Too busy to write? Seven tips for more efficient scientific writing

By **Duanduan Han**

As global COVID cases decrease, more and more researchers are returning to offices and laboratories. In-person meetings, travel for conferences, and lab work leave many finding themselves no time to write. But journal papers do not write themselves. Here, I would like to share seven tips to improve writing efficiency that I have learned from my PhD work.

1. Write every day

I have a colleague who writes every day at the same time and lets her dog play with toys beside her. One day, she was not at her desk at her usual writing time. The dog carried a toy and tried to lead her to her desk, so her dog has "trained" her to write every day!

Writing is a process, just like exercise. Write every day to exercise the writing muscles just like real muscles and turn writing into a habit. Then one can make progress every day rather than hastily finishing writing projects when deadlines are approaching. Writing too much in one day burns out writers and leads to poor quality writing.

2. Learn from other writings

Published papers have already been approved by reviewers and editors from journals, so they are great resources to learn the common words and jargon used across research fields. Using the proper words that are commonly understood among researchers is especially important for work that involves experiments. For example, a note-taking style used among members in one research group may not be understandable to other researchers in the same field. Choosing the words that are universally used in published works can make one's work easier to understand.

Writers can also learn about the structure of a paper from a published work. The organizational structure of IMRaD (Introduction, Methods, Results, and Discussion) is universally used in scientific papers. A completed paper in this format provides a solid example regarding the depth and breadth that an introduction has to cover, the details a methods section needs to include, and the specific aspects of results and discussion that are necessary to be addressed.

3. Adopt a storytelling style

Scientific papers do not have to be boring. Researchers are the heroes in their journeys of searching for the truth and answers, so scientific writing can employ a story arc to engage readers. Here is an example of the Introduction: There is a daunting problem that needs to be solved (introducing the research topic of this paper), current solutions have their own flaws (reviewing previous studies and pointing out aspects that need improvement), and new heroes have emerged to present a new solution (summarizing the method and major results in one or two sentences). Then the following sections presenting the skills of the heroes (the Methods section), all barriers being overcome during the journey (the Results section), and the final review of this successful quest (the Discussion section).

4. Get help to solve grammatical issues

Scientific writing aims at communicating research results, and flawless grammar conveys an image of professionalism. Unfortunately, many writers struggle with grammar. A great resource of professional help is a writing center in universities, especially for writers whose native language is not English. Because my native language is tenseless, I always struggled with choosing the correct verb tense when I started writing my first manuscript draft. The writing consultants at the university writing center helped me solve this fundamental grammar issue. The consultants are professionally trained to help writers improve their writing skills instead of merely proofreading their documents. They helped me identify the patterns of mistakes and gave me personalized suggestions to correct them. After five years of working with the writing center, I am now able to correct most grammar mistakes myself.

5. Read writing aloud

Reading a manuscript in progress aloud is good practice to identify both grammar mistakes and awkward transitions. If a paragraph does not flow smoothly for reading, it will most likely confuse readers as well. Additionally, reading aloud slows down the reading and forces the brain to notice the little things that are missed when one reads silently.

6. Revise sentence by sentence and get feedback

Creating a perfect first draft is impossible even for the most seasoned and successful writers, and a polished work only emerges after elaborate revisions. The key to successful editing is to view the writing as a reader rather than as the writer. If time allows, writers should wait for three days before editing, so they are not in the same mind-set of writing. Then writers are reading what they have actually written down rather than what they think they have written. In other words, the brain does not "autocorrect" the written words. Another way to prevent "autocorrect" is to read the last sentence first and progress backward. Rephrasing an idea on a blank document can also help writers approach the idea from a new perspective. Certainly, if the new perspective does not sound better, it is always easy to reverse back to the original writing. Getting feedback from colleagues, ideally ones from a related field who understand the writing on the technical level, will also help writers identify the information missing from the writing.

7. Keep calm and write on

Writing is inherently difficult for most, and it only becomes more dreadful the longer one delays the task of writing. The only way to finish a piece of writing is to start now. All the amazing research results that have been gathered would be lost to the world if they remain unpublished in hard drives. Share them now through writing, one word at a time.

For further reading

- Barbara Gastel and Robert A. Day, *How to Write and Publish a Scientific Paper,* 9th Edition. Greenwood, 2022.
- Patricia Goodson, *Becoming an Academic Writer: 50 Exercises for Paced, Productive, and Powerful Writing*. Sage Publications, 2016.
- Rafael E. Luna, *The Art of Scientific Storytelling: Transform Your Research Manuscript Using a Step-by-Step Formula*. Amado International, 2013.
- Paul J. Silvia, *How to Write a Lot: A Practical Guide to Productive Academic Writing*. American Psychological Association, 2007.
- Randy Olson, *Houston, We Have a Narrative: Why Science Needs Story*. University of Chicago Press, 2015.