



Adapting Science Communication to the Changing Media Landscape

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Policies that govern how developments in science and technology are funded, regulated, and deployed affect citizens in many ways. Science funding influences energy policy, environmental regulation, public health and safety, and many other vital matters. To help shape society's responses to pressing issues, citizens must engage with issues of science and technology – yet the public's understanding is very limited. Most people rely on media stories for information about advancements in scientific knowledge, but modes of communication have changed dramatically in the last several decades, multiplying and shifting the ways in which citizens learn about and engage with science.

Professionals in fields related to science, technology, engineering, and math need to adapt their communication to keep pace with the ever-changing media landscape. Scientists and their professional organizations understand the imperative to adapt, as evidenced by calls in academic journals and annual meetings as well as the increasing efforts of groups such as the Public Communication of Science and Technology Network dedicated to public communication of scientific findings. Recently, The National Academies of Sciences, Engineering, and Medicine have held three colloquia about science communication, underscoring the importance of using the latest research to inform the practice of conveying messages about science and technology.

Science Knowledge in the Media

Science communicators have long operated on the so-called *knowledge deficit model* – which presumes that ignorance is the root cause of negative public attitudes toward science and technology. If ignorance is the problem, then the solution is to correct deficits in knowledge with factual information. Making the public more “literate” in science becomes the goal.

Undoubtedly, it is salutary to spread more factual information about scientific methods and advancements to help the public become better informed. But empirical research shows that other factors, including religiosity and ideology, influence people's knowledge of science. To effectively communicate, scientists and associated professionals must realize that audiences use ideological information “filters.” People working in science and technology communications need to understand the beliefs and filters their audiences are likely to bring to any discussion of scientific information.

The Changing Media Landscape

The media environment has changed significantly since the era of broadcast – with the advent of cable television, Internet sources, and social media. As consumers move away from traditional forms of media

consumption, citizens' information diets become more varied. Since 2012, online sources are the primary source of science and technology information for public audiences. One dominant characteristic of online media is social interactivity: likes, comments, and shares on social media help contextualize information and, ultimately, influence public opinion.

But media is also increasingly fragmented. Although science content still exists, entertainment media outlets are ubiquitous, giving citizens many opportunities to turn away from information about science and technology, public affairs, and political issues. Those who want to communicate about science in this increasingly fragmented media environment will have to find ways to reach people who have many alternative ways to consume – or avoid – information.

Because consumers can now readily cocoon themselves in echo chambers that reinforce existing opinions, public attitudes are often fragmented. Issues at the intersection of science, media, and politics – including genetics, climate change, and renewable energy – now divide the American public. As of May 2017, for example, 68 percent of Democrats rated protecting the environment from the effects of energy use as the top priority for U.S. energy policy, but only 32 percent of Republicans felt the same way. As empirical data repeatedly show, public opinion about science and technology is shaped by politics and the vagaries of public affairs. Today, issues about science and technology research, funding, and regulation are increasingly affected by political divisions and conflicts.

Using Social Media to Improve Science Communication

Online information is received by people through outlets that often allow accompanying social cues such as comments, indications of “likes” or “dislikes,” and sharing with others to whom the first reader is attached via social media. This interactivity, characteristic of Web-2.0 technologies, impacts people's attitudes and opinions about science as well as many other areas.

For example, research reveals that the number of views of a YouTube video about climate change can influence how important people perceive the issue to be. Other scholarship documents a so-called “nasty effect,” in which perceptions of risk about science and technology are heightened when uncivil comments follow efforts to convey information. Fortunately, research also shows that sites that moderate online comments can reduce nasty effects.

As science communicators employ research findings such as these to improve their efforts, they must also continually assess and reassess the impacts of their work. Strategic communication of science requires that its practitioners clarify what they are trying to achieve – specify clear goals – and also identify target audiences. Only with such specifics in place, can results be properly evaluated – using surveys, interviews, and focus groups, among other methods. For science communicators, careful design of projects and informative evaluations go hand in hand.

Scientists are increasingly turning to all forms of media to communicate with broad audiences. Their increased efforts have been catalyzed, in part, by the advent of social media coupled with growing optimism in the scientific community about the potential of online media to reach public audiences – and get messages across even in fragmented and politically polarized environments. Whether optimism is justified only time and further research will tell, but as efforts proceed, scientists and other science communicators can look to the latest research on communication dynamics for insights into what works best and which pitfalls to avoid.

Read more in Sara K. Yeo, Michael A. Xenos, Dominique Brossard, Dietram A. Scheufele, [“Selecting Our Own Science: How Communication Contexts and Individual Traits Shape Information Seeking,”](#) *The ANNALS of the American Academy of Political and Social Science*, 658, no.1, (2015): 172-191, Sara K. Yeo and Dominique Brossard, “The Changing Nature of Scientist-Media Interactions: A Cross-National Analysis” in *The Oxford Handbook on the Science of Science Communication*, edited by Kathleen Hall Jamieson, Dietram A. Scheufele, and Dan Kahan (Oxford University Press, 2017), 261–272.