

ELOQUENT SCIENCE³

Eloquent Science: A Practical Guide to Becoming a Better Writer, Speaker, and Atmospheric Scientist is an eloquent book and delivers what its subtitle promises. The author, David Schultz, practices what he preaches: he writes in an engaging manner and for his reader. A professor of experimental meteorology at the University of Helsinki and the Finnish Institute of Meteorology and a reader at the University of Manchester, Schultz has extensive editorial and writing experience from which to draw.

Among the writing guides I have read (and there have been several), I would rate this book at the top. It would be well suited for a writing course or as a guide for a young researcher writing his first paper, though experienced writers will also find many gems for improving their writing. Initially I wondered if it would bother me that all examples are related to atmospheric science. But it did not: in fact, because I was not familiar with the jargon, it was clear to me how much improved the revised examples were.

The book comprises 4 parts. Over 200 pages are devoted to part I, “Writing and Publishing Scientific Research Papers.” Part II (25 pages) deals with the peer-review process, part III (90 pages) treats preparing and delivering scientific presentations, and part IV (20 pages) addresses communication in the workplace and with the media. Two annexes (one on commas, hyphens, and dashes), notes, and references complete the book. For the purpose of this review, I will focus on part I.

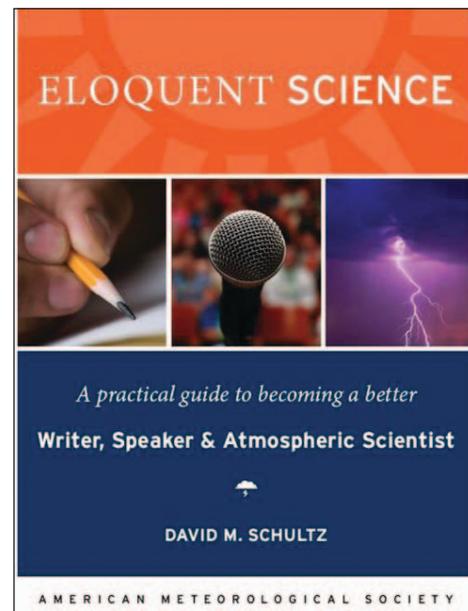
In part 1, after outlining the process of publication and discussing what to take into account before deciding where to submit your paper, Schultz takes us through all the steps and mechanics of writing a paper. In “Motivation to Write,” he explores strategies for overcoming writer’s block and lack of motivation: write a little bit at a time, develop a plan, break your writing project into smaller parts, and make appointments with yourself to write are some of the tips he offers. In “Accessible Scientific Writing,” he argues that “scientific writing does not need to be turgid, dense text written for a handful of specialists.” He encourages us to visualize our writing as being more like providing directions to the reader and to imagine that one’s audience is comprised of (1) one’s worst critics, (2) the best scientists in the field, and (3) the authors one is citing. In “Writing an Effective Title,” he states that “the title is

your first opportunity to attract an audience to your paper.” Titles should be informative, accurate, concise, and clear, and they should command attention. Avoid starting a title with “The” and “An”; don’t use acronyms in a title. Schultz recognizes that papers in some high-profile journals, like *Science* and *Nature*, often have titles summarizing the conclusions of the paper, but he warns that if you choose that approach, your conclusions had better stand the test of time.

Getting down to the text itself, he progressively focuses on effective paragraphs, sentences, and words, giving many examples along the way. Effective paragraphs contain one theme only and are coherent. Their focal point is the “topical sentence,” often placed at the beginning of the paragraph and defining the theme. Schultz tells of writers who write the topical sentence of each paragraph as an outline of their paper. Ideal paragraphs are 4 to 8 sentences long, he says. You can download the chapter “Constructing Effective Paragraphs” as an excerpt of the book at <http://eloquentscience.com/2009/11/chapter-8-constructing-effective-paragraphs>. In applying the lessons in the chapter “Constructing Effective Sentences”—eliminate redundant words, choose shorter alternatives (e.g. replace “in the event of” by “if”), choose strong verbs, beware of sentences beginning with “it”—you can cut down the number of words in your text by 10 to 20%.

Of course, figures and tables are integral parts of a paper. But creating an effective figure that will be “worth a thousand words” requires many steps. Decide on the type of graphic that will best tell the story behind your data. In choosing font size, take into account the likely final size of the published figure. And of course, follow the instructions of the journal you plan to submit your paper to. “Never skimp on the caption”; every component of a figure needs to be described so that the reader gets the meaning of the figure from the caption alone.

Once you have a first draft of your paper, thesis, or report, celebrate; let it rest for a few days and then move on to the next step: revising. Schultz stresses the importance of this step to produce a high-quality manuscript. He states that some of the authors he admires most will produce up to 50 versions of their manuscript before they finally send it out for publication. Don’t count on editing after the review process: send out your very best effort right from the start.



A full chapter is devoted to second-language authors. All students would benefit from recommendations Schultz makes to ESL (English as a second language) scientists. I was glad to see that scientific ethics and misconduct rated a full chapter. It deals mainly with plagiarism, which accounts for most cases of misconduct in the physical sciences. In defining authorship, he adheres to the rules set out by the International Committee of Medical Journal Editors, which state that all authors of a manuscript must satisfy all three of the following criteria:

- They must have made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data
- They must have participated in drafting the article or revising it critically, thus providing important intellectual content.
- They must have approved the final version to be published

I hope I have by now convinced you that you need this book. It might be the best investment of \$45 you will make. As a bonus, it is written in an entertaining, conversational style. I found myself turning page after page. The author maintains a blog and a website where excerpts of the book and a list of writing resources can be accessed (www.eloquentscience.com).

Pierrette Tremblay
Managing Editor, *Elements*

³ Schultz DM (2009) *Eloquent Science: A Practical Guide to Becoming a Better Writer, Speaker, and Atmospheric Scientist*. American Meteorological Society, Boston, MA, 412 pp, US\$45 (www.eloquentscience.com)