How to become a more successful author

"Manuscript Submission Guidelines" pages appearing in this manual, Waste Management & Research (WM&R) and on the SAGE website (http://wmr.sagepub.com) give the bare essentials of preparing a manuscript for submission. The following are brief suggestions that go beyond the basics to help authors prepare their manuscript with finesse.

Scientific journals have but one purpose, to transmit information from writers to readers. If a manuscript/paper already conveys the facts of the research, why should its author be concerned about his/her presentation's elegance? There are basically two reasons:

First, a well written manuscript will be better understood by the reviewers. This means that it will stand a better chance of being accepted and will be published in less time with fewer revisions.

Second, the readers of the journal are more likely to read and understand a well-written paper than they will a murky or poorly presented one.

The reviewers and readers of this (and every other) journal are busy people. They probably want to read your manuscript/paper, but they also have their own research to conduct, their own papers to write and many other pressing business matters. When faced with a vague or awkwardly composed piece of writing, these reviewers and readers will make an honest effort to try to read it. If they cannot decipher the manuscript/paper within the first page or so they probably will set it aside until they have more time to devote to it. But after a couple more tries they are likely to decide that the benefit is not worth the effort.

The author and his or her closest colleagues will be the only people who read a murky piece of writing. If on the other hand the paper is well organized and clearly written, more scientists and engineers in the field, and perhaps a few more in a closely related field, will read it. A truly outstanding piece of writing will be widely read, widely quoted and cited, and could bring great rewards to its author. In short, the time spent on producing a truly outstanding manuscript will be rewarded by higher acceptance percentages from journals and by greater recognition and acclaim from one's peers.

The secret of producing an outstanding piece of writing is to always keep the reader in mind. Authors who keep readers in mind convey their information more lucidly than authors who write only for themselves. The scientist who has the attitude, "Why should I worry about how this is presented; everybody *knows* what I mean?" is incorrect; everybody does *not* know. The person whose native language is not English may not know; the student who is only beginning to approach the author's level of expertise in the subject area may not know; and other professionals in similar but separate fields may not know. The thoughtful scientist-writer keeps his broader audience in mind.

Title

A good concise title will attract readers who might not otherwise read the paper; a poor title will hide the paper's contents from even the most interested. That's why the specifications call for six to 12 words, no abbreviations-ever, and no Latin names if an English name is available. Begin with the key words, not with a low-impact phrase such as "Effect of..." or "Influence of....” Eliminate ambiguous words.

With the advent and continual improvements of a multitude of search engines to access relevant literature it is even more important that title and abstract include relevant key words and phrases that clearly reflect the manuscript's content.

Abstract

The abstract should be meaningful by itself, not a teaser. It will be read by 50 to 500 times more people than will read the full paper. Therefore, the abstract should convey information itself, not just promise it. Never use such phrases as "... are described" or "... will be presented" in an abstract. Instead, describe them, present them. Always begin the abstract with rationale and objective statements; never jump directly into the materials and methods. When a person reads an abstract that begins, "The effect of chemical A on bacteria B was studied..." that person has the perfect right to ask, "Why was it studied?."

An example of a well written abstract is presented at the end of this section.

General Suggestions

Adhere to the style spelled out for the WM&R journal, including respecting the stipulated maximum manuscript lengths and writing units the right way, and using SI units if possible. If you don't, reviewers might think you wrote the manuscript for another journal, and sent it to us after it was rejected there. It is not good for a reviewer to have this attitude as he or she begins to read your manuscript.

An irritated reviewer is no better than a negatively disposed reviewer. What irritates reviewers? Unnecessary errors. Edit your manuscript carefully to eliminate spelling, punctuation, and grammatical errors. Even after you are finished and you feel the manuscript is perfect, lay it aside for a few days and then read it again. It's almost certain you will find the need for additional corrections.

Check the accuracy of your references scrupulously. You wouldn't believe how many manuscripts arrive at a reviewer's desk with incorrect dates, titles, and author names in reference lists; or one year of publication or spelling of the author's name in the reference list and another in the text citation. Indeed, internal consistency in all facets of the manuscript is a must.

Scientific editors and Headquarters editors are not available to rewrite a poorly written or sloppy manuscript; such a responsibility rests solely with the author(s). If you have difficulty writing scientific English, consult a colleague whom you know writes well, or seek out the services of a proven professional English language technical editor who will help you for a fee.

Writing the Manuscript

Organise your manuscript so that it answers four basic questions:

1. What did I set out to do and why? = *Introduction.*

2. How did I do it? = *Materials and Methods.*

3. What did I learn? = *Results.*

4. What does it mean and how does it relate to what else is known? = *Discussion and Conclusions* and *Summary* also, if the paper warrants one.

Avoid citing conclusions in any other sections.

In the introduction, discuss only work that is directly related to the work you are describing. Don't cite every paper written on the subject; cite only the most important ones or key review papers. Three or four citations (never more than six) are plenty to corroborate any given statement.

Avoid repetition; don't repeat the abstract in the introduction or the introduction in the discussion. Provide definitions, naming of chemicals and other compounds, and explanation of phenomena only once. However, it is necessary to repeat some of the key information from the text in the captions for the tables and figures, because

we've found that *readers generally study the tables and figures before they read the text.* In the text, refer to tables and figures, but don't repeat them.

Don't mix fact and opinion; when you include opinion or speculation, clearly label it as such. Also, this should appear only in the Discussion section.

