

Critical Point Communicating science

The Hollywood actor Alan Alda, who has a deep and passionate interest in science, is part of an innovative US project to help scientists to communicate, as **Robert P Crease** finds out

A dozen young graduate students stand awkwardly in a line on stage. They look around hesitantly as Alan Alda prepares to lead them in an improvisation exercise. The 73-year-old actor, best known for his appearances in hit TV shows such as *M*A*S*H* and *The West Wing*, is trying to see if such exercises, more commonly associated with theatrical training, can help young scientists to improve their public-speaking skills.

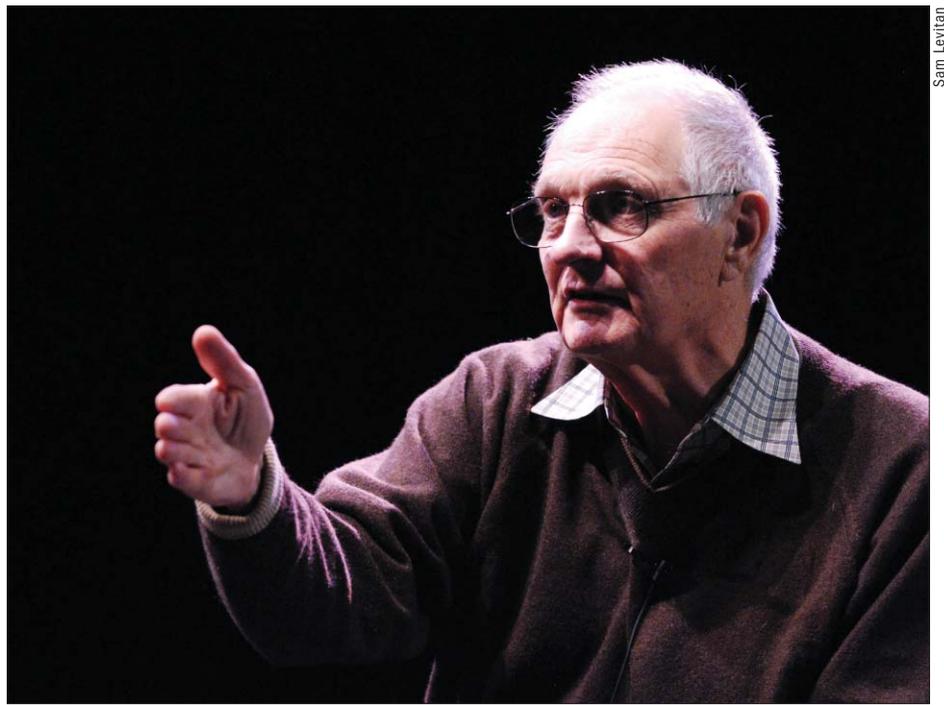
A handful of senior scientists, sitting in the audience, note the discomfort of their junior colleagues. “My wife jokes that every scientist has a different form of Asperger’s,” one says, trying to lighten the mood in the theatre at Stony Brook University. Alda joins in. “A mathematician friend once told me that an extrovert mathematician is the one who looks at the *other guy’s shoes!*” he quips.

There can be few better improvisation coaches for scientists than Alda, whose distinctions include five Emmy awards for his role as *M*A*S*H* army surgeon Hawkeye Pierce. An energetic and prolific performer, he has been an actor, director, screenwriter, author, producer, political activist and creative consultant, ingeniously applying skills he has acquired in one area to another. He recast the role of performing artist, becoming a kind of itinerant, multifaceted public intellectual.

Science frontiers

As a youth in New York City, Alda’s playful imagination meshed comfortably with a passion for careful and systematic inquiry. At high school, he encountered the two-culture divide – “You had to take the art path or the science path,” he told me – and chose the former. Unlike other two-culture victims, however, he overcame the trauma, and began voraciously reading about science. Alda later combined his career and his love for science – first as host of the PBS TV show *Scientific American Frontiers*, which showcased advances in science and medicine for more than a dozen years from 1993, and later on Broadway as the star of *QED* (2001–2002), in which he played Richard Feynman.

