

The science of communication

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By CLAUDIA GRYPVATZ COPQUIN. Special to Newsday



Photo credit: Daniel Brennan | Instructor Valeri Lantz-Gefroh, left, offers direction to a student during an improvisation exercise. (Feb. 21, 2013)

'Most of the fundamental ideas of science are essentially simple, and may, as a rule, be expressed in a language comprehensible to everyone.'

Of course, that's what [Albert Einstein](#) would say -- he's [Albert Einstein](#). Unfortunately, this isn't always the case for the more scientifically challenged. Consider the following statement:

Didymosphenia geminate is an invasive species known to impair the recreational and ecological values of waterways and native species.

If you are fighting the impulse to zone out, try this:

Rock snot is a kind of algae that forms brown, oozing masses that resemble a sewage spill. They grow so large that they can block streams and kill fish. Rock snot is an invasive species, meaning it comes from outside the region and harms the local balance of nature. Its scientific name is *Didymosphenia geminate*.

Scientific information, theories, experiments and research don't have to be muddled in jargon and technical terminology. And communicating science to the public so that it's understood is so important for funding research and creating policy that the [American Association for the Advancement of Science](#), which publishes the journal *Science*, has made improving communication one of its core missions.

This is an important mission for [Stony Brook University](#), as well, where young scientists are being trained in effective communication through the Center for Communicating Science, part of the Stony Brook School of Journalism. The center was founded in 2009 with the cooperation of Brookhaven National Laboratory and Cold Spring Harbor Laboratory.

Using improvisation as a tool

Actor and writer Alan [Alda](#), who has a house in the Hamptons, suggested the idea for a center to Stony Brook officials after speaking with more than 700 scientists during his 11 years as host of the PBS series "[Scientific American Frontiers](#)." Alda was instrumental in developing the center's curriculum, which is optional for most students.

It includes a three-hour, five-session "Improvisation for Scientists" workshop, geared for graduate students.

On a recent Tuesday evening, an improv class of about 15, headed by former theater department veteran Valeri Lantz-Gefroh, began with warm-up, centering and relaxation exercises designed for students to "still their minds, to be in the now," she explained.

The warm-up was also necessary to create a level of comfort for what was to come: a series of improvisational games, which have nothing to do with the comedy often expected from improvisation, but certainly fun is encouraged.

One game, "Hitchhiker," involved four students in chairs sitting in a pretend car. The task was to pick up a rotation of hitchhikers and mimic each one's exaggerated mannerisms. While becoming aware and responsive to others is the thematic component of the improv games, the workshop also encourages scientists to explain their work in human terms, by vocalizing their passion and personal or emotional connections to their chosen discipline.

So in another game, the students had to stand in front of the group, one by one, and instinctively alter how they spoke about their work, by pretending they were giving their presentations to specific audiences -- kindergarten students or seniors, for instance. Their formal speeches then shifted, from technical to conversational.

The goal is for these students "to become more aware of the people they're talking to, to pick up on the signals coming to them from the listener, so they become more spontaneous about adjusting their message," said Lantz-Gefroh. "We do this all the time when talking about our lives. You can go

to a wide variety of people and tell them the same story in completely different ways, depending on the person we're talking to."

Communication is key

Though we typically perceive scientists in white lab coats conducting experiments, a critical part of their work involves giving lectures and making presentations. Improv student Carolyn Weis, 24, is taking the workshop because she'll eventually have to communicate with elected officials.

"People get so scared of public speaking, they forget the reason they are communicating their message," said Weis, who is studying for a master's in marine conservation and policy. "The science part of conservation is important, but if you can't communicate that to political figures, you won't be able to make an effective change, or effectively protect whatever environmental issue you're trying to address."

But learning to communicate with the improv techniques is challenging, even for these academically advanced students.

"It's emotionally draining. It's a tough class," said Nick Heller, 32, a second-year doctorate student who lives in [Mount Sinai](#) and is studying material science and engineering. Still, he acknowledged that learning to effectively reach people will be important for his future work.

"There is wide consensus among science leaders that communication is extremely important for scientists and needs improvement," said Elizabeth Bass, director of the Center for Communicating Science. "For research scientists in academia, writing grant proposals that will bring in funding, writing papers that will be published and presenting their work at conferences are the three keys to career advancement -- and all require communication skills."

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