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Essential elements for high- impact scientific writing

To write better, remember that your science is exciting, says Eric J. Buenz.

Eric J. Buenz 



Communicating your research through writing is an important skill for researchers. Credit: Getty

The technicalities of good scientific writing are well established^{1,2} and important, but for your writing to have an impact, you need to resurrect the excitement of research – something that is often lost in day-to-day work. Successfully communicating the impact of your research is crucial for making your work more accessible, and for career progression. Here are the key elements to make your data stand out.

Research tells a story. Your research is a story with an important message – otherwise you would not be writing a manuscript. It is essential that you have clarity in your mind around your overarching storyline; without this, it is impossible to write clearly. Do not simply present the experiments and results in chronological order, instead

consider how each piece of information fits with the unfolding story. Ask yourself why the research is important and clearly share that point with your audience. A good technique is to think how your research story could make your results something that people might be excited to share with their neighbours at a dinner party.

Learn when to write and when to use a figure. Consider how people read a paper. After a quick glance over the abstract, they often move to the data and figures. Cryptically presented data do not speak for themselves. Data collected over months or years deserve beautiful figures. Learn to use a vector program, such as Adobe Illustrator or Sketch, and make figures that you are proud to display both in print and on a screen.

Know your audience. Colleagues in your immediate field are the people most likely to be interested in your work, but also think about how to reach a wider audience. Some of the most exciting research is on the borders of multiple fields. Make your writing as clear as possible so it can be easily understood by readers from various fields. Ask colleagues outside your specific area of research to review your work to make sure it is understandable and interesting to your target audience.

Stay clean and clear. Research is international and, although using rich language is important, make sure that the message is clear to readers whose first language is not English. Write as simply as possible. Ask someone to review the language in your manuscript. *The Elements of Style* (Pearson, 1999) and *The Economist Style Guide* (Economist Books, 2015)

are both English-language style guides that focus on developing a clear message, and I have found them useful for improving my writing.

Ask an English speaker to review your writing. Although peer reviewers forgive minor language errors if English is not your first language, such mistakes are not going to help your chances of a favourable review. The manuscript will eventually need an English-language edit anyway, so have it reviewed by a native English speaker before you submit the manuscript.

Try to highlight a link to a current topic. Editors want their journal to contribute to current issues in academia or the popular press. For example, last year a colleague and I reported finding elevated levels of lead in the blood of a person who ate meat from animals he had shot with lead bullets³. In the cover letter and manuscript, we highlighted the 2017 reversal of a ban of lead ammunition on certain US federal lands. We linked that policy change to the increased risk of lead exposure to hunters and their families through eating wild game shot with lead bullets. The cover letter is a way for you to sell your manuscript to the editor, so take the opportunity to pique their interest in your work.

Review and cut words. Space and time are always at a premium, so the shorter the manuscript, the better your chances of acceptance – and the more likely people are to read the published article.

The abstract is the most important section. Editors will use the abstract to decide whether the topic is of interest to their journal, and reviewers will use it to decide whether they are suitable to review the manuscript.

Most people will only ever read this section. Make the abstract captivating.

There is no rule to say that science cannot be entertaining. Editors want their journal to be pleasurable and enlightening reading. Enjoy the writing process – your research effort deserves brilliant writing.

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