



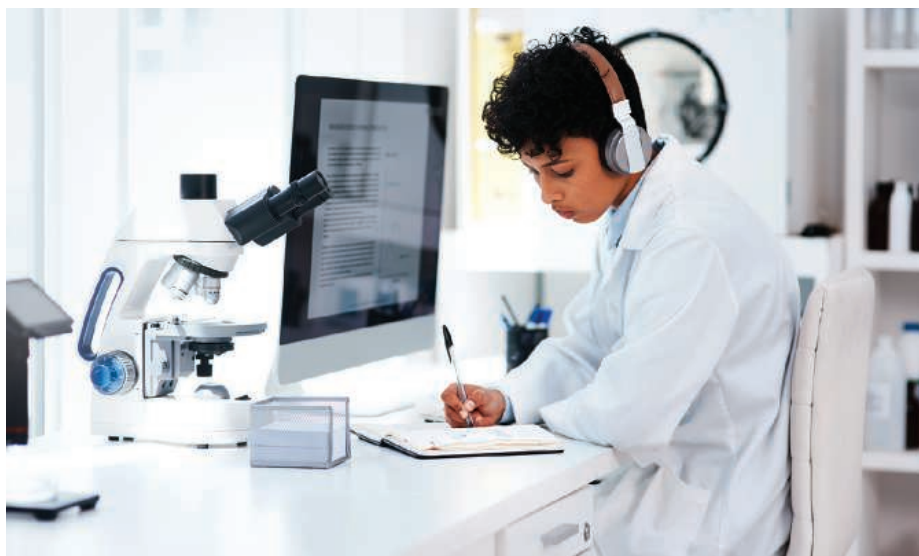
SCIENCE WRITING

Writing for the reader

Clarity and brevity are key to readable research papers

By Thom Scott-Phillips

Undergraduate science students must complete many types of writing assignments: methods for experiments, reports on field trips, essays surveying a field. The person who reads this work does so because—let's be blunt—they are given money to do so. It is a requirement of the job. This means that students become skilled at writing for people who are paid to assess what they have written. But this creates a quirky inflection point in scientific careers, where something that was once rewarded suddenly becomes bad practice.



Young scientists must appreciate that their readers are not instructors evaluating an assignment.

For those who go on to complete a PhD and embark on a scientific career, a new audience emerges—other scientists. These new readers are busy and distracted, and if they cannot quickly see why they should care about the work an author is attempting to describe, they will not do so. Many scientists never fully adjust to this change. They maintain the habit of showcasing their knowledge and talents to a reader who, they imagine, will proceed diligently through their every word. Scientific papers produced this way are less read and have less impact (1).

The reviewer is at the Institute for Logic, Cognition, Language, and Information, 20018 Donostia, Gipuzkoa, Spain. Email: thomascharles.scottphillips@ehu.eus

In *Scientific Papers Made Easy*, Oxford biologists Stuart West and Lindsay Turnbull seek to impart the importance of simplicity and clarity in scientific writing on early-career life scientists. Past books have sought to help readers develop other writing skills, such as creativity and the development of an individual style, but I know of no other book dealing with the basics of scientific writing as cleanly and as directly as this one does.

West and Turnbull identify many common habits that hinder readability and add unnecessary length to scientific papers, and they provide specific guidance for improving readability while decreasing length.

These include sticking to one major point per paragraph and avoiding excessive use of the passive voice. Experienced writers might disagree with some of their advice—for instance, that figure legends should be short—but very few writers should dispute the book's most basic principle: “The reader must come first.”

The book's central chapters each address one part of a standard research project: methods, results, figures, introductions, discussions, abstracts, titles, and cover letters. With this ordering, the book begins with material tasks and moves toward the theoretical. It also provides new scientists writing their first papers with a clear path. It may be best to begin not with the begin-

Scientific Papers Made Easy

Stuart West and Lindsay Turnbull
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ning of the paper itself, the book suggests, but rather with the specifics of what one did and found out.

The book does not offer much guidance about other types of scientific writing. There is some advice about how to present mathematical models but almost nothing on review articles or big-picture perspectives, nor about the specific challenges of interdisciplinary audiences, for example. Some readers may consider this a limitation, but it is consistent with the book's theme of maintaining a clear, sharp focus on doing the basics very well. Indeed, the book sticks admirably to its own principles on two fronts: It is short and to the point.

An especially useful feature of this book is the presence of a number of detailed, annotated passages demonstrating both good and bad writing practice. These comparisons make the authors' generic advice concrete and offer readers specific examples on which to reflect. QR codes throughout the book link to additional material, such as quizzes and lesson plans, should the book be used in scientific writing courses. As the title suggests, most example passages come from the biological sciences, but the lessons generalize, and no knowledge of this subject matter is necessary for one to make the most of the book.

How we write scientific papers may be about to change. In the near future, large language models (LLMs) such as ChatGPT may be able to summarize research fields or describe standard methods from simple prompts. Yet solid mastery of writing basics will not become a redundant skill for the successful scientist, not least because some scientific journals do not currently permit the use of these technologies in article creation (2). But even where the technology is put to use, it will always be necessary to write about the specific features of one's own studies or, at the very least, to edit the output of a LLM to ensure its relevance to one's target audience. Great scientists still need to know how to write cleanly and plainly, and *Scientific Papers Made Easy* is an excellent guide for acquiring that skill. ■

REFERENCES AND NOTES

1. B. Freeling, Z. A. Doubleday, S. D. Connell, *Proc. Natl. Acad. Sci. U.S.A.* **116**, 341 (2019).
2. H. H. Thorp, *Science* **379**, 313 (2023).

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