
Where's My Nobel Prize and Other Public Relations *Faux Pas*

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Abstract

Intellectual honesty and smarts, enthusiasm, a commitment to pursue an idea for the long-haul, openness to exploration, and creativity are all important traits for a good scientist to possess. Translating science from the laboratory to commerce requires these same elements. Yet, sometimes scientists stop acting like scientists when they are past the point of discovery. This paper discusses why many scientific ideas and exciting research efforts fail to garner much public attention. It outlines strategies all scientists may engage in the pursuit of improved public relations.

Introduction

TAKE OUT YOUR LAPTOP, netbook, Blackberry or iPhone. Go ahead. Now, open Google News, or any other popular news search engine. Read the first five stories under Science. Here's what I found on a rainy January afternoon: Apple and Nokia are in battle over new handsets; NY Times may charge readers for online access; patches needed to fix Internet Explorer 6; Wii and PS3 break sales records; cocaine discovery prompts investigation by NASA; prices drop for Google's Nexus One. If you scroll down to the 14th story, one learns that the US maintains its lead in science and technology discoveries, but other countries are gaining.

There is nothing wrong with these headlines. In fact, it's rather thrilling to recognize the discoveries that have led to the creation of these devices (let's be clear that I'm not referencing the cocaine outlier), but it begs the question: When it comes to science, is that all there is?

No, of course not. Science is knowledge. Knowledge about plants, ecosystems, stars, genes, atoms, water, chemicals, blood, rocks, behavior, lasers, and a million other ideas affecting our world. So why aren't these ideas and their related exciting research efforts and ultimate discoveries making the front page? Better yet, why does science have such difficulty promoting itself?

Sir John Houghton, physicist and 2007 Nobel Prize winner, summed it up, "Your average scientist is not a good PR person because he wants to get on with his science."

One of my clients, the chief executive of a company who developed a product that has helped maintain world peace, discovered a new use for his technology. He was adamant initially that his advisors not speak to a long list of government, academic, and industry experts. Instead, he merely wanted someone to buy his technology because it was surely the only key to solving one of the world's pressing problems. His philosophy mirrored Rene Descartes' "Cogito ergo sum" or "I think, therefore, I am." Thinking (or in this case, inventing) it, may make it self-evident, but it does not make for good public relations.

When transitioning from scientific discovery to promotion, elementary scientific principles continue to apply. "Science is the belief in the ignorance of experts," a quote attributed to the pioneer of quantum computing, Richard Feynman, applies in public relations too. To substantiate your scientific discoveries and observations, concepts and their supporting evidence must be presented and challenged. Public relations assists in this effort to present, build relationships, communicate, and learn.

Look at the example of fluoridated water. In the 1930s, Dr. H. Trendley Dean discovered that fluorine helped prevent dental cavities.ⁱ Today, the Centers for Disease Control and Prevention lists water fluoridation as one of the 10 greatest public health achievements of the 20th century. How did society move from a sole scientific discovery to this epic health advancement? Dr. Dean analyzed water samples, examined teeth, and conducted epidemiological studies to determine if fluoride safely protected teeth from cavities without further health risks. However, public relations played a role too.

Science had to move from the laboratory to the community. Efforts to convince colleagues, industry, organizations, and local and state governments to participate in this research were initiated. For example, the American Dental Association (ADA) sponsored a dental survey of schoolchildren in 1933-1934ⁱⁱ; Edward L. Bernays, a pioneer in public relations, devised a campaign to convince the public of fluoride safety; and citizens of two targeted towns were studied to determine the risks and benefits of fluoride in drinking water. By 1945, Grand Rapids, Michigan became the first city to adjust the fluoride level of its water supply to 1.0 ppm, thus introducing community water fluoridation. Today, the ADA

supports "unreservedly" the fluoridation of community water supplies as "safe, effective and necessary" in preventing tooth decay.ⁱⁱⁱ The organization also presents a business case that, for most cities, every \$1 invested in water fluoridation saves \$38 in dental treatment costs. Goals set by the U.S. Department of Health and Human Services through its Healthy People 2010 aims to increase the percentage of the U.S. population with access to optimally fluoridated community water systems from 62 to 75 percent.^{iv}

