

Build Trust, Engage People to Increase Understanding of Science

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FROM THE 1960s THROUGH the mid-1980s, the term “scientific literacy,” focused on public knowledge of science, came into vogue. From 1985 to the mid-1990s, the term “public understanding of science (PUS),” focused on public attitudes toward science, became the new paradigm. Both are so-called “deficit models,” in which researchers assume that the public is deficient in knowledge, attitude, or trust. From 1995 to the present, the focus has shifted to the deficits of the *scientists* in communicating with the public, with public engagement the perceived way to rebuild public trust and achieve a social consensus on controversial scientific issues.¹ Education is only a part of the solution, as a recent meta-analysis across cultures showed a small positive correlation between knowledge and attitudes.²

The deficit model overlooks the roles of ideology and social identity, as well as the roles of science fiction and entertainment on certain topics such as cloning. The public engagement model of the last decade features, for example, consensus conferences in which stakeholders participate in evaluation and decision making.³ However, such engagement may have unintended consequences, such as the formation of a watchdog advocacy group to monitor nanotechnology in the community.⁴ A recent analysis of such upstream engagement showed that, with the exception of the UK Nanojury and Nanodialogues, most projects studied by the authors did not go beyond consensus formation or measuring public opinion. However, if people cannot translate participatory approaches into a political process, there could be a backlash, such as that created in Europe against genetically modified food.⁵

Moreover, the deficit model ignores how people use media to learn about science. In the absence of strong motivation to acquire knowledge, they will use mental shortcuts, personally held values, and feelings as a basis for their beliefs about a scientific issue. In addition, people are drawn to new sources of knowledge that reinforce their current beliefs. Certainly, opinion leaders have a talent for providing great “sound bites” that may oversimplify or contradict scientific evidence, such as promising that food biotech will put an end to world hunger.³

There is a need for truthful sound bites, however, as people need to hear about science in ways that make the results personally relevant and meaningful. As scientists, we must learn to focus on framing our messages to connect with diverse audiences. If we do not, other groups surely will, as the framing of the food biotech issue in Europe as a Pandora’s box of unknown risks helped stall progress on such research in some countries.⁶

In a new book on science communication, social scientist Matthew Nisbet at American University in Washington, DC, writes:

A generalizable set of factors, principles, and social meanings appear over and over again across science debates. These generalizable features reveal important clues about the intersection between media frames and audience dispositions, the role of journalistic routines in altering the definition of an issue, and how science policy decisions are made. However, in order to put theory and principles into practice...science organizations should work with communication researchers to commission surveys, focus groups, and other analyses that can identify effective messages and media platforms. Drawing on the typology of frames presented, on any particular issue, research needs to pinpoint the mental associations and cognitive schema that make a complex science topic accessible and personally meaningful for a targeted audience along with the particular framework devices that instantly translate these intended meanings.⁷

As we identify media platforms for our science messages, we must remember that social networking sites are changing the way that people get their science information. For example, members of an online community of experts can tweet a critique of a linked article from a peer-reviewed journal to their followers, bloggers may notice and comment on the controversy, and a new online op-ed piece may be created that provides additional context to the reader of the original article. Companies are beginning to take advantage of the social media properties of the Internet via Web sites that link to their Facebook pages and YouTube channels, and feature blogs and discussion groups. Patient advocacy group and special interest group Web sites are intended to frame policy debates or news coverage, and some science blogs blend science with religion.

As clinicians and scientists, we must be vigilant not to feed into the cycle of hype. We must withstand commercial pressure, temper our own hopes for a technology in our reporting, and under-promise results to pave the road to public trust and engagement.

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