THE OFFICIAL MAGAZINE OF THE OCEANOGRAPHY SOCIETY

Oceanography

**CITATION**

Yoder, J.A. 2018. Unanticipated benefit of an outreach program. *Oceanography* 31(2):10, https://doi.org/10.5670/oceanog.2018.221.

**DOI**

https://doi.org/10.5670/oceanog.2018.221

# Unanticipated Benefit of an Outreach Program

By James A. Yoder

The National Science Foundation supported six projects that comprised the Climate Change Education Partnership, including the National Network for Ocean and Climate Change Interpretation (NNOCCI) for which the Woods Hole Oceanographic Institution (WHOI) is the science partner. The New England Aquarium leads NNOCCI, and the network also includes informal science educators, social and cognitive scientists, and evaluators. The partners work together to improve public awareness of climate change and its impact on the ocean (Spitzer, 2014; Fraser et al., 2015; Anderson, 2016).

The key tool of the training program is the "study circle"—a group that includes 25 interpreters from informal science education institutions and two "science fellows." Study circle members interact with training leaders for 100 hours, both online and in three face-to-face meetings during a six-month period. The training emphasizes "framing" (Volmert, 2014; Frasier et al., 2015), a research-validated communication strategy developed by FrameWorks Inc. Framing strategies include appealing to shared values (e.g., appreciation of ocean environment), use of metaphors (e.g., "heat-trapping blanket" to explain atmospheric $CO_2$), articulating causal chains (brief explanations that link processes or factors), and using a reasonable, non-rhetorical tone that includes possible solutions.

Four study circles were formed each year for four years. Thirty-one early career scientists participated as science fellows, including 19 WHOI postdocs and 10 MIT-WHOI Joint Program graduate students. I interviewed 12 of the 29 science fellows, chosen randomly, to find out what they thought they contributed to the study circles and what they learned from participating in them. I was curious to hear their responses to framing, particularly the idea of emphasizing common values as a way to approach an audience rather than doing so with facts, the latter being typical of scientific discussions. I was delighted to find that the science fellows responded favorably to framing. They appreciated that framing was based on social science research and was evidence based. They accepted the concept of appealing to values and of avoiding the crisis trap (i.e., avoid presenting facts that make the climate change situation seem so dire as to cast doubts as to whether any solution is possible).

Leaving aside the importance of communicating climate change issues to general audiences, I was surprised and pleased to learn from the interviews that almost all the science fellows believed that the training that they received added an important new skill that will help them in other ways in their careers. There is a common perception among interviewees that framing also helps them organize their science presentations to peer audiences. This finding supports my experience with an informal-writing course taught for graduate students at WHOI that focuses on how to write an article for general audiences (e.g., see the student issue of *Oceanus*, 2016). According to course participants, developing the techniques to write effectively for general audiences also helped them write better and clearer scientific articles.

My experience is that well-constructed outreach programs based on research- or experience-based communication strategies develop skills in early career scientists that significantly contribute to their professional development. This is one important reason why I recommend that graduate programs provide such outreach opportunities for students and postdocs, and strongly encourage these young scientists to participate.

*Framing is useful as a process for organizing my thoughts. I expect to use the technique in the future.*

*I use the framing techniques like appealing to a value, metaphors, and empowering the audience for solutions in everything I'm doing professionally.*

*Framing is key for pitching ideas internally, as my bosses are not ocean/Earth scientists. It works!*

*I use framing everywhere and all the time. It's one of the most important skills I've learned during my time working at WHOI.*

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## ACKNOWLEDGMENT

Financial support was provided by NSF grant DUE-1043405.

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## ARTICLE CITATION

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