

Science Writing for Non-Scientists

Most people do not get scientific information directly from scientific papers. As you all know, scientific papers can be very hard to read without a relatively intense scientific background. Thus, people without such a background will frequently get information through intermediate sources. These sources can range from strictly factual to completely false. Therefore, as developing scientists, you should be familiar with the sources of information that most people deal with.

Pamphlets/Informative Brochures:

- Brochures for medications
- pamphlets on disease

Newspaper Articles/News Shows:

- Articles in the St. Louis Post Dispatch
- Pieces on recent developments on the evening news

Popular Science Magazines or Books:

- *Popular Science*
- *Scientific American*
- “Maneater: and Other True Stories of a Life in Infectious Diseases” by Pamela Nagami
- “Stiff: The Curious Lives of Human Cadavers” by Mary Roach

Documentaries:

- National Geographic documentaries
- Discovery Channel documentaries
- NOVA programs

Reference or Text Books:

- The Merck Manual
- “Genes VII” by Benjamin Lewin

Science Fiction Books or Movies:

- “Frankenstein” by Mary Shelley
- Jurassic Park, the movie

Special Pieces in Non-Science Magazines:

- An article about medical ailments in a women’s magazine

Online:

- CDC website
- “The Onion” science page (<http://www.theonion.com/content/science>)

From “experts” in the field:

- Your PI
- Your doctor
- You

These are all sources of popular science. Wikipedia’s popular science description of popular science is thus:

“Popular science is interpretation of science intended for a general audience, rather than for other scientists or students. Popular science is presented in many formats, including television documentaries and magazine articles. The quality of popular science varies widely. The best popular science is produced by people skilled in both science and communication who approach the subject from a neutral point of view.

Some popular science can be very misleading. Some is produced by people with limited understanding of the subject they are interpreting. Some is produced by people who are extremely biased. Unfortunately, it can be hard for the non-expert to identify misleading popular science. In the case of medical research, results are often presented in the press without adequate context. Popular science may also blur the boundaries between formal science and pseudoscience.”

From http://en.wikipedia.org/wiki/Popular_science

As this article neatly sums up, the major problems associated with believing popular science are bias, misinterpretation, and lack of context. What can you, as an educated student, do to make sure that you aren’t spreading biased misinformation? The following tips will help:

1. Make sure that you really know what you are talking about before you begin writing/spreading information to others on a scientific (or other) topic. Because you have worked at WashU for a summer (and perhaps longer), many people will consider you to be an expert. However, many people will classify you as an all-encompassing biology expert, even if your project dealt only with a small segment of research. Avoid the temptation to act as a broad science expert, because people will trust the information you give them and there are potential negative consequences if you accidentally (or intentionally!) mislead them.
2. Consider the credibility of your sources. Ask yourself whether you have a reason to believe the information given by a particular source and whether that source may have a bias one way or another on a particular topic.
3. Cite your sources—then if it turns out the information is wrong, people will know exactly where the information came from. Also, if people want to verify this information for themselves, they will know where to go.

4. Don't oversimplify too much! While simplifying some concepts is necessary to allow people without a strong science background to understand your project, don't oversimplify to the point that what you are saying is incorrect.
5. Take your sweet time explaining scientific concepts. Because many people lack strong scientific backgrounds, it is often useful to go over the basic concepts that your science builds upon. You might need to explain DNA replication in the cell before talking about PCR, for instance. Most people have the capacity to understand fairly complex phenomena, but they may need some time between concepts to fully grasp what you are trying to convey. If you are trying to tell your parents (or buddies or whatnot) about your research, then take your time and explain small chunks at a time. If you are writing a popular science piece, then don't worry about length limitations. Write as much as is needed.
6. Use pretty figures. They are perfect for summarizing major concepts in a format that is easier to grasp than a paragraph of text, and if they are pretty, people will look at them. In general, the prettier an article looks visually, the more likely it is to be read. Take these notes—I could have written everything in a paragraph, but breaking the text up makes it easier and more appealing to read.