
Viewpoint

Training enough good science reviewers

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Are there enough good reviewers for manuscripts submitted to scientific journals? No, answered numerous members of the European Association of Science Editors (EASE) in a debate on the EASE forum in mid-2014. And I have heard the same story, here and there, at some of the universities and institutes where I teach scientific writing and publishing. I have not heard this story so much, however, from my own field, ie Life Sciences with a concentration on Ecology and Evolution.

Yet young scientists want to review and they want to do it well. They understand its importance. What they lack is training. Therefore, if we want more good reviewers, we need to provide adequate training. Training would, in any case, be better than the 'ad hoc,' 'learn on the job' mechanisms that operate currently.

Four years ago I was asked to present a training course on reviewing. The request came from the Graduate School of the University of Frankfurt and the course had been asked for by the students themselves, graduates in biological and medical subjects. They saw it as essential to being a good and mature scientist. I agree, the ability to critically assess the presentation and content of a scientific publication is a necessary scientific skill, and not just for being a reviewer.

Since this first request I have presented the course many times, not only at Frankfurt but also at the University of Würzburg where, again, graduates asked for such a course. Limited numbers, indeed, but not because of lack of demand. Both Frankfurt and Würzburg could easily fill two or more such courses every semester. But classes are limited to a maximum of 16 by practicalities such as room size and availability. The number and length of classes is limited because not enough money is available to pay for more reviewer training as well as training in all the other skills that the graduate schools must provide.

My courses are in three parts. The first is an introduction to reviewing, the second is a practical exercise of reviewing a specimen manuscript, and the third is an evaluation of the reviews written during the exercises. The Introduction covers the duties of reviewers. I point out that reviewers are chosen by journal editors, and that their role is to advise editors on the suitability of the manuscript for publication in the editor's journal. And that this is a contractual obligation, at least in US and English law. The duties and practices of reviewers I draw from the ICMJE guidelines (<http://www.icmje.org/>) and from those listed by COPE (<http://publicationethics.org/files/Peer%20review%20guidelines.pdf>). I reinforce these by citing from instructions to reviewers from journals specific to the students' subjects. I give practical examples of how these duties are carried out. And I show how journal review forms should be filled out.

The practical is based on an anonymised manuscript on

a subject and from a journal appropriate to the students' own research fields. I "doctor" the manuscript so that it contains points that a good reviewer should pick up. I might, for example, remove the description of a control from the methods section, or a statement that permission was appropriately obtained for experiments on humans or animals. I might insert a statement implying that the pharmaceutical being tested was a gift from the company manufacturing it—but then not insert a conflict of interest statement. And I might add references to the bibliography that were not in the text. On a few occasions I have also provided manuscripts that should not be reviewed in detail. These include those that are out of scope for the journal targeted, those evidently very badly written, those with inappropriate methods, and those with missing or extraneous items such as seven figures when only five are cited in the text. I provide the manuscripts as far in advance as possible. Sometimes, however, the students get the manuscripts only a few days before the course because I received the participants list late. I then claim that the pressure is realistic, as often I get a review request on a Tuesday with the rider "... please upload your report before the end of the week".

The evaluations I like to give on-site while I can talk to the students individually. Otherwise, I return their reviews by email with my annotations and comments included. The first part of the evaluation is to present my review and go through it on screen where all the students can see it. Sometimes it is possible to stimulate discussion among the students about the distinction between reviewing the manuscript and editing it, and on how far reviewers should go in indicating mistakes in, or actually correcting, text. My experience is, unfortunately, that students are rarely willing, or perhaps able, to discuss these points.

I've encountered two big difficulties during these courses. One is that the participants often know too little about the conventions of scientific writing to be able to identify problems with manuscripts. The other is that they don't know enough about experimental design or analysis. The first of these is perhaps understandable because graduates have had a minimum of practice and a minimum of experience. It's a puzzle, nevertheless, to find participants who, after all, are graduate students, not remarking on results reported in the present tense instead of the past. I am far more worried, however, that almost none of the participants in my courses recognise the absence of a control or even know what a procedural control might be. More, but still worryingly few, recognise problems of small sample sizes or spatiotemporal autocorrelation.

The students tell me that my courses on reviewing are useful. Their formal evaluations of my courses are good to

excellent. This indicates that my courses provide what the students are looking for in a course on reviewing. They often, however, suggest that there should be more practical work and evaluation of the practical work. I agree with them, but it could not be accommodated within the restricted time available. More practical work would require more time than the graduate schools can currently pay for.

Nevertheless, the students certainly know more about reviewing after attending my courses than they did before doing so.

Training is, of course, not the only improvement to reviewing that could be made. Journals must ensure that

they have adequate guidelines for their reviewers, and make efforts to use reviewers who keep to these guidelines, and make sure they immediately drop reviewers who transgress in any way. Journals are justified in demanding and enforcing very high standards of reviewing. This is particularly so in medicine where human health and life depends on properly carried out experiments, properly explained and presented.

Reviewers with very high standards will be available, however, if there is sufficient training. But for sufficient training, sufficient resources of time and money need to be found to provide sufficient classes. The students are interested and want to learn. Let's give them that opportunity!

Reports of meetings

Effective Journal Editorial Management

13 May 2015, London, UK

The ALPSP Effective Journal Editorial Management course took place in London on the 13th May 2015. The course is aimed at early career editorial professionals with responsibility for managing one or more journals, who wish to share best practice, hear about developments in the industry and learn from the experiences of others in publishing. Through presentation and a high number of hands-on interactive sessions, the tutors took the group through various topics that are central to good editorial management.

Delegates came from diverse organisational backgrounds spanning both commercial and society publishers, including *BMJ*, Taylor & Francis, Springer, European Respiratory Society and the British Ecological Society. Delegates attended from the United Kingdom, United States and Finland. The tutors themselves are from the publishing profession, Rebecca Marsh is Publishing Director at Greenleaf Publishing and Jamie Humphrey is Publisher at Royal Society of Chemistry, and bring their direct experience of managing journals to the course.

The day began with a number of reflective exercises focussing on the main activities in journal editorial management and, crucially, how these differ or are aligned across organisations. The introductory session also explored the types of scenarios that editorial managers face and highlighted how decision-making is not always clear cut but based on good judgement and knowledge of best practice.

A session on stakeholder management followed. It focussed on how, having identified key stakeholders, delegates can better understand their needs, how to develop good relationships and ultimately, through those successful relationships, improve the overall standing of the journals. The session deliberately looked beyond the day-to-day needs of the stakeholder and explored the deeper motivations that are driving their behaviours, for example funding, research policies and peer expectations. The session particularly focused on author, reviewer and editor management, the methods for successful editor recruitment, on-going management and replacement.

A session on journal development formed a central part of the day. An overview of tools to evaluate journal quality using a number of different criteria, both quantitative and qualitative, and tools to help with the planning of a journal's development were included.

The day involved an overview of cutting-edge developments in the industry that are impacting or might possibly impact journal processes, quality evaluation and new tools to manage and promote journals. Topics that were discussed include recent innovation in peer review models, emerging evaluation methods that complement citation rankings, and the movement in open access.

Ethical and copyright issues and practices were discussed in the final session of the day. Real-life case studies on how to handle plagiarism, author disputes, conflicts of interest, redundant publication and potential commercial concerns were presented and the group discussed the challenges, outcomes and ways to embed effective processes to manage these issues.

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