Revision notes

Revising a manuscript in response to the comments of referees should not be about doing the bare minimum to get a paper published. Addressing criticisms that are genuine and constructive can lead to much more compelling research articles.

An e-mail arrives in your inbox from the journal to which you sent your last research paper and it has a subject title that begins 'Decision on manuscript xxx'. Your heart leaps as you quickly find the phrase 'we are pleased to inform you' in the first paragraph, but then it sinks as you scroll down through the referee reports…and keep scrolling… and keep scrolling…and keep scrolling. You finally reach the end of the e-mail and it seems as though, to answer all of the referees' queries, you'll need another three years, two more post-docs and a fresh pot of grant money.

This situation is not uncommon and the process of revising a manuscript has the potential to be a frustrating one — but if authors and referees are prepared to engage in a constructive dialogue (mediated by the editor), then it can be a rewarding experience that results in a much improved paper. From the perspective of an editor, the peer-review process often boils down to a decision on whether a manuscript should be accepted for publication in their journal. But that's really just the tip of the iceberg — for authors and referees it is much more than that.

Peer review can — and should — play a significant role in improving not only the presentation, but also the rigour and quality of research reported in articles. In many cases the submission and subsequent review of a manuscript is the first time that authors receive candid criticism and advice on a particular research project. Although interactions with colleagues and other scientists at conferences may have helped shape the manuscript, anonymous criticism tends to be more forthright in highlighting its shortcomings. Such honest advice can give the authors of a manuscript an idea of what the community will think of it once it is published, pre-empting any issues that they might have missed.

A fresh pair of eyes looking over a research paper is likely to spot holes in logic or data that, if filled on revision, could significantly strengthen the conclusions drawn from a study. Maybe a technique has been overlooked that, if carried out, would remove any doubt in assumptions that were made or maybe a paper was missed from the literature that helps explain some of the observations. Aside from flaws, referees can also ask questions or make suggestions that help guide the future direction of a research project, suggesting new systems to explore or new reactions and techniques to try.

Armed with a list of suggestions from referees, an author must revise their manuscript and then convince the referees and editor that it is now ready for publication. To help those involved judge the changes made during revision, *Nature Chemistry* has a set of practical guidelines that we ask authors to follow. They help in making the process run smoothly and allow the subsequent review of the revised manuscript to remain focused on the science. When responding to a set of referee reports, we ask that authors go through them point-by-point in a letter written specifically for the referees. Authors should list the referees' individual points and then explain the changes made to answer each issue and why they think they have satisfied the referees' concerns. Trying to discuss all of the changes in a long-winded essay style can make it more difficult for the editor and referees to follow, and may delay the subsequent round of review.

At the Nature research journals, each referee is given all of the referee reports and the associated rebuttal comments from the authors; therefore we would advise authors against questioning the intelligence of referee 1 in your response to referee 2! Authors should provide a cover letter for the editor, giving a brief overview of the changes made and highlighting anything significant; this would also be the place to mention anything that you might not want to discuss directly with the referees but that the editor should be aware of. Alongside a well-structured response to the referees' comments, and a cover letter for the editor, we also request that authors provide a version of their manuscript with the changes highlighted, making them easier to spot and enabling them to be read in context.

The editors understand that some referees may have unrealistic expectations as to what extra work is required before publication and also that sometimes there are genuinely no right or wrong answers — merely progressive scientific debate. There may be very good reasons as to why further work is not possible and it could be that certain experiments are genuinely beyond the scope of a given study. The editors also appreciate that busy authors would prefer to make as few changes as possible, and even though carrying out all of the referees' suggestions may not be required for publication, all authors are expected to take each technical and scientific concern seriously.

Those authors who choose not to carry out extra experimental work or data analysis as suggested by a referee must provide a compelling argument for why that is the case, convincing the reviewers that their conclusions are fully supported without the additional work. During the revision process the *Nature Chemistry* editors are always available for advice on what they believe to be necessary for publication, picking out the deal-breakers from the polite suggestions. And in cases where authors and referees disagree on the revisions required, it is the editor who is responsible for making the final decision based on advice from all of the referees and the criteria of the journal.

Occasionally authors choose to completely ignore criticisms raised by referees, overlooking them in their rebuttal letters. Disregarding a comment made by a referee and making no response at all is not constructive or helpful — it leaves both the editor and referees wondering if the concern was just dismissed out of hand, or simply missed. Even if the author is convinced that the referee has just made a simple mistake and that no change to the manuscript is necessary, this should be politely commented on in the authors' response.

As a closing comment it is worthwhile remarking that the 'honesty' involved in peer-review can sometimes be abrasive and hard to ignore as an author, but we very much advise both authors and referees not to personalise the process. Remaining polite and professional throughout, even if others involved are not, is unquestionably the best option and enables the review process to remain focused on the science. ❐

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