Yet, fluoridated water is not without its critics and skeptics. Concerns over the relationship between fluoridated water and cancer have long been expressed. A study by the National Toxicology Program showed an increased number of osteosarcomas in rats fed high concentrations of fluoridated water over two years.^v In an oral history interview, Oscar R. Ewing, Administrator of the Federal Security Agency under President Truman, explained some of the controversy of fluoridation, noting that in a speech to the U.S. House of Representatives in 1952 Congressman A.L. Miller insinuated that Ewing, a former attorney representing the Aluminum Company of America, might be benefiting from the sale of fluoride. Ewing noted that flyers were distributed on the streets of New York crying, "Water fluoridation is the most important aspect of the cold war that is being waged on US – chemically – from within, by the Rockefeller-Soviet axis."^{vi} This was such an effective counter-public relations campaign that, even today, not all U.S. localities have access to fluoridated water systems.

Public relations can grasp scientific concepts and utilize them in ways that further promote ideas and revenues. Research by David Sinclair, Rafael de Cabo, and associates at Harvard Medical School and the National Institute on Aging found that resveratrol increases the lifespan of obese mice. Resveratrol prevented most of the negative effects of a high caloric diet in mice.^{vii} Resveratrol, discovered as an antioxidant by Dr. Sinclair, is found in red wine. Although research has not yet established that this molecule will slow down aging and prevent age-related diseases in humans, the interest in red wine as a possible solution increased. The Nielsen Company released data showing that from November 2006, the publication date of the study, through March 2007, sales growth of red wine outpaced sales growth of the all wines by 40 percent.^{viii}

Public relations may fill a void when the lack of knowledge about scientific processes profoundly impacts public policy. In the 1970s, the television show, *Quincy M.E.*, introduced audiences to the work of

forensic science. Each week, Dr. Quincy, played by actor Jack Klugman, would find forensic evidence that would inform or contradict how people died. Today, prime time television might be considered a forensic pathologists' dream. *NCIS*, *CSI: Crime Scene Investigation*, *CSI: Miami*, and *CSI: New York* practically litter the airwaves. This public awareness, even with the many factual scientific liberties taken with fictional programming, helps to propel the understanding and value of this area of science and its implications in natural disasters, the judicial system, and in war. Not surprisingly, however, studies by N.J. Schweitzer and M.J. Saks suggest that these television programs may impact inappropriately the confidence of jurists in real-life trials.^{ix}

In 2009, the National Research Council issued the report, *Strengthening Forensic Science in the United States*, and shared the results with the U.S. Congress. The recommendations to fund and establish "the scientific foundation of the forensic science disciplines, providing better education and training, and requiring certification and accreditation will position the forensic science community to take advantage of current and future scientific advances" were based on suggestions from a diverse group of individuals: law enforcement, federal officials, scientists, medical examiners, professional society executives, standard-setting leaders, and many others.^x

The public relations elements intertwined in these examples include the importance of message communication, relationship building, and understanding the ample implications of politics and policy. No matter if the goal is broad (e.g., promote the importance of science) or more defined (e.g., find a market for my widget), public relations strategies are personal. Successful strategies are multi-faceted.

Communication

According to a 2009 poll by the Pew Research Center and the American Association for the Advancement of Science, scientists are a well-regarded profession. Compared to other popular professions, 70% of the public respondents noted that scientists contributed "a lot" to society, as opposed to business executives (21%) and lawyers (23%). However, in terms of scientific achievements, only 17% of the public respondents considered the United States the "best in the world."^{xi} U.S. scientists appear respected, yet the details of their message are not well understood.

Communicating science requires the same accuracy and intellectual honesty that scientists require in the laboratory, but it must be

performed in ways that the public will understand. It is helpful to consider science as a second language. For someone unfamiliar with the “science-tongue,” it may be more understandable to dissect complex concepts and translate using layman’s terms.

