Metcalf Institute for Marine & Environmental Reporting
RI NSF Experimental Program to Stimulate Competitive Research

COMMUNICATION WORKSHOPS FOR SCIENTISTS

Blogging Your Scientific Research

University of Rhode Island Graduate School of Oceanography
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Resources and References

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http://www.scilogs.com/from_the_lab_bench/why-female-hurricanes-made-getting-the-story-right-hard/

Center for Public Engagement with Science & Technology. "Communicating Science: Tools for Scientists and Engineers." American Association for the Advancement of Science. N.d.
http://www.aaas.org/communicatingscience

Hemingway (a handy app that analyzes your writing for clarity, brevity, jargon, and grammar)
http://www.hemingwayapp.com/

Janiszewski, Peter, PhD. "8 Tips on Starting a Science Blog." Science of Blogging. 6 Dec. 2010.
http://scienceofblogging.com/8-tips-on-starting-a-science-blog/

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http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2011_01_28/caredit.a1100007

Sociological Imagination. 38 Reasons You Should Blog about Your Research.
http://sociologicalimagination.org/archives/13910

Zimmer, Carl. "A Note to beginning science writers." CarlZimmer.com. 2013.
http://carlzimmer.com/writers.html

The Wellcome Trust offers a variety of great science writing tips here.
http://blog.wellcome.ac.uk/tag/how-to/

The Imperial College London has a workshop about science blogging as part of their Graduate School's Transferable Skills Training Program. This page includes some of the workshop presentations covering why grad students should blog, along with opportunities and issues in science blogging.
http://sciencebloggingworkshop.wordpress.com/about-the-workshop/

More graduate student insights on blogging:

http://www.nextscientist.com/writing-science-blog-saved-phd/
http://www.nextscientist.com/9-reasons-science-blog-good-for-you/

For more insights on the writing process, follow these hashtags on twitter:
#MySciBlog
#MyWritingProcess

Science YouTube Channels/Video Websites

AsapSCIENCE https://www.youtube.com/channel/UCC552Sd-3nyi_tk2BudLUzA

Minute Physics/Minute Earth https://www.youtube.com/user/minutephysics
https://www.youtube.com/user/minuteearth

It's Okay to be Smart (PBS Digital Studios) https://www.youtube.com/user/itsokaytobesmart

The Science Studio http://thesciencestudio.org/

Journal of Visualized Experiments, an online scientific video journal
http://www.jove.com/

Online Science Communication in General

Flowchart created by Miriam Goldstein about how to communicate science via the Internet. Narrows down what social media to use depending on your goal. She also includes more links to resources about this topic.
http://blogs.nature.com/soapboxscience/2012/06/07/reaching-out-so-you-want-to-communicate-science-online-the-flowchart

Article by Brian Kateman talking about the up rise of social media and the downfall of scientific literacy. He talks about the disconnect between the two and why it is occurring and how to bring the two together.
http://blogs.ei.columbia.edu/2012/02/29/social-media-and-the-love-of-science/

Somerville, Richard and Susan Joy Hassol. 2011. Communicating the science of climate change. Physics Today. October 2011, p.48
http://www.physicstoday.org/resource/1/phtoad/v64/i10/p48_s1?bypassSSO=1

Darling, ES, Shiffman, D, Cote, IM, Drew, JA. 2014. The role of Twitter in the life cycle of a scientific publication. (Open PeerJ Preprint: https://peerj.com/preprints/16/)
Infographic based on this paper: http://www.katiephd.com/twitter-and-science-publications/

Bik, Holly and Miriam Goldstein. 2013. An introduction to social media for scientists. PLOS Biology http://www.plosbiology.org/article/info%3Adoi%2F10.1371%2Fjournal.pbio.1001535

Giovanna Guerrero-Medina et al. 2013. Supporting diversity in science through social networking. PLOS Biology http://www.plosbiology.org/article/info:doi%2F10.1371%2Fjournal.pbio.1001740

