

How Can We Help Scientists Adopt Equity Approaches to Science Communication?

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What Is the Issue?

Science communication that connects STEM-based professionals with various publics are often designed and implemented with a range of multiple outcomes in mind. Having specific, articulated behavioral goals and communication objectives can inform strategies for developing impactful activities, settings, and programs. A growing body of [recent research](#) shows that strategic goal- and objective-setting can influence the effectiveness of engagement efforts. These findings suggest that scientists and communicators should apply the same rigor used in their research designs to thinking about how their communication objectives align with the engagement strategy. Leaders of professional learning and training in science communication, as well as leaders of informal STEM education

programs, can support STEM-based professionals to connect with more diverse audiences by helping them to better understand their own goals for science communication, the audiences who would share or relate to these goals, and how best to reach those goals.

Things to Consider

Scientists and others who seek to engage public audiences with research have varied and sometimes multiple motivations for doing so. Goals such as exciting or informing audiences about STEM are often the tip of the iceberg of the range of possible outcomes of an activity, talk, or other designed strategy. Given that there can be a mix of personal, organizational, and societal goals that motivate a given STEM professional to engage in communication

Why It Matters to You

- **Scientists and STEM professionals** can be more effective at engaging diverse audiences if they align their engagement strategies with their communication goals and target audience.
- **Science communicators** can help scientists have more rewarding engagement experiences by better understanding the alignment between goals, strategies, and audiences.
- **Professional development leaders and science communication trainers** can design training programs that help science communicators understand the intersection of goals, objectives, strategies, and audiences, and how these elements may vary at different times or for different purposes.

Things to Consider (continued)

or outreach, taking the time to investigate, identify, and articulate desired goals and objectives can be an important step in successful engagement. Goals may include: Generating interest in STEM careers, informing everyday decision making using science, influencing the way STEM is taught in school or afterschool settings, building community support for local science institutions or agencies, or positioning STEM as a tool for supporting community improvement efforts and social justice.

An example of a specific science communication objective—towards, for instance, informing everyday decision-making using science—is building audiences’ trust of scientists and the scientific enterprise. The perception that a person is caring and warm are components of building trust, but research has shown that while scientists might already have audiences’ respect for their expertise, they are not necessarily seen as caring or warm. Such findings suggest that communication may be more effective when scientists adopt program strategies that make their personal belief systems and their motivations to work for social good more transparent to their audiences.

Reflection Questions

- + What are our program’s goals for designing and implementing communication, engagement, and/or STEM learning activities? Do we have both short- and long-term objectives?
- + What do we know about the goals of our current audiences, or the goals of the audiences we would like to reach?
- + How can we be more strategic about our designs and activities?

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SCIENTIST AGNES MOCSY AND THEATRE DIRECTOR DEBY XIADANI EXPLORE WAYS
THAT AUDIENCES AND SCIENCE COMMUNICATORS CAN INTERACT IN A WORKSHOP
ON INTERACTIVE THEATRE.



This material is based on work supported by the National Science Foundation (NSF) under award no. DRL-1612739. Any opinions, findings, and conclusions or recommendations expressed in the material are those of the authors and do not necessarily reflect the views of NSF.

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Recommended Actions You Can Take

- Identify and map your goals, objectives, and engagement strategies for current and past science communication activities. How could they have been better aligned?
- Identify the goals and interests of your current target audiences. In what ways do they resonate with the goals you have identified for your science communication efforts?
- Be intentional, moving forward, about aligning goals, objectives, audiences, and engagement strategies.

Tools You Can Use

- Two 2016 articles by communication researchers Dudo, Besley and Yuan provide background on goal-setting and why it matters—one on [scientists’ prioritization of communication objectives for public engagement](https://doi.org/10.1371/journal.pone.0148867) (doi.org/10.1371/journal.pone.0148867) and the other on the [need and use of short term objectives](#) in parallel with long term goals (on the blog of Michigan State University’s Department of Advertising and Public Relations).
- A 2014 article by Fiske and Dupree on [the role of trust in science communication](#) explores the dimensions of trust and makes a case for why it is as important as respect as a consideration when setting communication goals (doi.org/10.1073/pnas.1317505111).
- Informal STEM education providers and professional associations are trusted sources of STEM information. [This 2016 CAISE report](#) provides STEM professionals with an overview of engagement and public participation in scientific research, and a short list of organizations and networks that have resources.
- [Portal to the Public](#) helps informal learning organizations utilize and train scientists and engineers to have meaningful conversations with publics around local STEM issues.
- The [Role Models Matter](#) toolkit, created by Techbridge Girls, prepares STEM professionals for outreach with girls and underrepresented youth.