In 2006 – the year after *Frontiers* ended – Alda came to Stony Brook to talk about his memoir, *Never Have Your Dog Stuffed and Other Things I’ve Learned*, at a joint meeting



Sam Levitan

Stage direction Veteran actor Alan Alda running a workshop to improve the communication skills of scientists.

of the university’s film festival and writers’ conference. At dinner, he sat next to the then-president of Stony Brook, Shirley Strum Kenny, telling her that his experiences with *Frontiers* convinced him that scientists could – and should – do a better job expressing themselves in public. Kenny responded by inviting him to help develop a training programme.

“I was thinking about scientists writing for the media,” recalls Kenny, who had just founded a journalism school at Stony Brook. “But Alan was thinking more generally about all forms of communication skills, including verbal presentation.” Before long, Kenny had appointed a committee to brainstorm ideas for such a programme, which

Everyone is changed by improvising; they become more charismatic. If you can get scientists to be spontaneous, they become more watchable

included scientists from Stony Brook and the nearby Brookhaven National Laboratory, as well as Howard Schneider, a former editor of *Newsday* and soon-to-be dean of the Stony Brook journalism school.

The group applied for – and last year won – a grant from the US government to establish a Center for Communicating Science (CCS) at Stony Brook that would train scientists to communicate more effectively in traditional and new media. Alda, meanwhile, began thinking of ways he could teach improvisation to scientists at the centre, and train others to do the same. Alda was able to try out his ideas in January 2008 among a group of 20 engineering students at the University of Southern California, having been invited by the journalist K C Cole, who recently wrote a biography of Frank Oppenheimer – the charismatic physicist-turned-science communicator who founded the Exploratorium in San Francisco (see *Physics World* January p41). Alda then returned to Stony Brook last summer and autumn to take part in seven pilot improvisation seminars at the CCS, which involved Stony Brook graduate students as well as researchers from Brookhaven.

Theatre games

“I had two reasons for wanting to teach improvisation to scientists,” Alda told me. “First, I had been changed by improvising as a young actor. Everyone is; they become more charismatic, more watchable. Second, in my work on *Frontiers*, I noticed that, to the

extent that I could get scientists to be spontaneous – not to lecture but to give and take with me – they became more watchable. They were more alive, and easier to understand.”

In teaching scientists about improvisation, Alda draws on the work of Viola Spolin (1906–1994), who pioneered the use of improvisation for educational purposes in the US. After carrying out a wide-ranging study of what makes human beings more responsive and spontaneous in different kinds of social situations, Spolin wrote a book – *Improvisation for the Theatre* – that is widely regarded as the “bible” of the theatre world. “It’s like basic research,” Alda once said of the book, in a remark quoted on the cover of its latest edition, which has, it says, “changed the theatre for generations”.

Spolin’s work is excellent for beginners and non-actors because it does not involve “acting”, but a step-by-step, rule-following process that tends to distract beginners from anxiety. “The Spolin method is not ‘Do this! Don’t do that!’,” explains Deborah Mayo, one of the Stony Brook theatre-arts professors who is working with Alda. “It’s more ‘What if?’. What if you were talking to your grandmother? What if you were talking to a child? It gets you away from thinking about yourself and puts you more in touch with the situation. You do it for a while, and your hands unclench, your feet uncross, you relax.”

Before Alda’s sessions at Stony Brook, the graduate students were videotaped giving brief summaries of their research work and its significance for the general public. Alda selected some of his favourite Spolin games, such as throwing invisible balls and imaginary tug-of-war, which helped turn the students’ attention to how they interacted with the group. Alda then built on those exercises with more elaborate games adapted to science. For instance, he would pair up students and ask one to explain their work to the other while pretending that the other person was someone with whom they had a particular relationship – such as a relative or funding official. Audience members would have to guess that relationship. The Stony Brook theatre professors also contributed their favourite exercises.

