THE WRITING SCIENTISTS WORKSHOP

In the spring of 2022 I led an online workshop for eight scientists, mostly Ph.D. students, who wanted to work on writing the 1000-word magazine piece. This is part of a general project of promoting “outward-facing science” – the practice of working scientists communicating directly to the public, something we’re not trained at all to do (or are trained to do only in the context of lecturing to undergraduates.) This document is here to record how I ran the workshop and what happened in it; I hope it will be useful for people who want to organize Writing Scientist Workshops in the future, including my future self! It was really fun, and the amount of work required is very manageable.

The structure of the workshop. I publicized the workshop online and got about seventy applications, from which I chose eight participants. The application was pretty simple; a few questions about why the applicant wanted to be in the workshop, and I asked for a writing sample. I chose to run the workshop virtually because I wanted the broadest possible pool of applicants for my first time doing this, and because I thought this might be the last semester people were willing to participate in a Zoom seminar.

We had one introductory meeting to get to know each other, after which we met eight more times, on Monday afternoons. Each meeting was devoted to workshopping one student’s piece. Students turned in a draft of their piece one week before their workshop date. By the time of the workshop date, the other seven students and I were required to have the piece fully commented; after our meeting, they uploaded the commented drafts to a shared Google Drive. My intent was to focus on pieces aimed at magazines or newspaper opinion pages at a length of about 1,000 words; I was open to considering pieces in other formats but the students seemed to be happy to stick with the straight magazine piece.

My intent was to imitate the standard format for a short fiction workshop, which I found really useful for developing my ability to write short stories.

The workshop did not involve any money or course credit and there were no grades.

What we did in class. We usually chatted a bit as people filed into the room, but then spent just about the entire sixty minutes discussing the piece. I always asked the group to start with some strengths they found in the piece. I found it was usually about five minutes of praise before we naturally transitioned into proposing revisions; I never had to explicitly ask for this transition to take place. Generating an hour of discussion about a 1,000 word piece was no problem at all; most days, the clock stopped us at a moment when we could have had plenty more conversation. The balance between global/structural discussion of the piece and fine-grained discussion of individual words and sentences was pretty even, which I was happy and somewhat surprised about; I had imagined that inexperienced workshop participants would be more inclined to talk about whether the piece made a clear point, and less to talk about whether a particular word was well-chosen or a particular punctuation mark well-placed. I think we did a good job of focusing not on what we “liked” or didn’t, but rather on what work each sentence was trying to do and whether it did that work.
I’d been somewhat concerned that participants who hadn’t done workshops wouldn’t really know what I meant when I asked them to mark up the submitted drafts in detail. After the first meeting, with this in mind, I circulated a draft of my own of a piece in progress with my own notes on it, to make more clear what I was looking for.

Some workshops let the author speak and others ask the author to be silent, or to be silent until making some comments at the very end. I did not have a firm policy here; I advised the author to mostly just listen, but left it open for the author to answer direct questions from the other students, or to ask questions to the group. I thought this worked well and we never got into a mode of author arguing with critics in defense of their choices, which is one of the things the “quiet author” rule is designed to prevent.

**Commitment to the project.** A workshop can’t work if people are half-assing it, and one of my big concerns was that, because this was not a course for credit, students would not really be committed to it. This didn’t happen. In retrospect, it may have been better that this course was not for credit, and that no money changed hands. If students were paying to attend, it might have seemed more of a service I was providing them than a project we were all building collaboratively. If I’d paid them, or offered course credit, I might have gotten people who were less committed to the work.

As it was, I had almost universal attendance, and only one of the eight students didn’t come through with a piece to critique (and they had a good reason.) During our second meeting, I asked for input from two students who I’d noticed weren’t talking. Both students, after the fact, said they were fine with this, but I didn’t do it again. There were certainly meetings where some people talked more than others, but on the whole everyone participated fully.

What was really important to me is that participants really put in the time to write comments on their classmates’ work. Partly for this reason, I had everyone (including me) upload their annotations to a Google Drive we could all see; I felt this would make everyone feel a little more accountable.

**Some things I could have done differently.** Here are a few things I might consider changing. I am not committed to any of these changes, but I want to think about them!

