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CellPress

Editorial

Tips on How to Write 'Good'

Leaving a faculty role for an editorial position at Cell Press was not a light decision. It involved days of self-reflection and discussions with peers, close friends, and family. One of the more interesting comments came from my mother, who questioned my experience "editing" written works. Specifically, why was I qualified to run a *publication*, full of writings and op-eds and other such things? My degrees, after all, weren't in journalism or communications. She wasn't trying to be discouraging; she was just asking if the career choice fit both my interests and skillset. This was a fair point to raise, as an eloquent engineering professor is about as rare as a black swan—particularly in class, but also in writing. At the same time, I thought about all the writing requirements of faculty, encompassing papers, book chapters, texts, class notes, dissertation revisions, proposals, grant reviews, peer reviews, recommendation letters, and even Twitter posts. A significant portion of my time was spent, in fact, *writing*. This, of course, does not make one a particularly good writer, but it does mean that most faculty are experienced writers—at the very least, capable of clear scientific composition.

Scientific writing, however, taken at face value leaves little room for personality. Most PIs treat it as perfunctory—something that needs to be done to "disseminate the research". As a direct result, undergraduates, grad students, and postdocs are trained to produce manuscripts full of melancholy, despondency, and cold logic that is pervasive in clear and succinct "science writing". This has made scientific writing an imposition rather than an opportunity—an opportunity to share the excitement of novel findings, the broad implications, and a contribution to "science communication". Writing shouldn't be a chore; it should be a part of a researcher's routine, and, with a little thought, it can be (**gasp**) enjoyable. As Richard Feynman once said: "Physics is like sex: sure, it may give some practical results, but that's not why we do it." Similarly, let us apply the same ethos to writing and take enjoyment in the process rather than the results.

There are many (many many) guides on how to write scientific manuscripts. Many. Some are focused on the physical sciences, some on the life, some on social. What such guides typically have in common is that they describe (or prescribe) the necessary contents of a manuscript—how to formulate an introduction, discuss results, format a figure, etc. This results in very nicely formatted works with all the requisite pieces. Few (if any) guides discuss the *mindset* of the writer or how you should approach the process. This is a very different but important issue and can make the process of producing a manuscript exponentially more enjoyable.

How does one make writing fun? The answer is different for every researcher. However, there are a few general tips that I have learned that I would like to share. Subjective? Of course. Useful? Maybe. My goal is not to provide a quantitative list of tips, but rather change long-held perceptions.

One of the biggest influences on my approach to writing is Stephen King—the famed horror author. I was an avid reader of his works in my formative years (don't even mention the *Dark Tower* film). In his semi-autobiographical *On Writing: A Memoir of the Craft*, King shares stories that shaped his career while offering

practical advice for writers and other creative professionals. There was no restriction for academic use. I read the text when I was an undergraduate, mainly because I was a fan of King's fiction. However, unbeknownst to me at the time, some of his suggestions stayed with me subconsciously, and it was only after I revisited the text while I was faculty (as a teaching resource) that I realized it. The book itself is full of writing tidbits and anecdotes, more than I can reasonably cover here. However, if I could expound on two, they would be (1) read, read, read; and (2) kill your darlings.

First—and perhaps most important to academics—read, read, read! King states, "If you want to be a writer, you must do two things above all others: read a lot and write a lot. There's no way around these two things that I'm aware of, no shortcut." You learn most by observing the work of writers. Don't just read other PI's papers for the facts and data—read them for the "story". How did they describe the work? How do they sell it to a wider audience? Is there a difference in pitch and level of detail from journal to journal? Steal what you like in terms of style and make it your own. It doesn't even have to be the reading of science to improve the writing of science—read the *New York Times*; read Reddit posts; read Tolstoy's *War and Peace*. Recognize what works and what doesn't. There are many formal guides that describe how to write a scientific article, but ultimately, the best works are the ones you enjoy reading.

The corollary to "read, read, read" is clearly "write, write, write." You can only improve your skills if you practice. While I was active faculty, my research lab adapted the "ABC" mantra from *Glengarry Glen Ross*, but rather than closing real estate, it stood for "Always Be Composing", e.g., always be writing *something*. Set aside some time and bash out a few hundred words daily. Or every second day. Or after each episode of *This Is Us* on Tuesday evenings. It doesn't matter—just make sure you practice putting *thoughts* into *words*. Make writing a habit, and it ceases to be a chore.

Second, "kill your darlings" was King's way of saying be harsh when you revise and edit. Science writing, like a good story, is succinct and to the point. Clear and minimalist sentences work best for science—save the fluffy stuff for editorials (#meta). A first draft is typically rife with redundancies, compound and run-on sentences, superfluous description, too many transition words, repetitions that go unnoticed, as well as compound and run-on sentences. Turn-of-phrases that seem clever at the time may be lost to a reader who wants "just the science". A reasonable goal after a first draft is to check the word count, then cut 10%–15% for the second edit. The work will be improved, trust me. Editing is a process of addition by subtraction. You can't be so attached to your work that you won't chop it up and cut it down when needed—in other words, kill your darlings.

Of course, King is not the definitive resource for budding science writers. Beyond *On Writing*, I also highly recommend *Connection: Hollywood Storytelling Meets Critical Thinking* by Randy Olson. Olson is a marine-biologist-turned-filmmaker, and his texts discuss science communication in the age of information overload. In particular, one of the key suggestions, is—like Hollywood films—to turn science into accessible stories. Realize that every piece of writing is telling a story. That is at least half the battle. Every scientific study, every letter, every communication is trying to tell a story. Now, the plots are typically a little boring compared to whatever is currently on HBO, but an underlying story is there. Once you realize that it is a story, you can garner tips from any writing guides, not just academic or scientific.

Approach a manuscript like a blockbuster movie: what are the main plot points?; what theme are you trying to express?; what makes the work interesting?

Most scientists work with facts, details, logic, and statistics, pursuing multiple lines of research, and never pay attention to the underlying narrative of their work. Probably the most difficult thing to do is to take something you know a lot about and boil it down to a single essential idea that can resonate with other readers. Don't we all want to be a Spielberg or a Scorsese? Effective academic auteurs?

My final advice is, while reading as many how-to guides, papers, and other resources as you can—like good research—don't just replicate but synthesize and come up with something novel. Develop your own voice and writing habits. Lead. Take chances. Don't try and imitate the stylishness of a latest Nobel Laureate. You're not her. You need to form your own style rather than trying to simply imitate the greats. This keeps the literature fresh, new, and exciting. There is a reason popular music doesn't sound like the classic rock of the 1970's (for better or for worse). Take the parts you like, add a little originality, and see what happens. *Fortuna Fortis Adiuvat*!

So, the summary of my humble tips are (1) read a lot; (2) write a lot; (3) edit a lot; (4) know your story, and; (5) develop your own style. Simple, right?

Now don't get me wrong. I don't mean to suggest that my own writing is good. Don't try and be me. I am just a capable scientist/engineer with a new platform to exploit. To me, writing was never a chore. It was a means to express my perspective and (not-so-impactful) research findings, adding to the ongoing, ever-evolving discussion that is "science communication"—a means to tell my story.

Find your own way to enjoy the writing process. Find your voice and add to the discussion. Tell your story. Let's write good together!

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