Communicating Science:
Bridging the Great Divide

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Making science engaging and fun is an art, and getting the public interested in science is a science in itself. An initiative led by Jonathan Sharp, Professor Emeritus of the University of Delaware, aims to train scientists in the finer art of science communication to help them better communicate their research.

Hollywood actor Brian Palermo instructs participants on communication skills at the Connection Workshop at the ASLO Aquatic Sciences Meeting held in Granada Spain in February 2015

There is increasing pressure on scientists to explain their research to a wider audience, including decision-makers, news journalists and the general public. Yet while scientists have experience in communicating their research to fellow scientists, most researchers lack the skills and training needed to present technical scientific information to a non-scientific audience in a manner that will capture and hold its attention.

For science to make a real impact on the world, it is essential that scientific findings are disseminated to the world at large rather than limited to an audience consisting of a handful of fellow scientists. For example, for the broader public to understand the importance of taking action to combat climate change, they need to understand the causes and impacts, how it will affect them, and what can be done to prevent or mitigate these impacts. This needs to be communicated in clear and simple terms in a manner that will engage this audience and stimulate debate, thought and action.

The public today is often overwhelmed by too much "data" and is unable to translate this into information. Scientists, as experts in their field, are routinely interviewed by the news media on topics that affect humankind such as health, climate change, and various aspects of technology and are called on to translate data into information. But for most scientists, communicating their knowledge to the layperson often poses a real challenge. How do they get the facts and key points across while at the same time still engaging the audience rather than coming across as dry and boring?

While there are a number of books that guide researchers on how to communicate science to a general audience, hands-on training is much needed. Recognizing the need for training opportunities in this regard, Jonathan Sharp, Professor Emeritus of Oceanography at University of Delaware's School of Marine Science and Policy, launched an initiative to train scientists in the art of communicating their research to a wider audience, in an effort to bridge this gap. This effort has been in collaboration with Dr. Adrienne Sponberg, Director of Communications and Science of the Association for the Sciences of Limnology and Oceanography (ASLO), and Randy Olson, an independent Hollywood filmmaker with a background in evolutionary biology and marine science.

According to Professor Sharp, there are several factors that contribute to poor performance in terms of communication and outreach by aquatic scientists. First, many scientists lack interest in taking part in outreach activities as they either do not have experience or do not recognize the importance of communicating their research. Second, not enough emphasis is placed on the importance of outreach activities by their superiors and peers in the research community. But the biggest hurdle most scientists face in effectively communicating their research is that they simply lack the skills to effectively communicate with the broader public.

This last issue, is arguably the most pressing, because if scientists were skilled in the art of communicating their science to the general public, the public would be more interested in what they have to say, which would in turn encourage scientists to actively engage with this new audience.

To address these shortcomings, Professor Sharp organized a series of training workshops and panel discussions at ASLO Aquatic Sciences Meetings and Ocean Sciences Meetings (jointly sponsored by ASLO, the Ocean Sciences Section of the American Geophysical Union, and The Oceanography Society) with input from science communication specialists, media professionals and non-scientists. The workshops provide scientists with training on a variety of communication skills, including how to produce short science videos and how to communicate with the general public. Launched in 2008, these training sessions were initially supported by ASLO. Due to the keen interest shown in the training workshops and discussions, and thanks to funding from the Ocean Sciences Division of the US National Science Foundation, these training workshops have continued annually, and extended into 2016.

PANEL DISCUSSIONS

Panel discussions were introduced at recent meetings to help scientists better understand public perceptions and attitudes towards science. The following panel discussions have been held to date:

Does Science Really Matter? (Ocean Sciences Meeting in Orlando, Florida; 2008) - This discussion focused on the importance of outreach to the public and the need to place more value on outreach activities.

The Cultural Gap Between Scientists and the Public (Ocean Sciences Meeting in Salt Lake City, Utah; 2012) - The aim of this discussion was to help scientists better understand public attitudes toward scientific 'evidence' and help them overcome challenges and barriers they face in effectively communicating their research to the public. This discussion was recorded and made available to a wider audience via an online podcast (http://udcapture.udel.edu/podcast/watch.php?c=531).

Why aren't they listening? (Ocean Sciences Meeting in Honolulu, Hawaii; 2014) - This discussion once again focused on the barrier between scientists and the public, and the general public apathy towards what scientists have to say.