Some Science Blogs and Blog Networks

Southern Fried Science http://www.southernfriedscience.com/
astrobites http://astrobites.org/
oceanbites http://oceanbites.org/
It's Okay To Be Smart http://www.itsokaytobesmart.com/
The New Reddit Journal of Science http://www.reddit.com/r/science/
Wired Science Blogs http://www.wired.com/category/science-blogs/
The Sociological Imagination http://sociologicalimagination.org/
Scientopia.org http://scientopia.org/blogs/
SciAm Blogs (An entire network of blogs listed here) http://blogs.scientificamerican.com/
Nat Geo Phenomena ("A Science Salon") http://phenomena.nationalgeographic.com/
Discover Magazine Blogs http://blogs.discovermagazine.com/
Deep Sea News http://deepseanews.com/
The Finch and Pea http://thefinchandpea.com/
Double X Science http://www.doublexscience.org/
PLOS Blogs http://blogs.plos.org/
Scilogs http://www.scilogs.com/
The Urban Scientist http://blogs.scientificamerican.com/urban-scientist/
and so many more!...

A motivational tool:

http://writtenkitten.net/

Benefits, Challenges and Tips for Blogging, by Joe Hanson

Benefits

1. **You will get better at explaining complicated things**. We can all explain complicated things in a complicated way. It's how we get our degrees and report ambiguous results. But the responsibility for accurate and accessible science communication starts with the scientists. You will find yourself sighing at your colleagues' PowerPoints and your lab meetings will be like TED talks. Your grandmother may actually understand what it is that you do. More importantly, other people's grandmothers may understand what you do.
2. **Writing and communicating will become easier.** Malcolm Gladwell's 10,000 Hour Rule may or may not be a real thing, but there's no disputing the fact that the more you communicate, the better you will become at it. Science communication will make you a better grant writer, a more productive teacher, it will make manuscripts flow just a tiny bit easier from your fingertips and you will learn how to deliver any idea, not just your own. This will come in handy should you get on an elevator with Craig Venter.
3. **You will teach people. YOU WILL MAKE AN ACTUAL DIFFERENCE.** I keep a folder of my favorite emails and messages I receive from readers. Some are telling me that I made a real difference in how they view science. People with poor teachers have found new energy to pursue their interests. People who are outcast from real-life social circles for being smart find something that gives them worth. People learn how to discuss climate change with that one uncle, and they save Christmas. People who don't know things will know things. But only if you tell them. This is really the best part, actually. This stuff **works**.

4. **You will meet amazing people.** There is no network like this network. There is no conference mixer in the world that compares to the connections waiting for you online. Where else could I watch a New York Times columnist talk to a biologist and a British PR professional about the intricacies of a synthetic biology paper? Bylines become people. Would you rather catch a fish with a line or a net? Maybe you're an introvert in real life? You can communicate on your terms online.
5. **You will get taught.** You will be wrong, likely many times. People will let you know this. You will learn from them and you will be reminded of the fact that unless you're in a room of one, you may not be the smartest person in it. And because you learn from them, you will do better work on and offline, and you will strive to be wrong less often. Because it is embarrassing. One of my favorite things to do is write about something that I know nothing about, like quantum physics. Now I know 0.001% of quantum physics, because I had to learn it. And your primary field will be enriched by the cross-disciplinary influences.
6. **You will rise above your peers.** No one leads by doing merely what is asked of them. If everyone else is doing it (or not), you're just average. You got your PhD? Congrats. It's a big accomplishment. But so did tens of thousands of other people, in just a single year. It's like how in China, if you're one in a million, there's a thousand people just like you. No one has to tell young scientists how scary the future looks. We all know that. But you can choose to be prepared and gain skills beyond your degree.
7. **Unknown opportunities may arise.** I have gotten some shockingly awesome emails since starting my blog. Sure, not everyone will see themselves on NPR or io9's websites (that was a humblebrag), but you don't know what could happen. Need advice on Congressional fellowships? I bet one of your readers knows someone, or better, is one. Don't quite "get" the multiverse theory? One tweet away. People may even ask you to give tips to scientist communicators in training at a workshop in Rhode Island! My career trajectory has likely changed forever thanks to science communication and the opportunities it has brought me. Other people's trajectories may simply be enriched. But it almost certainly not remain the same. Some of today's most promising science communicators started as scientists. This has never been the case. It is now.

