EDITOR'S NOTE

The Responsibility of Scientific Writing

The ability to communicate is one of the defining characteristics of our species. It is not that communication is rare; many species employ elegant and sophisticated strategies. It is the potential for richness reaching abstract artistic levels that is most impressive. Verbal communication offers far more than an exchange of facts. Complex arguments can be developed, concepts or positions strengthened by metaphor, rhetoric, and intonation, and then bolstered by body language and other nonverbal cues. Written communication offers a similarly tremendous range in potential and practice, with additional crafting used to replace the verbal and nonverbal cues available to the speaker.

Written communications range from the unimaginative to the inventive, pedestrian to pedantic, and transparent to arcane. There are ground rules—some well known and some obscure—for every form. The best writers learn the rules and then decide which to follow, which to bend, and which to break to make their efforts more compelling. Some genres favor the truth, but many prioritize the most compelling story. Conflict occurs often not within a genre, but when the lines blur between genres and the reader is uncertain which rules are being followed.

Scientific writing is a highly structured form of writing. The required elements include appropriate components in the expected places; a clear orientation to intent; methodology sufficiently detailed to reproduce the study; dispassionately and objectively stated outcomes; and interpretations based on a rational assessment of existing evidence, current findings, and known limitations of the effort. Equally important are the things that are supposed to be avoided in scientific writing: overstatement, hyperbole, logical inconsistencies, selective reporting of findings or interpretations to change conclusions, and any other form of intentional bias.

The lines can blur between genres not just through ignorance or frank error, but also more subtly in the drive for success in crowded and competitive environments. Works of fiction are often more successful when the emotional appeal is ratcheted up. Nonfiction is sometimes reclassified as creative nonfiction when too much reframing or reinterpretation is applied. Scientific writing faces similar risks. Minor deviations that first seem to stay within the bounds of subjective interpretation can sometimes become problematic as manuscripts evolve.

The peer review process is intended, in part, to flag elements that may be inappropriate for scientific writing. The reality, though, is that there can never be sufficient oversight of a diverse and robust research community. It will remain the responsibility of authors to ensure sound objectivity—reviewing the published literature, detailing procedures, reporting and interpreting findings, describing limitations and delimitations, and drawing conclusions that do not understate or overstate the true picture.

The explosion of predatory journals affects more than the work in those publications. More errors are likely to be found in these publications because adequate peer review is, by definition, not provided. Some of the articles from these journals will reach the community, and seeing more than the rare example of inadequate preparation can begin to alter the perception of what may be normal or expected. Inexperienced authors are more likely to be adversely influenced by poor examples of scholarship, but given sufficient numbers the impact can be wider.

Although efforts are underway to identify and censure predatory journals, the current reality is that the economic drive to churn out more and more of such publications will continue. To counter this, a growing number of institutions are looking beyond “impact factors” that can be gamed by predatory publishers to more fully evaluate the scientific merit and more appropriately credit the publication efforts of authors. This may help to redirect some submissions, but it is likely to be less effective for those working outside traditional academic or research programs. Practically, we need to do more to direct submissions to credible outlets for publication.

Most disciplines recognize a small number of journals as leading in their field. We need to ensure that students and developing professionals understand that publishing in the most relevant journals is far more important than simply having work published. We must then offer our best efforts to credible journals, both in submissions and in peer review evaluations. Encouraging potential authors to focus on field-relevant, if not field-critical, journals can help to ensure that they see more of the best examples of literature than the worst ones.

Our own writing must also take the highest road, avoiding the pitfalls and paying attention to the details that can improve the clarity and value of any manuscript. We have to remember that although peer reviewers and editors play

an important role in getting manuscripts published, it is history that will determine the value of individual papers. Committing more energy to a fair description of work and less to making inflated claims about novelty, superiority, relevance, and/or practical importance will go a long way toward reaching this goal. Bluster can bring immediate gratification, but the dispassionate and understated narrative often has much better shelf life when viewed through the lens of hindsight. We cannot forget that the literature we publish will form a large part of the history of our professions.

We need to educate ourselves on or remind ourselves of the hazards of modern scientific writing; we need to teach our students and fledgling professionals the best of it; and we need to work to the highest standard to help our credible journals be the repository of scientific knowledge that we want them to be. We also need to ensure that rhetoric is not more compelling than measured assessment in the promotion of science.

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