Lessons for success in science communication

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Learning to communicate

The foundation of science is deeply rooted in fact and skepticism. Throughout scientific training, a scientist must master the skill of critical thinking. Without a strong logic or rationale, it is difficult to interpret your own work or that of others. Implicit to the mastery of critical thinking is the ability to convey your argument and critique others.

Learning to give and receive criticism

Scientists put their blood, sweat, and tears into their research. As such, criticism of your work can feel like a personal attack. Learn to put your ego aside, heed constructive criticism, and also stand your ground. You think about your project more than anyone, so if you think you are correct defend it! Construct a clear and logical argument to counter critiques.

Communicating science to non-scientists

Most of a scientist's time is spent talking with other scientists, but expressing your work to non-scientists is also important. Friends and family are always interested in what you are

doing, so practice pitching your science to them. Removing science jargon and breaking things down to an elemental level helps distill the essence and relevance of your work.

Teresa V. Bowman, PhD
Associate Professor, Department of Developmental & Molecular Biology
Associate Professor, Department of Medicine (Oncology)
Albert Einstein College of Medicine
Bronx, NY

Like all skills, practice makes perfect. When you are just starting out, it is sometimes difficult to clearly convey your point confidently. The first step in gaining self-confidence is talking with your mentor and lab mates. This group will be most familiar with your work and can offer a detailed perspective on the project. The casual discussions that naturally occur in the laboratory and among your scientific friends lay the foundation for effective communication. Moreover, new and interesting collaborations can arise out of these interactions. My most successful and most fun collaborative projects arose out of conversations with friends.

It is also important to present your work in a more official setting. Formal presentations force you to clearly organize your thoughts to make a cogent argument that best showcases your work. Seize every opportunity!

When you are on the other side giving an evaluation, it is important to realize that how the message is delivered is as important as the message itself. Some people appreciate frank, honest opinions while others crumble under brutal honesty. Cultural differences should also be considered. Recognizing these differences can lead to more productive discussions.

Asking questions at seminars is also a great way to practice giving feedback. Attend seminars with your ears and mind open. Force yourself to ask questions. In many instances you will not be an expert, but often seemingly naïve questions are actually novel and useful

perspectives. Asking questions at seminars is daunting at first, so practice by chatting with your friends and colleagues about their work. You will gain confidence and then asking questions in public will be less stressful.

Whether you find yourself as a principal investigator in an academic lab or find a career path outside academia, communication is critical to success. For example, industry scientists work as teams on projects, thus those with good communication skills will be promoted over those who cannot effectively lead the group. Journal editors also work as teams and are under deadline pressures, so they must succinctly and convincingly convey why a paper is worth reviewing or not. Through effective communication, you can create opportunities to apply your critical thinking skills in any avenue that captures your passion.