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Effective Communication, Better Science [1]

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Science communication is part of a scientist's everyday life. Scientists must give talks, write papers and proposals, communicate with a variety of audiences, and educate others. Thus to be successful, regardless of field or career path, scientists must learn how to communicate. Moreover, scientists must learn how to communicate effectively. In other words, to be a successful scientist, you must be an effective communicator.

Before I go on, I should note that for the purpose of this post, I am defining science communication broadly, meaning any activity that involves one person transmitting science-related information to another, from peer-reviewed articles to tweets.

Effective communication [4] means transmitting your message clearly and concisely so that it is understood. It's about engaging your audience – it's about the 'So what?' and 'Why does it matter?' of your message.

When scientists communicate more effectively, science thrives. Science is increasingly interdisciplinary and the ability to communicate more effectively across disciplines fosters collaboration and innovation. Being able to communicate the relevance and impact of their ideas and discoveries can enhance scientists' ability to secure funding or find a job. It allows them to write better and more comprehensible research papers. It also allows them to be better teachers and mentors for next-generation scientists.

When scientists are able to communicate effectively beyond their peers to broader, non-scientist audiences, it builds support for science, promotes understanding of its wider relevance to society, and encourages more informed decision-making at all levels, from government to communities to individuals. It can also make science accessible to audiences that traditionally have been excluded from the process of science. It can help make science more diverse and inclusive.

Although having more scientists who are effective communicators benefits science and society greatly, there are still relatively few training opportunities for science students and professionals to develop these skills.

Fortunately, effective communication skills are no longer perceived as soft skills. Increasingly [5], they are becoming part of the core professional skills every science student and professional should have.

Many science communication training programs and courses for scientists use the public communication of science as a tool to develop effective communication skills. See, for example, this list [6] of training opportunities compiled by COMPASS [7], an organization dedicated to improving science communication. Here are a number of other resources:

- iBiology Young Scientist Seminar Series [8]
- Escape from the Ivory Tower: A Guide to Making Your Science Matter [9]
- English Communication for Scientists [10]
- AAAS Mass Media Fellows Program [11]
- Communicating Science: Tools for Scientists and Engineers [12]
- #GradSciComm: How COMPASS is Answering the National Demand for Science Communication Training [13]
- Building Buzz: (Scientists) Communicating Science in New Media Environments [14]
- Practical Science Communication Strategies for Graduate Students [15]
- Successful Science Communication: A Case Study [16]
- Communication Breakdown [17]

Public communication of science is not for everyone, of course. We can’t expect all scientists to use Twitter, participate in their local school’s career day or blog, but a little bit of effort goes a long way.

Public communication encourages scientists to think about the big picture. For instance, scientists can get bogged down with the specifics of a research question or use too much jargon to explain a concept. Public communication encourages scientists to find simple, more succinct ways to get the essentials of their message across. Why does/should it matter to your audience? Why is it important?

Sure, no one can argue that writing a peer-reviewed research article is the same as writing a science blog for high school students, or that giving a talk to your peers at a scientific conference is the same as standing in front of a group of middle schoolers to teach them about chemistry. Although public communication may seem very different from scholarly communication of science, the principles and strategies that make messaging effective in each arena are very similar.

For example, know your audience. Who are they? You always need to know who you are trying to reach, as it affects everything else you do. Are you trying to reach peers in your field or are you communicating across fields? Are you talking to a potential funder or to a local reporter? Regardless of your message and your goal, you always need to know your audience.

“If you can’t explain it simply, you don’t understand it well enough,” Albert Einstein said. As experts, scientists have a deep knowledge of particular subjects. To communicate something effectively, one needs a similarly deep knowledge of the associated skills. Public communication offers scientists ways to learn and practice the basics of effective communication. By teaching scientists how to explain their work simply—and more effectively—public communication increases the impact of science in multiple dimensions.

Tags:

- Science communication [18]
- Scicomm [19]
- comunicación [20]
- Divulgación científíca [21]
- scientific american [22]

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