Challenges

1. **"You don't have time for this"**. People ask me all the time how I balance the demands of a PhD program and blogging as often as I do. Well, maybe I do, maybe I don't. But I subscribe to the law of finite energy, meaning that there's only so much energy you can devote to all your priorities. This seems obvious, but actually isn't for many people. Your PI is not going to say "You can lower your productivity in order to blog more." So instead you will learn to do it more efficiently, when long gels are running, in the morning while you finish your coffee, when you get home at night. And if you really insist, (although I suggest you do this rarely) you may do it instead of doing lab work. But what's better, killing time with a cat video or honing your science communication?
2. **Or else.** There's a chance that your PI or boss may passively or actively discourage you from doing outside activities, be it violin lessons or ultimate frisbee or blogging. Many of my peers have been told they should cease certain activities and work more. I don't recommend putting yourself in professional jeopardy in order to blog/scicomm against their will, but instead use this as an opportunity to explain to someone why you feel this is so important, be it education, fulfilling your outreach requirement, or the very prudent "preparing for the non-academic jobs that a vast majority of us will be working in". Feel free to ignore this if you're very brave.

3. **No direction**. You may have a very different idea of what you're going to do online than what you end up doing online. I thought I was going to do traditional research science blogging at first, and within a month I realized how boring I felt that was and started doing my creative, media-heavy "science-plus" blogging. On the other hand, you may have no idea what you want to do online, which is also extremely dangerous. It's hard to gain a following without a direction. Find the balance between focused goals for your project and the ability to adapt to new ones at a moment's notice.
4. **The idea fountain.** We all have lulls in creative energy and output. Don't force it. Twitter accounts aren't legally binding. Blogs are not contracts to publish every hour, unless you work for Gawker. Carry a notebook or use a cloud service like Evernote. Capture ideas as they come, and deliver the ones you can. When the fountain runs dry, these will serve as your recharge station, as will knowing that you're allowed to take a breath. If you publish like a robot, you will publish robotic stuff. Unless you're Ed Yong.
5. **There are no rules.** You can't bottle this stuff and just make it work. There's not an exact recipe. It's Play-Doh, not Legos. Be flexible and keep your eyes open.

Tips

1. **Do not underestimate preparation.** The "up-front" time for producing any piece of content is often an order of magnitude more than delivering the piece itself. The rule for video is to anticipate one hour of production and editing for a single minute of video, if not more. One page of well-researched and well-written prose can take an entire day, if not more. You are not in a race to publish a New Yorker article every week. Allow yourself time to prepare and do good work, and be realistic about it.
2. **Embrace emulation**. Find the best people who do what you want to do, and dissect their every move. Don't do an impression of them, but fold their successful tendencies into your own. Don't plagiarize, but if someone writes about something you want to write about, there are no patents on ideas. Well, there are, but not like this. Write your own piece on what they wrote about, and tell them you got the idea from them in writing and on social media. It's a way to make connections and get better at the same time.
3. **Don't be obsessed with the next thing.** Pinterest could be very boring in a year's time. There's people going full-on overboard for Google+, and no one knows how many people even use it. Don't ignore novelty, but don't overestimate it. Would you rather have bought a Ford Pinto on the first day they came out or have a '68 Cadillac forty years later?
4. **Don't argue with people on the Internet.** Respond to their questions and concerns. If they repeat them, move on. 90% of your following will never say anything. Communicate to them.
5. **Keep going.** You might think that no one's reading, but one is more than zero. And five is more than one. We all began by thinking we were talking at the wall, but talking at the wall can be a great way to express yourself. And if you do it long enough, people will show up and ask why you're talking to the wall. Then you start talking to them. Yes, it will suck to spend two days researching a post that gets zero comments, or tweeting news to 45 followers. You will learn to go find your readers instead of wishing for them like Christmas ponies. You will ask your colleagues for signal boosts, and you will do the same for them. You will adapt your content to mesh with the desires of your readers, and you will publish it where they want to consume it. And in doing all of this you will realize that science communication is an active process, one that you must be **engaged** in.

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