



Science communication: could you explain it to your granny?

The art of science communication is to pitch something as complicated as quantum mechanics in a way that is not only engaging but also faithful to the evidence

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You don't really understand something unless you can explain it to your grandmother.

This quote, attributed to Albert Einstein, should be the motto of all professional communicators, and especially those who earn a living communicating the tricky business of science.

Scientists such as Brian Cox and Alice Roberts have become household names in the UK for communicating complex subjects including cosmology, quantum physics, evolution and anatomy to a primetime television audience.

But how do you go about taking something as complicated as quantum physics and pitching it at a level that is engaging for someone without any scientific training? And why should you bother in the first place?

Professional science communicators face this challenge every day. They communicate the scientific outputs of their universities, institutions and research councils to journalists, investors, politicians and the general public.

Around a hundred of them gathered at an ‘Improving Science Communications’ conference earlier this week, jointly hosted by the Department for Business, Innovation and Skills (BIS), the Chartered Institute of Public Relations and Stempra - the science communication network - to discuss the profession and how it can improve.

As communications director for the government department that allocates science funding, I believe we have a duty to communicate the UK’s world-class research and innovation, and the value that it brings to the economy and society, as well as possible. Taxpayers should understand where their money is being spent and have a say in it - something BIS has encouraged with the recent capital consultation on research infrastructure. And to enable informed decision making we need great science communicators.

There is an insatiable appetite for knowledge today, with people as interested and enthusiastic about science as they have ever been. In the recent Public Attitudes to Science Survey, 72% of respondents said they thought it was important to know about science. This places great responsibility on the shoulders of science communicators to get the message, and the science, right.

Poorly devised and executed communications can have far-reaching consequences. A significant drop-off in child immunisation rates followed the MMR controversy, a failure of accurate science communication in which the media was heavily implicated. Communicators have also struggled to combat the spread of misinformation associated with the causes and effects of climate change, and to explain the uncertainties.

Well-meaning campaigns to encourage more diversity in science, such as the European Commission’s notorious Science: it’s a girl thing! YouTube video have missed the mark because of clumsy, stereotypical messaging. When we get these things wrong it has a direct impact on people’s lives.

Science communication cannot exist in a vacuum, however. When talking about vaccination you have to consider parents’ instinct to protect their children from any threat, real or perceived.

Successful containment of Ebola will similarly require effective communication of scientific information, while incorporating local insights and considering cultural differences. We must know our audience and how to engage with them, and be aware of making assumptions about their prior knowledge.

My opening Einstein quote is actually rather unfair. What if your granny has a PhD in quantum physics? As we like to say in communication science, there is no such thing as one “public” but rather a number of “publics”, each with their own level of knowledge, experience, morals and ethics.

So what are the main problems faced by science communicators, and how can we solve them?

A study commissioned by the Chartered Institute of Public Relations and supported by BIS took a tentative step towards finding out.

The nature of science itself is the first hurdle to overcome. Working with complex subject matter, dealing with partners and collaborators, sorting intellectual property issues and negotiating with powerful publishing houses, not to mention the occasional difficult scientist, is challenging.

There is a perceived lack of respect for science communicators, and a fear that the “PR” label further erodes credibility. There is a desire for more accreditation, recognition and training. And for a culture change within scientific organisations to involve communicators higher up the chain of command.

Research by Cardiff University, also presented at the conference, looked into the practice of hype and sensationalism in press releases. It apportions some of the blame of media misinformation to increased competition between universities and the need for self-promotion. I eagerly await the final published results.

The good news is that British science communication, as well as science, is world-leading. Practitioners also show a willingness to learn more about their profession and find ways to improve - a fact demonstrated by the very high turnout at the conference and the level of engagement on display.

The Government Communication Service, of which I am a leader, was formed earlier this year to create a new, best standard for communications practice in the UK. Science must be included in this.

BIS will also continue to work with organisations such as the Chartered Institute of Public Relations, Stemptra and the International Association of Business Communicators to support those science communicators who spend every day figuring out new ways to explain the seemingly unexplainable to people like you, me and Granny.

And with apologies to granddads ...

Einstein may not have known many granny scientists, but clearly there are lots of them out there. Since this blog was published a wide range of people have rightly pointed out that numerous grandmas would be more than capable of not just understanding, but of pioneering advances in complex science. I particularly like “Grandma Got STEM”, a site highlighting the contribution older women have made to science. As I said in the original post, that Einstein quote is unfair, and of course grannies do have PhDs in quantum physics. To all the science grandmas (and grandpas), I salute you!

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