Writing and reviewing

After 40 years of reading students’ term papers, theses, and lab reports, three decades of editorial service for several journals, and writing a number of papers and book chapters myself, I have developed some guidelines to optimize these tasks. Over the years, I have shared these ‘rules’ with students, who have found them helpful, and I hope that they might also serve that purpose for some readers.

It might seem obvious, but the first advice is to read the intended journal’s instructions for the preparation and submission of a manuscript prior to drafting any text at all. Common sense suggests that the author accepts the journal format (section titles, abbreviations, reference form, equation notation, etc.) and saves some overworked editor this unnecessary bother. An author should offer an efficient presentation of statements and facts untethered from opinion and emotion. In fact, a little understatement can be very effective. Consider the closing remark in the Nobel Prize-winning publication by Watson and Crick in Nature (1953) on the structure of DNA, “It has not escaped our notice that the specific pairing we have postulated immediately suggests a possible copying mechanism for the genetic material.”

Obviously, one should place introductory matter at the beginning, followed by the results, and make conclusions at the end. In the introduction, the important prior papers contributing to the current state of knowledge should be honestly summarized and properly referenced, avoiding the tendency to emphasize only the most recent or one’s own publications. (And remember, not all important papers have been published in English.) It is a good idea to end the introduction with a sentence or two providing a specific ‘statement of purpose’. (This will prevent the reviewer from asking him- or herself the exact same question and maybe even rejecting the manuscript.)

Some stylistic suggestions are also worth bearing in mind. Use only strong subjects, avoiding ‘there are’, ‘it is obvious that’, ‘one should note that’, etc. Traditionally, the use of the first person is avoided, favoring the passive voice. Do not use contractions (don’t, doesn’t, etc.). Inanimate objects do not show possession; avoid ‘the meter’s accuracy’. Acronyms are fine, but only after an initial spelling in full.

Do not start a sentence with a symbol or an abbreviation. Despite their appearance here, use quotation marks and parentheses sparingly. Of course, every table and figure must be referred to in the text, but it is also helpful to tell the reader what is significant in each of these. And it goes without saying that figures, especially those showing microstructures or other features where fine details are important, should be of the highest quality. Today, nearly everyone has access to word processing programs that check spelling and certain grammatical features. Use them religiously, but remember that even this cannot ensure perfection. Always be honest, fair to others, and reasonably modest in the presentation. But don’t forget to conclude with a specific statement as to exactly how this research or development has advanced the status of the field.

Now, let’s turn our attention to the review of manuscripts submitted for publication. Firstly, I believe that this service (especially for younger researchers) is an excellent means to gain more and deeper knowledge of a field, while developing a critical attitude about one’s own research. Reviews must be timely; nobody is served well by a review that drags over many months, and submitting authors should complain about such treatment. Where authors are writing English as a foreign language, manuscripts deserve special attention and consideration with regard to presentation, but not technical content. I am so grateful to enjoy English as my native technical language that I have always provided such detailed editing. An English-speaking reviewer may gain a release from any guilt by helping in this way!

Clearly, in light of recent scandals, the scientific community will offer neither understanding nor forgiveness to authors who practice plagiarism, dishonesty, or poor research. One bad publication can ruin the favorable opinion created by ten good ones, and plagiarism or dishonesty can cost your career.

I hope that the good writers and conscientious reviewers who read this column will excuse the ‘lecture’. But if you think that this advice might be helpful to your students or colleagues, please make your own adaptations and pass it along.

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