



ISER Young Investigator Blog



3 Tips for Scientific Writing
for non-native English Speakers

By Menglu Yang, MD Ph.D.
Research Associate

Schepens Eye Research Institute of Mass Eye and Ear
Department of Ophthalmology, Harvard Medical School
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OK, since you are here, you must already know the importance of scientific writing. Good writing skills not only boost your chance of getting your manuscripts accepted by journals, but also help you deliver your research ideas to a general audience. Although scientific articles can be published in different languages, English is the most frequently used language in publications as it is the most internationally recognized.

I, as a non-native English speaker, started the struggle during my PhD. Back then, I used a language service from a third party to improve my wording. 5 years later, I now edit documents for my students and my colleagues. Although we cannot bypass the “practice makes perfect” law, here are some tips I would like to share to help you make the most out of every single minute of your writing practice.

Tip 1: Use knowledge from your literature class regardless of the language

Throughout my education, I had 2 language classes, Chinese literature and English. You would think that my English education would be more relevant to what we are discussing today (and I thought so too), but it is in fact the knowledge taught in the Chinese literature class that helped with writing the most.

It may seem counterintuitive, but think about your literature class. No matter what language it is, it will teach you about the structure of an essay, how to distribute your content to make it catchy, and how to properly conclude your viewpoints to make sure your audience understands what you're saying. Isn't that exactly what we need for our papers? 12 years after graduating from high school, I am still repeating the mnemonic "the head of a phoenix, the belly of a pig, and the tail of a leopard" while writing (which basically means: a splendid introduction, a rich main content and a sharp conclusion), to prevent myself from getting lost in the ocean of references.

One funny thing is that during our English classes, the teachers always stress to "forget the thought based on your native language". I am telling you here, that you don't have to. Despite the fact that it is nearly impossible to do so, the thinking from your native language really doesn't matter if you have a smooth logic and rich content. In fact, reading different styles of writing is an enjoyment for me – your native thinking can add some flavor to your English writing. So don't be shy if you prefer starting to write in your own native tongue as someone will appreciate reading your work.

Tip 2: Let your story be the guide

When I look back at my earlier work, or read the very first draft of a manuscript by students, it is not hard to find the main problem of the writing: the lack of their own narrative behind the words. Without the support of a core story, usually the paragraphs will look like a pile of random study findings by other research teams. This may seem like a cliché, but I've seen it happen over and over again to everyone, and not only to non-native English speakers.

Take a look at this paragraph from an article that I recently worked with:

*"Enzyme G is a significant enzyme of X pathway. Enzyme G is overexpressed in many tumors (citation), resulting in a remarkable increase of the G activity in a variety of tumor tissues, including tissue A (citation), tissue B (citation), tissue C (citation), tissue D (citation), tissue E (citation), tissue F (citation), tissue H (citation), tissue I and J (citation)(citation). Enzyme G is transforming glucose-6-phosphate into 6-phosphogluconate in the X pathway (citation). It is an essential pathway involved in metabolite production in humans, animals, plants, and microorganisms (citation). The role of metabolism in the development and maintenance of cancer has been broadly studied (citation * N). Numerous metabolic reactions can quickly generate ATP and lead to the unlimited proliferation of tumors (citation). The X pathway is catalyzed by G that simultaneously decreases NADP+ to NADPH (citation)".*

Now tell me how you feel about it.

First of all, this is written in good English and well-referenced, from which we learned that the author is knowledgeable in this field and took a great deal of time and effort to prepare the manuscript. But how about the story that the author wants to tell? Apparently, there's an enzyme that is important in a metabolism pathway and is overly expressed in tumors. However, the logic jumped from pathway to tumor, and then jumped back to the pathway, and again jumped to the tumor, and again back to the pathway. The main point has been

scattered throughout the words. This happens a lot when we lose ourselves in an ocean of references.

If I were the author, I would re-structure this paragraph to finish one point at a time for a better storytelling, for example:

“Enzyme G is a significant enzyme of the X pathway, which is an essential pathway involved in metabolite production in all living cells even in red blood cells of humans, animals, plants, and microorganisms (citation). Located in the cytosol, G catalyses G6P into 6-phosphogluconate which further gets converted to 5-ribuolse phosphate, and simultaneously reduces NADP+ into NADPH (citation). The NADPH is involved as a cofactor in process A while playing a vital role in process B (citation)” as a brief introduction of this pathway; and then move on to the role of this enzyme in tumors: “The over expression of G was observed in a number of neoplastic diseases, resulting in a remarkable increase of the G activity in a variety of neoplastic tissues, including tissue A (citation), tissue B (citation), tissue C (citation), tissue D (citation), tissue E (citation), tissue F (citation), tissue H (citation), tissue I and J (citation)(citation)..”

To summarize this point, please let your story guide your writing, and let the references serve your writing by supporting YOUR points, not piling them up and leaving no trace of what YOU really want to express.

Tip 3: Read more than just scientific papers

I know, I know, you are very busy with your lab work, and having time for a thorough PubMed spa is already luxurious. I'm with you 100% on this, because this is a big mistake that I've made myself. I read a review article written by a big icon last year and it just made me realize how boring my own writing was. Although the writing doesn't have to be interesting for original articles, our writing tasks aren't all original articles — things like scientific proposals, reviews, book chapters, “news and views” articles and even emails can benefit from a little bit of fun. You don't have to just dedicate time to read scientific literature, but you can also read best sellers or anything you find interesting. I have even learnt English expressions from gossip magazines. Whatever information you accumulated through the years will become part of you, and you will find yourself using them naturally without even paying attention.

One last bonus point is that **practice makes perfect**. Take every chance to improve your writing skills a little bit at a time, and you will be surprised. I hope you all have a good year of writing, get tons of publications, and always win the battle with the autocorrection system!