuss it with others without prior permission from the journal. After reviewing the manuscript, return it to the journal or destroy it. Don't keep copies.
- Don't contact the authors except with the journal's permission. Even journals that have an open reviewing policy may prefer to keep the reviewers' identities hidden until a decision on the manuscript has been reached. Most journals like to mediate between reviewers and authors rather than have them discussing things among themselves.
- Do as you would be done by. Aim to be as objective, constructive, conscientious, and systematic as possible. These attributes separate the best reviewers from the rest.

Assessing the manuscript

Three questions to ask of every research report

- *Do I understand it?* Are the question and the methods clearly explained?
- *Do I believe it?* Are the conclusions justified by the data and are the methods valid?
- *Do I care?* Is the question important and interesting?

While reading the manuscript through, ask yourself the following questions.

- *Is the research question or objective clearly stated?* Is it clear from the manuscript why the authors did the study? Do the authors summarise and reference the existing literature adequately and accurately?
- *Is the research question interesting and important?* Remember that the question matters more than the answer. This means that if the question has been clearly stated and is important, the answer is important whatever it is (positive, negative, or neutral).
- *Is the work original?* To check this, you may need to do a literature search. The term “original” means different things in different contexts, but in its broadest sense it includes the reporting of new data, ideas, or methods, or the reanalysis of existing data. If the question has been addressed before, does this manuscript add enough new information to justify publication? If you think the research is not original, give references to previous work: don’t just say “It’s not original”. If you know of important studies that the authors don’t refer to, provide the references.
- *Is the work valid?* To answer this question, you must ask several questions. Is the study design right for answering the study’s main question? Were the subjects sampled correctly? Were the controls appropriate and adequate? Was a power calculation required and, if so, was it done before the study started? Was there a high enough response rate? Are the methods adequately described? Were the analyses done correctly? Do the numbers add up? For more detailed checklists see p. 51.
- *Are the conclusions supported by the data?* Conclusions overstating the findings are very common and may need to be corrected in the title and the abstract as well as in the main body of the paper.
- *Is the work well presented?* Is the writing clear and coherent? Is the manuscript structured appropriately? Check for the correct balance between text, tables, and figures: the text should tell the story, the tables should provide the detailed data, and the figures should illustrate the story. Are there

any discrepancies between the text, tables, and figures, or between the abstract and the main text? Make a note of important spelling mistakes (ones that the editors may not pick up such as misspelled names), but leave detailed copy editing to the technical editor.

- *Are there any ethical problems?* Does the manuscript mention ethical approval for the study by an ethics committee or institutional review board? Did the authors obtain informed consent? Is there any sign of research misconduct?
- *Is there a fatal flaw?* If you think you have identified a fatal flaw in the work, it makes little sense to do a full review of it. Your review should make clear what the flaw is, including supportive references, and explain why you believe it is irremediable.
- *Should the journal publish the work?* Some journals want reviewers to advise on whether or not to publish. Others want only an objective critique of the paper, to help inform their editorial decision. Either way it is helpful to address the question of whether you think the manuscript should be published at all, and whether you think it fits the journal in question. You may feel that you need to see a revised version before making this decision.
- *Should the journal commission any accompanying commentaries?* If you know the journal and its audience well enough, you may want to alert the editors to a particularly important and relevant piece of work, and suggest names of people (including yourself if appropriate) to write a commentary.

Writing your report

The aim of the report is twofold: to help the editors decide what to do with the paper, and to help the authors improve it before publication.

- Have another look at the journal's instructions for reviewers. Some journals send forms with tick boxes to record each aspect of the manuscript, but there is usually also space for free text comments.
- Head any separate documents with the paper's title and other identifying information.

- Begin with a brief outline of the paper. This shows the authors and editors that you have understood the paper.
- Number your comments. This helps the authors when responding and the editors when judging the author's response. Indicate which comments relate to which parts of the manuscript.
- Don't submit handwritten edits on the margins of the paper. These are hard for journals to pass on to authors.
- Stick to what you know. Don't feel you have to cover all aspects of a paper. Make clear to the editors where your expertise ends so that they will know when to consult additional reviewers.
- Acknowledge help from others. If, after asking the editors, you have shared the task of reviewing the paper with colleagues, acknowledge their help in your report.
- Don't get personal or make disparaging comments. Focus on the paper not the author. Remember that the purpose of review is not to annihilate someone else.
- Be courteous and constructive. An important aim of peer review is to improve manuscripts before they are published. Authors are more likely to accept criticism if the first thing they read is positive. Remember to identify strengths as well as weaknesses.
- Don't allow the best to be the enemy of the good. The study may not be perfect but it may be the best that can be achieved under the circumstances. If the data are important but the study is flawed, it may still be useful to publish the paper. The authors should be asked to acknowledge any weaknesses in their study, and the journal may wish to commission a commentary using the paper to highlight problems as a lesson in research methodology.
- Mention all conflicts of interest. Journals usually ask you to declare only personal and professional ties with the authors and financial interests (such as stocks and shares) that may be affected by publication of the paper. You can also mention other types of conflicting interest, such as strongly held scientific, political, or religious beliefs that might have influenced your judgement.
- Send your report in on time. If you need more time, contact the journal so that they know what's going on and can warn the authors of any delay.

