

# They won a Nobel for what? Why good science communication counts

October 8 2015, by Elizabeth Bass

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Credit: Nobel Media AB/Alexander Mahmoud

When I was a newspaper science editor, I approached Nobel Prize season with mixed glee and anxiety. Glee, because I knew that, without even an argument, I would get space in the paper for stories about

research too arcane to [make it into print](#) the other 51 weeks of the year. Like the Academy Awards, the Nobels always get covered, and obscure topics like [neutrino metamorphosis](#) and [DNA excision repair](#) get their moment to shine, like the folks who win Oscars for sound mixing.

But I felt anxious, too, because my job – as a journalist with no science background – was to make sure those stories would be clear and comprehensible to any reader, and fascinating to more than a few. I wanted them to be stories that would make someone pick up the phone – this was back in the day when people did that – and say, "You've got to hear about this." But journalists are just one leg of the sometimes shaky triangle of [science communication](#), with scientists and the public carrying the other two sides.

## **Training scientists in the art of communication**

These days, Nobel season is pure pleasure for me. I'm still a professional nonscientist, but now I work helping scientists learn to communicate better about their research and why it matters with people outside their field. Here at the [Alan Alda Center for Communicating Science](#), we teach graduate students and give workshops for hundreds of scientists around the US (including at least a couple of Nobel Prize winners, so far).

And I know that in Nobel season, I will find plenty of examples of how hard it is to explain complicated science to people like me – and also how well it can be done. Some will tell us that neutrinos have mass long before they tell us what neutrinos are, or why we should care if they have mass or not. Others will paint a vivid picture of these mysterious elementary particles, which exist everywhere yet are almost impossible to detect. Some will fall back on dehydrated jargon. Others will tell us juicy stories about real human people, engaged in difficult, idiosyncratic quests to learn something important about the world we all share.

Why is communicating science a challenge for many scientists? Blame "the curse of knowledge," as described in the book [Made to Stick](#) by Chip Heath and Dan Heath. The idea is that when you know something very well it becomes hard to remember what it was like not to know it. You no longer recognize what is amazing or mysterious or funny or confusing about your work. You no longer can tell jargon – the specialized language of your field – from everyday talk.

At the Alda Center, we've come up with tools to fight the curse of knowledge. But it takes practice and empathy – a leap of imagination.

## **What does it matter for the public?**

As long as they're effective at actually doing their research, should we care whether scientists can explain that work to the public?

The short answer is yes. Nearly every aspect of our lives – what we eat and wear, how we work, face illness and share information – rests on scientific research. To make well-founded decisions about our future, both as societies and as individuals, we need a basic understanding of the way science works. We need politicians and policymakers and media figures to understand that, too.

And researchers owe it to us. Almost every scientist receives some support from the public, including subsidies for graduate education or grants. So scientists have a responsibility to share their work with the public that funds them. That may mean opening themselves to criticism, as well as appreciation. But if the public doesn't understand science, they won't support funding for research.

## **Clear communication benefits the scientists too**

As science gets more specialized, colleagues in neighboring fields become a lot like the public. They [speak different languages](#), with different knowledge bases. Words like "transformation," "activation" and even "theory" [mean different things](#) in different fields (and something else again in everyday English). Does AI mean artificial intelligence, or artificial insemination?

Scientists often tell us that at meetings in their own field, they don't understand 60%-80% of the lectures they hear. ("I want those hours of my life back.") Yet, the world's big challenges – from climate change to brain disease – increasingly require chemists, biologists, physicists, computer scientists, material scientists, earth scientists and others to collaborate.

And when scientists distill their message for lay audiences, they can actually gain insight that improves their science. Neurobiologist Nicholas Spitzer, co-director of the Kavli Institute for Brain and Mind at UC San Diego, [put it this way](#):

*... when I talk publicly, I appreciate the need to step back and present the big picture, and in so doing put details into a larger context that is much more accessible – and much more memorable – for an audience. This has stimulated me to think about larger questions over the years and has influenced the directions of my research.*

## Science appreciation broadens our world

Like art or music, [science](#) is a great human endeavor that can provide joy, beauty, entertainment and a sense of wonder to many more people than those who practice it. When [scientists](#) invite us into their world, paying attention to our needs the way good hosts do for their guests, they enlarge our lives.

So, thanks to the Nobel Prize for Physics, and all those who are trying to explain it. Not only do I now know a [little more about neutrinos](#) – and why someone might want to put a 10-story neutrino detector a mile underground in a nickel mine in order to study elementary particles from the core of the sun – but the whole world looks a little wilder to me. And that's before they even got to the prize for chemistry.

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