What can you do, and should not do to inform the public about environmental problems? (Aquatic Sciences Meeting in Granada, Spain; 2015) - Panelists discussed outreach activities that they and fellow scientists had conducted to communicate science to the public, and addressed issues that were likely to result in a poor public reception by an already disinterested audience, notably 'doom and gloom' scenarios sometimes used by environmental scientists to get their message across.

VIDEO WORKSHOP

Several years ago, scientists started making their own videos to explain their research; however, most lacked the skills needed to make these videos interesting and appealing to a public audience. To address this, Randy Olson, a former scientist who traded an academic career in marine biology for a career as an independent filmmaker and communication consultant in Hollywood, presented a workshop on how to make short science videos at the 2008 Ocean Sciences Meeting. Following on from this initial workshop, video analysis workshops were held at subsequent Ocean Sciences and Aquatic Sciences Meetings, where the emphasis shifted to screening, critiquing and discussing videos submitted by scientists for analysis. Over the ensuing five years, the quality of videos submitted by workshop participants has improved considerably, which is partly attributed to the workshops.

SCINTILLATION WORKSHOP

To improve scientists communication skills in other areas, including oral presentations and writing scientific papers and proposals, two additional events were added to the 2013 Aquatic Science Meeting: 1) a Scintillation workshop, and 2) a Snap it Up Workshop. These workshops, together with the video workshop, were collectively advertised to the scientific community as 'Hollywood comes to ASLO'

The Scintillation workshop, titled Scintillation – a workshop to make your science communication scintillate through 'critical storytelling', was aimed at anyone from students to senior scientists who presented their stories at the workshop and then worked on improving them by developing a simple, yet compelling, storyline that was interesting and engaging.

SNAP-IT UP WORKSHOP

The third workshop in 2013, titled Snap it up — advice from Hollywood for short presentations, focused on scientific presentations given to fellow scientists at conferences. The Hollywood media team attended and evaluated a few talks. Then, at the workshop on the following day, they gave critiques (largely positive) and suggested small improvements that would make the talks more engaging to a broader audience. In this case, the target audience is a broad multi-disciplinary group of peers, as opposed to a small group of fellow specialists.

The Snap it up workshop was included in the 2014 Ocean Sciences Meeting and the 2015 Aquatic Sciences Meeting, but the Scintillation workshop was replaced with the Connection Workshop, outlined below.

CONNECTION WORKSHOP

Following the 2013 Scintillation Workshop, the presenters released a mobile app and a book titled: Connection: Hollywood Storytelling meets Critical Thinking. This theme was carried forward for the 2014 and 2015 Connection Workshops, where participants learned improvisation techniques to help boost self-confidence and help them come across less stiff and imposing to a public audience, as well as how to inject humour into their presentations to help them connect with an audience and make an audience more receptive.

FUTURE TRAINING

The Snap it Up and Connection workshops have both been scheduled for the 2016 Ocean Sciences Meeting, and Professor Sharp hopes to continue the workshops and expand their reach in the future.

"The Hollywood workshops have been well received and by participant evaluations and our own analysis are both successful and valuable to continue in the future," said Sharp. "It is rewarding to find growing enthusiasm and interest in these workshops and we are receiving feedback from participants on how the workshops have changed their presentations."

Future plans include finding other ways to reach the broader scientific community and finding other sources of financial support to expand this initiative.

"The workshops are fairly brief snapshots at the meetings and a relatively small number of attendees participate," notes Sharp. "We are exploring ways to get the workshop messages more extended and to reach larger audiences."

Researcher Profile

Jonathan H. Sharp
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Professor Jonathan H. Sharp received a Ph. D in Oceanography from Dalhousie University (Halifax, Nova Scotia, Canada) in 1972. After completing a stint as a Post-graduate Research Biologist at Scripps Institution of Oceanography he joined the University of Delaware, where he served as a Professor until his retirement in 2014. Professor Sharp's primary research interests lie in estuarine, coastal, and open-ocean oceanography and in translating research for natural resource management. He has received several awards and honours recognizing his contribution to science and teaching. He was inducted into the Delaware Maritime Hall of Fame in 2008, and received a Lifetime Achievement Award from Delaware Estuary Program in 2011 (later named after him).

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KEY COLLABORATORS FOR COMMUNICATIONS ACTIVITIES

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Dr. Randy Olson, marine biologist turned Hollywood filmmaker and communications consultant
Brian Palermo Hollywood actor and instructor in improvisational acting and communications consultant.

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