Some frequently asked questions

How do journals handle disagreement between reviewers? Disagreement between reviewers is common, both on specific points within a manuscript and on the question of whether the work should be published. In-house editors employed by larger journals will usually assess each set of comments alongside the manuscript and reach their own decision. Editors of smaller journals who rely on the reviewers to decide on publication will usually resolve the matter by sending the manuscript to a third reviewer.

Will I get any feedback about my review? The journal should let you know its final decision about the paper and show you the comments of the other reviewers. Read these to see if there are important problems with the manuscript that you might have missed, and compare the comprehensiveness and tone of your review with those of your co-reviewers.

Will I be asked to look at the manuscript again? Most journals ask reviewers whether they want to see the manuscript again after it has been revised. This is a key part of responsible reviewing, to see whether the authors have adequately addressed your concerns. If you have raised substantial concerns and criticisms about the submission, you should offer to see it again after revision. The journal should provide a covering letter from the authors outlining the changes that they have made in response to your comments. If the journal does not provide this, ask for it, as it makes the task of re-reviewing substantially easier.

What tools are available to help me with critical appraisal of different study designs? Several validated checklists now exist (see Further reading, p. 49), as well as checklists derived from evidence-based publications (see p. 51). These can help to minimise subjectivity and to ensure that the important aspects of a manuscript are assessed.

How to review conference abstracts

Once you have accepted an invitation to review abstracts for a meeting, make sure that you are clear about what the

organisers want of you, and if you are not, contact them. Organisers won't be too impressed if your review comes with a disclaimer that you didn't know exactly what the meeting was about.

The meeting organisers should have weeded out abstracts that don't meet the submission criteria in terms of format, length, and subject matter, so you should be able to concentrate on the content. Meeting organisers have to arrange the review of hundreds of abstracts in a relatively short time, so filtering may be less effective and administrative mistakes more likely than in papers submitted to journals. Before starting your review, it is wise to count the abstracts that you have received and check them against the number specified in the covering letter or email. Next check that the titles, numbers, and content of the abstracts are consistent with what you expected.

Read any instructions that you are sent and check whether you are expected to use a scoring system or checklist. In many cases, reviewers for conferences are asked only whether a piece of work should be accepted or rejected since abstracts are submitted as camera-ready copy and cannot be changed. Check if this is the case but, if not, you may be invited to suggest how the abstracts could be improved. You may also be asked to say whether they would be more suited to oral or poster presentation.

Assessing the abstracts

Many of the questions that you should ask yourself when assessing abstracts are the same as those for assessing work submitted to journals (see above), the main difference being that you have less information to go on. Some abstracts will have been written before the full results of the study are available but, if so, the authors should make this clear. Check with the meeting organiser if this type of "place-holder" abstract is acceptable. You will rarely be in a position to judge whether results will be available in time for the meeting but you should be able to decide whether the research addresses an interesting question and whether the proposed methods are sound.

Despite the space constraints, a good abstract should manage to give the main features of the study question and methods, and make clear the important findings and conclusions. If you cannot understand the abstract, it is likely that nobody else will be able to either, so you should reject it.

Writing your report

Again, similar rules apply as for peer review of journal submissions (see above). Above all, follow the organiser's instructions. Clearly label each set of comments with the title and number of the abstract, and be as constructive as possible.

How to review grant proposals

When reviewing a research proposal, you are, in essence, being asked to decide whether it is likely to reflect a good investment for the funding body and for society in general. This means deciding whether the study is needed, whether the methods proposed are appropriate, and whether the researchers are up to the job.

Assessing the proposal

- *Is the study needed?* Look for a clear justification from the researchers, including a thorough review of the existing literature, preferably in the form of a systematic review. But don't rely on this – do your own additional searches of the literature and if possible a search for similar studies already under way.
- *Are the methods appropriate?* The main difficulty is in distinguishing between the quality of the proposal and the quality of the proposed study. There is little hard evidence that a good proposal makes a good study; but a coherent and comprehensive proposal is a good sign, and a sound method minimises the risks. The questions for assessing journal submissions (see above) and the checklists at the

end of the book (p 51) provide a framework for assessing research methods.

- *Are the researchers up to the job?* The funding body may not expect you to assess this, or to comment on the authors' financial report – this may be for other reviewers. However, if you are asked to assess these things, you will need information about the researchers' track record (from their curricula vitae) and their current resources, and an understanding of the costs of this kind of research. A good research proposal will include a clear project plan, indicating when and why additional staff and other resources will be needed, and giving milestones and process outcomes for judging how the project is progressing. If this is not included, you can request it.

Writing your report

As with journal peer review, make sure you are clear about what is being asked of you, make sure you understand what was required of the researchers when they submitted their proposal, and be as constructive as possible.

If the application for funds is successful, you may be asked to review periodic reports of progress, especially if the investment is substantial.