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Science Communication Training

In a previous article in *Acoustics Today* (Jones, 2017), I encouraged all members of the Acoustical Society of America (ASA) to consider doing outreach to promote awareness and understanding of acoustics. I pointed out that doing outreach can be quite simple if one follows a basic outline: choose a topic and outreach style, define your goals as you plan, and work out the logistics of doing outreach, like securing funding and a venue. In this essay, I discuss briefly why outreach requires science communication training and where and how acousticians can develop these skills.

Over the course of their education and work, professionals receive training and education that allows them to communicate with precision to a very specific type of audience: one that already has the requisite background knowledge, such as a colleague or coworker. Therefore, the typical approach in communicating with this audience in conference or meeting settings is to begin with background information and motivation and then conclude with discussions and analysis of results.

However, although this approach can help contextualize and motivate research for colleagues, it clearly is not the best way to educate someone with little to no background in acoustics or, for that matter, in any aspect of a science. Indeed, although ASA members are highly trained in their field, many receive very little training or practice in science communication for a general audience. Thus, it should come as no surprise that many professionals do not do public science outreach because they don't know how. Lack of knowledge is an easy hurdle to overcome because public science communication skills can be learned in different ways and they can easily be improved with practice and feedback. The critical point to understand is that communicating science to nonacousticians, whether it is to children, schoolteachers, parents, or senior citizens, is very different from presenting research at an ASA meeting. It is also important to appreciate that different audiences require different communication strategies. For example, what works in a formal college classroom generally will not work in more informal, casual settings and, likewise, methods used for children are different from those used for an adult audience.

Overall, interactions with the public should spark interest in learners and encourage them to do some scientific reasoning and reflection. Ideally, learners should not feel as though they sat in on a college lecture. To understand this better, review the “strands of science learning” for details about what it means to actually learn science (see ow.ly/7Cz850xMoki). To really spark interest, get the audience to try to solve a problem using similar tools or methods that are used in research. For kids, it can be beneficial to frame this as playing a game or helping solve a mystery. This way, the audience wants to take part and will start off curious. Additionally, they will get a taste of what science can look and feel like. After they start interacting, your job is to guide them through the learning process, weaving in elements of scientific knowledge and practice with effective science communication.

To have a successful outreach activity, sophisticated concepts have to be clearly communicated. So, just as you received training to be an acoustician, it is no surprise that

we need training to be effective science communicators. Such training can be achieved through observation, education, and receiving informative feedback. These educational experiences provide the necessary skills and knowledge required for interacting with audiences of all types. For example, effective science communication can help you interact and acquire funding from selection committees or donors who may not be scientists or acousticians but who need to have a sense of what the research or project proposal is about. Similarly, the ability to speak to the public can make research more appealing and understandable to the media that can lead to more public engagement and support. The ability to inform diverse audiences about your science will be invaluable for any kind of communication, both formal and informal.

Training in informal science education and science communication is becoming more widely available. If your home institution or organization does not host any courses or workshops, search the Center for Advancement of Informal Science Education (CAISE) list of Training Programs of Interest to Science Communicators & Outreach Professionals and for in-person informal science education workshops (see ow.ly/OVBF50xMoAM). The Alan Alda Center for Communication Science has a Workshops on the Road program and will come to your school or business and is a great way to get wider participation from colleagues (see ow.ly/g1yL50xMp8M). If you cannot attend a course or workshop in person, check out the American Association for the Advancement of Sciences (AAAS) Center for Public Engagement with Science & Technology communication toolkit, which is an online resource providing guidance and tips to improve communication skills (see ow.ly/J0ru50xMpcK).

It is also a great idea to observe effective science communicators in action and analyze what they do. Break down their style and figure out what would work for you. Watch people both

near and far from the center of your research, study, or application of acoustics. For example, you can start by watching the presenters at the 2016 World Science Festival about sound, which included two ASA members, Dr. Whitney Coyle and Dr. Laura Kloepper, as well as Eddie Goldstein, a museum science presenter (see youtu.be/SS8ew6rWvCQ?t=250). Another ASA member, Dr. Allison Coffin, president of Science Talk, has even more resources such as the annual conferences meant to promote the best ideas in science communication (see sciencetalk.org/conferences.html). Watching and interacting with others can help guide and inspire, so be on the lookout for other great science communicators to teach you.

Also, do not underestimate your network of friends, colleagues, and coworkers. As previously mentioned, you can observe them in practice, but you can also ask for guidance. For example, practice communicating science for a lay audience with colleagues in your field so that they can ensure that the information is correct. Collaborate with educators who work with children so they can let you know when jargon comes up or if you have glossed over something because it is considered common knowledge in the field. This input, advice, and help will supplement the online materials.

There is no need to avoid science outreach anymore. You can go to YouTube and get started now or schedule to attend a science communication training workshop. Acousticians have a diverse set of skills and expertise, and there is no reason that this skillset shouldn't include science outreach and science communication. Build your skills to effectively communicate with diverse audiences.

References

Jones, K. (2017). ASA Education and Outreach Program. *Acoustics Today*, 13(4), 69-71. Available at <http://ow.ly/WCE350xMrbm>.

Women in Acoustics

The ASA's Women in Acoustics Committee was created in 1995 to address the need to foster a supportive atmosphere within the Society and within the scientific community at large, ultimately encouraging women to pursue rewarding and satisfying careers in acoustics.



Learn more about the committee at womeninacoustics.org