- I didn’t look at the comments students were writing on the papers during the course of the workshop. My feeling was that, since the discussion in class was very in-depth and thought through, I could assume their written comments were good, too. It might have been good to actually look through everyone’s written comments early in the process to see whether I had any tweaks I wanted to suggest.
- It might have been nice to offer some assigned or recommended reading, pieces that succeeded in a particular way that I wanted to point out. Several students commented after the fact that this would have been welcome. One concern: is it counterproductive if I hold something up as an exemplar and students don’t like it? In Spring 2022, I did encourage students to share by email pieces of science writing they came across during the week that they thought were particularly good, and I think this practice had some value, but the pieces didn’t generate a ton of discussion.
- One student suggested that there be a response form with a few standard questions (“What did you like about this piece?” ”What didn’t work for you?” ”What was the main point of this piece?”) that participants could answer about each workshopped piece in addition to providing line edits.
I am not particularly fluent in Discord but some form of chat server might have been a better venue for generating between-class discussion of other writing; or it might have just sat there like a dead thing, not sure. Others probably know more than me about how to keep a class Discord active and useful.

I would have liked to talk more directly about the business of writing – how and where to pitch, what happens between a writer and an editor, information about specific publications, etc. Some students brought this up in post-workshop comments.

It would have been really good for the group to get a look at revised versions of the workshoped pieces. But (partly in the interest of maintaining the commitment level) I really wanted this to be short, and I couldn’t see any way of making this happen without adding a lot more meeting time.

I wrote above about some benefits of having the class not be for credit. But writing workshops in universities usually are for credit, and there would be upsides to doing it this way. In a for-credit semester class, we would probably have time to talk about revised version of already-workshopped pieces, even with more than eight students. I think a good size in a for-credit setting might be 12 – I’m pretty sure 20 would be too many.

If people other than me, with different varieties of expertise, were leading workshops like this, I think it would be really interesting to experiment with workshopping other outward-facing science formats. Could there be a podcast workshop? A science Twitter workshop? A book proposal workshop?

Some things we talked about a lot. In this section I want to record themes that arose multiple times in our discussions, and which I think would be likely to arise in any similar workshop about general-audience science writing. Some (like the first one) are themes that would arise in any workshop and which come up in every book about writing prose, but I’ve tried to focus on things I think are specific to people who are used to writing scientific papers.

- Always ask every word what work it’s doing. Remove words that aren’t doing any work. In the phrase ”widespread global availability,” the word ”widespread” is not necessary; what would global availability that wasn’t widespread look like? I think we got into a good habit of it being fun to eliminate words we found lying around doing nothing. An example from class ”You can’t really escape the proliferation of these models in your everyday life.” The word ”really” is just taking space, cut it. What about the ”proliferation”? Well, it’s the models you’re really trying to escape, not their increase or rapid reproduction, so maybe ”the proliferation of” can go too. And where are you while you’re trying to escape them? In your life? Where else would you be? The sequence of examples that follows the sentence makes the point that we’re talking about everyday life, anyway. So we’re left with ”You can’t escape these models.” Faster! Leaner!

- Wider lens: what work is the whole piece doing? We often talked about “explainers” and “persuaders” as the main two types of science piece, though there are subclasses of each of these (e.g. the ”debunker” is a particularly popular type of explainer) and to some extent almost all pieces have some amount of both. Often, we found a “persuader” closing paragraph tacked onto a piece that clearly really wanted to be an explainer. And sometimes it wasn’t at all clear what the piece wanted to be! One
exercise we did that worked really well: I asked everyone to type into the chat what they thought the goal of the piece was without hitting "enter." Then we all hit enter at the same time so we could see the group’s opinion about what the piece was trying to do. The diversity of responses was really useful to the author, and getting some clarity from the author about what they thought the piece was for helped us move forward in our workshopping.

- A 1000-word piece is really short. In general, it’s enough space to talk about one thing. We often found ourselves saying “the material in this paragraph is good but it’s too short to really do thing two, and too long a digression from thing one that the piece is about.” And we did talk about ways to gesture at another direction quickly without actually taking more than a step in that direction.

