

**THE NATIONAL SCIENCE FOUNDATION
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TITLE

The Scientists with Stories Project

SUBMISSION

I wanted to try an experiment, but not the kind I would include in my dissertation. In the oak-walled library of the North Carolina Museum of Maritime History, I decided to test the principles that define our graduate student initiative, The Duke/UNC Scientists with Stories Project. Organizers of an ocean film festival had approached me, a local student researcher: can you give a 20-minute presentation about the importance of science outreach? I arrived at the museum with no PowerPoint file, just a YouTube link scrawled on paper.

“I’m going to share some information that I gathered from a research trip to Midway Atoll. This is one of the world’s most remote islands; yet, each year, eight tons of plastic and marine debris arrived at its beaches. Right now, scientists are assessing the effect of plastics on the island’s rare albatross population. Today, 98% of the chicks have plastics in their bellies, up 30% from the 1960s. So many chicks never make it off the nest, they essentially suffocate from plastic ingestion.”

The handful of high school students and retirees in the library stared back. “OK, knowing these facts, how many of you would change your consumption behaviors?” About half the audience raised a hand. “How many would tell another person?” Two hands lifted. “How many would seek additional scientific information about plastic in our oceans?” Nothing.

I then relayed the exact same facts to my audience with the press of a button. This time, the facts were embedded in a 7-minute video I had produced while at Midway Atoll. The audience sighed, laughed, and gasped. At the end, I asked the same three questions. The hands in the room stayed lifted for all three. I prodded, “Why do you feel differently with this second telling? After all, you got the same information both times.”

“It was more emotional,” a white-haired woman said.

“More compelling,” claimed a teenager.

One man in the back spoke up, “The second time, with the images and all, you told a story.”

Storytelling is a powerful tool. And the National Science Foundation (NSF) recognizes that. For example, the NSF supports the science-driven public radio program *RadioLab*. Program creator Jad ABRUMRAD laments a notion, shared by many scientists, that pits story and science at odds: “Science, by its very nature, wants to obliterate the anecdote and metaphor and

personal reflection in favor of pure data.” At the same time, these narrative elements are what allow great storytellers to lead people to moments of wonder. Can we resolve awe-inspiring science communication with scientific objectivity? The meteoric popularity of TED talks, many by the NSF’s most celebrated grantees, provides favorable evidence. Of course, the TED-like approach to communication -- idea-driven, emotionally compelling, narratively structured -- is absent from graduate STEM curricula. Instead, graduate-level instruction prizes the peer-to-peer sharing of scientific detail (Stewart and Nield 2012). That’s a lost opportunity. We students are mostly new to our field, freshly inspired by big ideas or the universal truths that only science allows. We’re still very much connected to wonder -- a phenomena that can grip the public’s attention and ground the stories that reveal the interconnectedness of science, technology, and emerging global challenges.

The Scientists with Stories Project started as an idea, formulated by students frustrated by the chasm between scientists and the public. This idea has been implemented on the small scale. Its goal, however, is nationally relevant: empower the next generation of scientists to not simply distill facts but *share* the wonder and relevance of science beyond the ivory tower. Audio, photography, and web video lend themselves to narrative structure and public dissemination. In collaboration with my peers, I propose an instructional initiative for STEM curricula, one that empowers students to master digital media, share research through narrative, serve community needs, and collaborate across disciplines.

There’s been a sea change in the culture of STEM fields. It’s now broadly accepted that academic scientists should communicate their message beyond the professional community (Warren et al. 2007). What about graduate students? Problematically, the craft of communication takes time away from student responsibilities, like research and teaching. A faculty member at my home institution told me that being a good communicator will not land me a job down the road; it’s a distraction that should be dropped. Trends in academia point to the contrary. Those researchers most involved with public engagement have higher levels of scientific publishing. Moreover, engaged communicators are more likely to enjoy academic leadership roles (Stewart and Nield 2012). At the faculty level, we need programmatic incentives to validate the efforts of these communicators. We’d do well by incentivizing the engagers and communication shakers even earlier in their careers.

My grand vision is a trickle-down of this sea change to the student level. During the first month of graduate school, I found like-minded peers, those who also envisioned an academic home that encouraged development as communicators and public service through storytelling. We formed a group and took action.

The Duke/UNC Scientists with Stories Project was formally born in 2011. Through the financial generosity of departments and administrators at Duke University and the University of North Carolina at Chapel Hill, twelve of my fellow marine science graduate students and I came together and designed our own storytelling curricula. A 6-day immersion workshop suited our needs. The workshop built skills in story development and short-form visual media (i.e. video capture, editing, lighting). It fostered media-oriented collaboration and inspired the creativity to go beyond presenting facts. The group formed teams, producing video products related to student research. Some of these films have now been shown in state and national film festivals, winning awards like Best Student Film at the Beneath the Waves Film Festival and reaching professional audiences at scientific conferences.

This year, the Duke/UNC Scientists with Stories Project is expanding its impact. With help from a \$12,000 science outreach award, our student group has teamed with a community partner, the Monitor National Marine Sanctuary. A partnership like this stands for mutual benefit. While students hone multimedia skills during the annual workshop, the products are purposed as outreach materials for the sanctuary's science education program. Making a commitment to the community encourages follow-through and quality in the products. We students, with greater likelihood, will retain new skills and adopt professionalism in our communication craft. Peer-to-peer learning is another new component of our project. A graduate student in visual communications has joined the project's leadership ranks. By reaching across disciplines, emerging scientists and media artists gain insight into each other's stories and styles.

Can this model be applied to universities elsewhere? We believe so. The project has operated on a modest budget of less than \$25,000 a year, while still making strides. We know it's possible to train a dozen or more devoted graduate students, serve community members, collaborate across disciplines, and promote a nuanced communication tradition in a STEM department. Graduate students drive the project, in its current form. The project's fundamental idea, of course, is easily adaptable and lends itself to programmatic formalization in STEM.

Mainstreaming narrative-based communication has long-term benefits. So often scientists estrange themselves from media and engagement, leaving their message to the mercy of journalists, television, or politicians. We students of the Duke/UNC Scientists with Stories Project feel empowered, confident that new media skills enable us to control our future research messages: ensuring accuracy, providing context, and revealing the bigger picture. By applying our model and empowering more academics, the work of future scientists may retain integrity and purpose once placed in the public sphere.

The scientific community is so often held on a pedestal one day and slandered the next. This does not help the case for scientific relevance in our town halls and congressional corridors. Still, that relevance must be upheld. Our world's more pressing problems are inherently scientific, like climate change, biodiversity loss, and food scarcity. As science writer Dr. Carl Safina argues, "What the public needs to know is that scientists are people and that science is an honorable, trustworthy, and powerful endeavor." If we do not share what we do and reveal *who we are*, we scientists risk estranging science and ourselves from the public's trust. My team and I believe that storytelling is the vehicle towards improving that connection.

REFERENCES

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