



# Writing and Publishing Scientific Papers

A Primer for the  
Non-English Speaker

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# 28. How to Write a Review Article

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A review is an evaluation of published knowledge. Hence, reviews are not primary publications, because they do not contain new, unpublished information. However, this does not make them of little value; on the contrary, a good review can be very influential. Reviews are also usually long and detailed — up to 50 printed pages. In general, reviews are the first ports of call for newcomers to a subject area, and are used broadly by many to keep themselves up to date with progress in their field.

For a review, there is no commonly accepted general structure. However, if you want to think about it in relation to the structure of the primary article, a review does not usually contain a Material and Methods section (but see later in this chapter), and it contains few new results. It does contain an extended Introduction and Discussion; conclusions and recommendations are also part of a good review.

All involved realise that writing a review is a major undertaking. Thus, the usual way of going about a review is different from the “normal” manuscript process. Authors are not requested to write and submit a complete review, risking rejection after several months’ work. So, if you intend to write a review, it is expected that you contact the editor of an appropriate publication in advance, by writing a proposal suggesting that you produce the review you have in mind.

This proposal should be relatively short (3-4 pages maximum for a long review), and contain the following elements:

- Your arguments about the topic — why is this special area, or problem ripe for a review now? Reasons could include a lack of recent review, important new information, a shift in the main paradigms, that it is an emerging new field

or sub-field, or some recent trend or event that makes the review topical and important. Beware — the fact that this topic has not been reviewed before is rarely a sufficient argument.

- Next, you should present your, or the team's credentials: why are you the best one(s) to write this review? At this point, you should be able to demonstrate some relevant experience in the primary field. A past record of being able to write well is also received favourably by editors.
- The editors would also like to have as much information as possible about the intended scope and structure of the suggested review. Indicate the extent and limits of the review. Is it going to be focusing on theoretical or applied aspects? Will it be covering or emphasising any specific habitat, geographical area, group of organisms, methods or a phenomenon? How do you intend to organise the information? How do you intend to collect material for the review? The more detail you can give at this stage, the better.

This letter of approach should not be longer than about 3-4 pages, but all the above must be covered. The editor(s) will assess this letter, and they will contact you with their decision: a rejection, an invitation, or they may request further clarifications. An invitation rarely takes the form of a promise to publish, as editors do not like to commit themselves to publication before they have had an opportunity to read the final manuscript. Reviews are also peer-reviewed, but the scope is slightly different. Such peer reviews are more of a set of suggestions and modifications, and not profound criticisms. Nevertheless, there is still no guarantee that your review will be accepted for publication.

## Writing the Review

The usual restrictions apply with respect to manuscript submission. Approach only one editor at a time, and do not try to negotiate "the best possible deal" by playing one journal off against another one. If

your approach is not successful at one journal, you can then try another forum.

The style of review will have to consider the expected readership — and this is always wider than that of primary papers, and includes peers, colleagues, and students. Thus, the style should be general and expansive, with the non-expert in mind. Explain major concepts in plain language. Use summary tables and figures, if appropriate — it often is.

As the review relies on already-published information, be aware of potential copyright issues. If you want to use a published figure or table, even if you combine several tables into one, you must obtain permission from the copyright holder, usually a publisher (unless the figure or table is openly licensed). This process will take some time — so think about it early in your writing and literature search. Try not to cite word by word — use your own expressions when summarising or presenting others' results. If you want to cite word-by-word, a few sentences, and a maximum of one paragraph can be reproduced using quotes and a reference to the original. Anything longer needs not only a proper citation of the source, but also permission to use it (unless it is openly licensed).

## Read Papers, Not Abstracts

An abstract is already a re-interpretation of the most important results, even if by the authors themselves. Do not just use their interpretation — read the paper, and make the summary your own. Your review will suffer if you cite a paper that you have not seen — do not do it.

Citation maps are a useful tool during the initial orientation phase. Do not rely on this method only — use computer searches, check the Web of Science website, or other literature databases. You will notice that they never overlap completely.

To organise the structure of your review, do a mind map. This will help you to create a proportional structure — you can decide which sub-topics you want to give more emphasis, and allocate your reading efforts accordingly. It is pointless to spend too much time searching for information, reading and writing on a sub-topic of little importance.

Learn how to use Boolean operators. These allow you to link different words and create a structure for your search — a search string. Do not try, however, to arrive at your final set of relevant papers by constructing one long, perfect search string. You can do sequential searches, gradually narrowing in on your target. You can start with a wide and general search, and refine this by searching the hits generated by your first search using more specific terms. Alternatively, you can do several one-word or concept searches, and then combine them in various ways. It is always easier to do several smaller searches than one big one — the latter is rarely perfect. Stepping back one step is much wiser than having to start all over again.

Just as clarity and explaining difficult concepts are critical, conclusions are also of great importance in a review. The reader expects you not to merely list them but to give guidance, to assess, and to evaluate. This is your chance to give direction to your field. Where are the most important challenges? Which things are easy to do (but necessary) and what is not easy to approach now? Why not? Are there conceptual or methodological obstacles? Is the body of evidence still too small? Are there too many controversies?

You can follow a chronological order during your review — in fact it is almost essential to do so if you want to track the development of a theory or idea. This is not the only possible structure, however. You can write a “state-of-the-art” type of review, in which the detail, or sequence, is determined by the number of relevant papers. You might want to detail controversial areas, or follow another non-linear “story-telling” structure. It is up to you.