- We talked about abstract/distant language versus concrete/intimate language a lot. Neither is better than the other, but the proportion of the latter in popular writing is much more than most scientists are used to from their academic work. We talked about using shorter Germanic words instead of longer Greek/Latin ones. Eliminating words that aren’t doing work can be part of this – in class we saw ”That summer, I happened to start a new research program” and changed ”happened to started” to ”start” – direct statements are more concrete and lessen the feeling of distance between writer and reader. In scientific writing, we often want that distance; the author is meant to be a “voice from nowhere.” That’s almost the opposite of what we’re going for in popular writing. We want to convey authority, but the authority of personal well-justified assurance, not the authority of objectivity from a great distance.

- The author should be present in the piece! When we write ”One might consider X to be a form of Y” we are distancing ourselves from the metaphor we’re asking our reader to accept. It’s not me considering it, it’s a floating ”one”! And ”one” is not even actually considering it, just expressing the assertion that it’s possible one might at some point consider it! Compare with ”You can think of X as a Y” or even ”Think of X as a Y.” Both of these just come out and enact the metaphor rather than just asserting its potential existence. What’s more, the first one physically places the reader in the piece with a pronoun. The second one implicitly puts the reader inside the piece by using the direct form of address. The extent to which an implied reader should be present in the piece, and whether they should be more depicted (”You might be wondering....”) or ordered around (”Don’t be fooled by ...”) is a stylistic question with no universal answer. But the author should definitely be there.

- One simple place we pushed pieces along the abstract/concrete axis: adding examples! ”Seven species of seabird breed there. I am investigating how these seabirds are changing their diet....” is OK, but it would be better if a couple of those species were named after the first sentence, because bird species tend to have vivid names, and because, as a rule, talking about a specific X is more concrete and real to the reader than talking about the category of Xes, even if the reader has no idea what a double-crested cormorant looks like.

- Openings and closings are hard. Very often in workshop we’d pull out a moment in paragraph two or three and agree: This is the start of your piece, and everything before it is clearing your throat and getting ready to start the piece. I advised students
to be reflective about openings and closings when they read published writing. How many sentences into the piece do you get before you know what the piece is going to be about?

- In academic writing it’s very important to give credit, or, more generally, to situate the work we’re talking about in the context of an existing body of work. We often found ourselves cutting verbal gestures of this kind, e.g., “This translation function is built using a technique called Contrastive Language-Image Pre-training (CLIP), which has been perfected and fine-tuned by many different researchers in recent years.” The words from “which has” on are just there to say “this is a thing people work on,” which I think isn’t enough work to justify their presence.

- Four commas in a sentence is a sign the sentence might want to be two sentences.

- Internal-to-science language. This is not just scientific jargon; you probably already know that technical terms which mean nothing to the public don’t belong in a magazine article. A bigger challenge is dealing with normal English words which are used in a particular way in a scientific context. For instance: “Conventional therapeutics, like antibiotics, attempt to eliminate or suspend the causative organism, or a broad bacterial community, rather than replace the entire gut microbiome.” Words like “suspend” and “community” are used in a way that will read strangely to readers outside biology. A word like “therapeutics” is easily understandable from context, but the choice to use it rather than “treatment” or “medicine” signals the reader that the piece is going to be dense with internal-to-science terminology. “Causative” can also be figured out from context cues, but this is a good place to ditch the Latin word and go with “the organism that’s making you sick,” or a phrase to that effect.

- On the other hand: readers love to learn a new word. But if that’s what you’re trying to do with the piece (the “What does [X] mean?” piece is another subclass of the explainer) you need to be really direct when you introduce the word for the first time, making it clear you don’t expect the reader to already know what it means and that you’re going to tell them in a second.

- Which brings us to acronyms. In scientific writing we use them a lot. It seems like a really efficient way to do more with fewer characters! But in general-audience writing it feels jargony. In several pieces, we went through and de-acronymized any acronym that was used fewer than three times. My rough rule of thumb is you get to define and use at most one acronym per piece. (This is called OAPP.)

- Finally: there are no rules, just rules of thumb. Sometimes you need four commas! The goal of the workshop is not to fence off what’s allowed and not allowed in writing, but to build the habit of reading our own stuff with a reflective and critical eye.