Be concise, don't ramble. Short, concise manuscripts are more likely to be accepted than long, rambling ones (and will cost less to publish).

Constructing the Sentence

Scientific writing contains far too much use of passive voice; let's start moving away from it, as we strive to do in this piece. Regardless of what anybody tells you, it's okay to use first person in scientific literature. You don't have to say "the research was conducted", you may say "we conducted the research".

With very few exceptions, don't write sentences that require use of the word "respectively"; they are extremely difficult to read. Too many sentences in our journal are constructed in this manner; "Water contents were 92, 128, and 280 g kg^{-1} for samples 5, 6, and 18, respectively". It is much easier to read and decipher, "Water contents were 92 g kg^{-1} for Sample 5, 128 for Sample 6, and 280 for Sample 18". Believe it or not, we actually received a manuscript with the following sentence: "Sampling was done on 20, 25, 28, and 3 of May, May, May, and June in 2005, 2006, 2007, and 2008, respectively."

Word Use

You can eliminate some words without changing the meaning of a sentence. The word "located" is a good example; it can be eliminated from almost every sentence without any loss in meaning. "The landfills are located near Ames, IA." is better as, "The landfills are near Ames, IA." Both sentences convey exactly the same meaning; the word "located" adds nothing. Similarly, the word "that" is unnecessary in many sentences.

Here are three other words that can be deleted:

prior history (all history is prior)
careful examination, careful study (would you do it any other way?)
very (the only time this word contributes anything is in certain negative sentences, "It isn't very effective")

The following four phrases, which frequently appear in scientific literature, could be eliminated and never missed:

it is shown that
it is a fact that
it is emphasised that
it is known that

And have you ever noticed, there is rarely such a thing as rain in professional journal papers? Whenever it rains it is more often a more awkward or stilted "rainfall event" or even a "precipitation event."

Other words are used to mean things they never were supposed to mean. A good example is the word "over;" it means "above," but authors use it incorrectly to mean such things as:

Correct word(s)	Incorrect use of "over"
during	growth over time, happened over the weekend
more than	took over 70 samples, yield increased by over 10%
from	pooled over three locations

with	changes in concentration over time
through	accumulated over the years

Such words as "parameter," "following," "facility," and many more are grossly misused in scientific literature. Time does not have points, so there can be no such thing as a "point in time." Instead of saying "at this point in time," simply say "at this time."

Here is a list of long words and phrases and a comparable shorter way to say the same thing:

Instead of	Use
appears to be	seems
in the absence of	without
higher in comparison to	more than
was found to be	was
in the event that	if
small number of	few
was variable	varied
additional	added, more, other
approximately	about
at the present time	now
establish	set up, prove, show
identify	find, name, show
in a timely manner	promptly
necessitate	cause, need
operate	run, work

Also, word precision is important. In most cases, scientists cannot “ensure” anything, only insurance companies can do that. Nor can the behavior of most phenomena be “determined,” strictly speaking. Instead, we estimate and calculate, but our findings rarely if ever definitively determine anything.

Conclusion

Scientific writing is not difficult, but it also is not nearly as easy as some would think. Practically any scientist can write adequately enough to get by and be understood by a few. But if you want to do more than this, take time for additional input, study, and practice. You could find a far higher percentage of your manuscripts being accepted, or at least have them accepted more quickly, than they have been until now. Who knows, you might even become one of those rare scientists who write well enough to have an impact far outside your field of study, regardless of how narrow that field might seem at first.

The foregoing is based on an article with the same title originally found in the journal *Neurology*, and a text further elaborated in *Soil Sci Soc Am J.* (1992) 56 1983-1984. With permission, and only minor changes, it is now adopted by the editors of Waste Management & Research as an integral part of the Author Guideline.

Example of a well written abstract

Baun D.L., & Christensen T.H. (2004) Speciation of heavy metals in landfill leachate: a review.

Waste Management & Research 22(1), 3-23

Abstract

The literature was reviewed with respect to metal speciation methods in aquatic samples specifically emphasizing speciation of heavy metals in landfill leachate. Speciation here refers to physical fractionation (particulate, colloidal, dissolved), chemical fractionation (organic complexes, inorganic complexes, free metal ions), as well as computer-based thermodynamic models. Relatively few landfill leachate samples have been speciated in detail (less than 30) representing only a few landfills (less than 15). This suggests that our knowledge about metal species in landfill leachate still is indicative. In spite of the limited database and the different definitions of the dissolved fraction (< 0.45 μm or < 0.001 μm) the studies consistently show that colloids as well as organic and inorganic complexes are important for all heavy metals in landfill leachate. The free metal ion constitutes less than 30%, typically less than 10%, of the total metal concentration. This has significant implications for sampling, since no standardised procedures exist, and for assessing the content of metals in leachate in the context of its treatment, toxicity and migration in aquifers.

Author Keywords: speciation; heavy metals; landfill leachate; review

Key points to note:

• Clear and descriptive title including main key terms or phrases.

• Good length of abstract (172 words or 1182 characters (with spaces) and could be slightly longer.

• Abstract repeats key phrases in a contextually appropriate way.

• Key terms or phrases are repeated in the keywords field (perhaps even more could be added).

• Many other factors influence ranking but this content is written in a way that gives it the best chance

This review included 76 references and has been cited 42 times (medio 2010).