“My first reaction”, says Claire Allred, who recently finished a PhD in atomic physics at Stony Brook and is now a postdoc at Columbia University, “was ‘How are crazy improvisation exercises going to assist me in holding down a conversation with someone who doesn’t understand quantum mechanics?’ But in the end it made me stay focused on whom I’m talking to rather than what I’m talking about. Staying focused on whom I’m speaking to is important because it becomes easier for them to follow my explanation and be excited about it.”

After the workshop, students were again videotaped delivering another brief summary of their work. The results, which can be viewed online, are striking: the scientists are



Breaking out Researchers tackle improvisation exercises as Alan Alda looks on.

much more at ease and animated, explaining their research clearly and from a far more personal point of view (www.stonybrook.edu/journalism/science). Alda encouraged students to attend more than one session, and wondered what else could be done to further improve their skills. “After viewing the tapes with them, I said, ‘Look, you are all scientists – help me figure a way to test and improve this!’.” He paused, and you could sense his inner imaginative artist collaborating with his inner rigorous scientist. “I’d like to check this out in a functional MRI. What’s happening in the brain? What else makes the same centres fire? If we knew that, could we develop ways to strengthen it?”

Communicating science

Alda’s improvisation sessions were so successful that elements from them have been incorporated into more elaborate workshops that Stony Brook’s CCS will be offering for the first time this spring. The first workshop is to be held on 9 April at Brookhaven – Alda plans to attend – with subsequent sessions on 14 May at Stony Brook University and on 24 May at Cold Spring Harbor Laboratory. Although participants are not required to take part in the improvisation seminars, these seminars are the workshops’ most distinctive and ambitious component.

Each will begin with a panel of journalists, scientists and public-information officers discussing various issues in science communication. Participants will then choose from a menu of seminars, such as advocacy writing (opinion pieces, letters to public officials and so on), dealing with traditional media, and interacting with new media, including podcasts, blogs and video presentations. Limited to 12 people, the three-hour improvisation seminar will include techniques for preparing and delivering talks.

The Stony Brook programme is not, of course, the first to improve scientists’ communication skills. The American Association for the Advancement of Science, for example, has held a dozen workshops since 2008 that have trained over 900 scientists and engineers in summarizing their work in non-technical language. The European Science Communication Network, meanwhile, helps scientists funded by the European Union to speak on radio and TV, and to make the best use of blogs, podcasts, interactive websites and other “new media”. It is holding a series of 10 three-day workshops in Dubrovnik, Croatia, from 12 July to 15 August. The Stony Brook centre, however, is unique for its improvisation sessions, and because it is not just a vehicle for conducting the workshops but will offer a menu of ongoing programmes.

The critical point

The mystery, though, is less how to train scientists to communicate their work with more passion, but why this training might be needed in the first place. Given how passionate scientists normally are about their work, why are they all not as eloquent, enthusiastic and inspiring as Frank Oppenheimer?

“Good question,” says Alda. “We all learn ways of *ex-communicating*. For scientists, part of it is that they work with ideas so compressed that it takes a lot of study to understand them. Another part is that there’s a necessity in science to be cautious and exact, not to put personality ahead of evidence. But I feel that, along with precision, the more presence and clarity they can bring to speaking about their work, the better.”

No doubt a variety of other factors are also involved. Advocacy in science is often discouraged. Tenure committees evaluate publications, not communication skills. Scientists may fear media misrepresentation, with “Climategate” – the episode last November when a hacker stole and made public thousands of e-mails and other documents traded by climate scientists at the University of East Anglia – providing a recent example of routine scientific shorthand portrayed as incompetence or deception. And what scientist has the leisure to learn yet another skill?

But what Alda is after is not really adding another skill on top of what scientists now do. “Good communication is not a luxury and somehow apart from science,” he says, “but is actually the essence of science. Allowing the person behind the work to emerge doesn’t have to get in the way of rigour. What I’m really hoping for is to see a contagion of communication skills among scientists. I think it has the power to put the glorious excitement of science smack in front of our brains, where it ought to be.”

Robert P Crease is chairman of the Department of Philosophy, Stony Brook University, and historian at the Brookhaven National Laboratory, US, e-mail rcrease@notes.cc.sunysb.edu