Researcher, Don't Make Your Readers Scream!

Virtually everybody who reads your research paper, referees especially, wants to know only a few basic things: What did you do? Why and how did you do it? What did you discover? Here is a little advice to help you help them.

The *abstract* is supposed to answer the questions above as directly as possible. Three sentences may already be enough, and half a page is absurd. If you are tempted to paste in the first two paragraphs of your introduction, just leave the abstract empty. Your *title* needs to be informative as well.

The *introduction* motivates your project. But if you are submitting your paper to the 19th World Congress on Cheese-Flavoured Ice Cream, do you really need to devote one and a half pages to the merits of that particular treat? Your audience is already convinced; moreover, they have heard it all before. For interdisciplinary work, you may have two different audiences, but even then it might suffice to cite Peabody's *Manifesto for Cheese-Flavoured Ice Cream* in a single sentence. You will probably have to write two different papers anyway, since the two communities will be interested in different aspects of the work.

The obligatory "outline of the rest of the paper" should be brief. Write it as a paragraph with section numbers in parentheses; otherwise, the reader will ignore it immediately. Or you could be brave and omit this largely pointless outline.

The *background* section states your starting point and makes your paper self-contained. Keep it to a minimum. Resist the temptation to paste in one and a half pages of dense definitions covering all the concepts used in every paper your group has published in the past 20 years — even if it's already sitting in a handy file — or your readers will give up right there. This section is seldom the place to discuss related work.

Finally you get to describe your actual work. Are you on page 3 or page 7? If the latter, how did you manage to use half of your page allowance before saying anything original? Anyway, now is the time to explain your methodology and why it is sound. Ensure that all of your text (figures and tables included) are in a typeface no smaller than 11 points, because people of a certain age cannot read fine print and can be grumpy.

If you are presenting experimental data, look for online guides on how to typeset tables properly. (*Hint*: Keep it simple. Avoid double and vertical rules.) If there are trends in your data, then why not present them using graphs?

The *related work* section could offend all of your colleagues, including your referees. Compare your results with theirs, but don’t make a habit of trashing other people’s work: you were standing on the shoulders of giants, etc. Be fair even to your rivals who prefer herb-flavoured ice cream.

Many people write their related work section in a wholly passive mockery of English, never mentioning the names of their colleagues: “Parmesan flavour was introduced in [1]. In the seminal work of [13], stilton flavour became possible for the first time.” It’s discourteous and reads badly. Reference numbers are not names, so why do you keep forcing your reader to look them up in the bibliography? The direct way is also clearer: “Jones et al. [1] introduced Parmesan flavour, and Brown’s seminal work [13] made stilton flavour possible…” This especially helps if Jones and Brown are your referees.

Avoid the royal “we”. The conversational “we can see that” is fine, but there is absolutely nothing wrong with saying “my approach is to …”. You should certainly write “the details are in my earlier paper [17]” and not “the details are in [17]”. Citations to your own work must always be clear from the text: you are not an impartial source.

The *conclusions* section is to list your main findings. This means repeating observations you have made already, but many of your readers will have skipped a lot of boring technical details to get this far. If you had a half-page abstract, now surely cut back, some of the deleted material may serve in your conclusions provided it states what was learned. You can include a *brief* indication of work in progress or non-obvious applications. Many people will read only your abstract and conclusions: do these alone gives a good sense of your accomplishments?

Do you need a discussion of *future work*? It may be appropriate in a keynote lecture, but not in a standard research paper. A page of ramblings about everything you might do in the next five years, or would do if you had your time again, belongs on your blog. Yes, even if you are below the page limit: that is not a failure but an achievement.

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