Oxford University Press posts a list of the 250 most common words used when writing about scientific subjects and suggests gaining a familiarity with them in order to comprehend science texts. The following are a random list of words encountered when discussing various scientific disciplines: interface; synoptic; kinetic; parallax effect; vulcanize; matrix; and vector. What do they mean?

Take a look at the word “interface.” According to the Merriam-Webster dictionary, it is a noun used to describe the “surface forming a common boundary of two bodies, spaces or phases.” Today, it is frequently used as a verb to describe a coming together, as in: “our communication programs will be able to interface with each other.” Jeff Han, named one of the world’s 100 most influential people by *Time Magazine* in 2008, develops multi-touch sensing solutions to enhance the power of computers. In addition to “awesome” and “incredible,” his work has been described as “interface-free.” Without a visual presentation or less-technical language, this concept might be difficult for many people to comprehend.

Another example is the use of the word “synoptic” when describing reporting mechanisms. Synoptic generally refers to the broad view at a particular point in time. Synoptic reporting of the weather might mean that it will be snowing across the region at a specific date and time. “Synoptic” is not part of the regular vocabulary for most Americans. The word “summary” might substitute easily for the less common “synoptic.” By using more generic vocabulary substitutions, the audience’s interest is less likely to wane.

Using a technical term to describe the same technical term should be avoided. Using the above example, describing how data presented in “synoptic reports” contains “synoptic elements” does not help define the meaning of “synoptic.” Similarly, explaining that “nanotechnology” is science measured in nanometers may limit understanding for this discipline.

As certain innovations become more ubiquitous, there is a tendency to use proprietary names to define a topic. For example, instead of asking for a tissue, many people will ask for a Kleenex[®], even though

there is no preference for brand. Similarly, scientists should avoid using terms like "Photoshop" as a verb to describe how an image is manipulated. Photoshop® is a software package produced by Adobe Systems, Inc.

The improper use of terms may seem harmless, aside from patent and trademark issues, yet scientists run the risk of diluting the true meaning of their craft. "Vulcanization" is a chemical process used to add properties to certain plastic materials, but Star Trek fans might offer a different definition. Similarly, after a particularly harsh winter in 2010, many people confuse the snowy weather for climate change. If the spring brings pleasant temperatures, will concern over climate change dissipate? Proper communication messages are key.

Relationships

Relationships are an integral part of the public relations for science. Start with the most basic relationship. Have you described your research to your family, your children, or your most significant other? Do they understand your work well enough to be able to describe it accurately to others? This description should extend beyond the "my mom is a chemist and works in a lab." What type of research do you do and what are the implications for society? Help your relatives assist in becoming your most outspoken advocates.

Beyond family, there are many audiences where scientists should build relationships, including: laboratory, community, political, and business. These contacts require feeding, constant monitoring, and patience. As opportunities present themselves, introduce these audiences to your research. For example, instead of introducing yourself as a cytopathologist, which – as outlined above – requires further definition, explain that you are a physician researching a vaccine for cervical cancer. As relationships develop, the venture capitalist sitting next to you at your child's baseball game or the banker at the Kiwanis Club where you gave a speech might be more willing to consider providing you with development funds when the time comes.

Professional societies are also avenues for expanding your knowledge and relationship base. Signing up for committees, offering to present lectures, and submitting abstracts to conferences will benefit you professionally and introduce you to many potential collaborators, funding sources, and most of all, fans.

In March 2010, Michael Blanpied, PhD, Associate Program Coordinator for the United States Geological Services Earthquake Hazards Program, answered questions on-line at Washingtonpost.com about the causes of recent earthquakes and earthquake forecasting. He provided easy-to-understand responses to questions posed by individuals from around the world, including an elementary school class in Reston, Virginia. Not only did he impart scientific knowledge, plug his agency's website, and raise the presence of geophysics, but he also educated a classroom filled with potential scientists.^{xii}

Learning how to become a reputable source of information is also a highly valued relationship skill. Journalists and public policymakers usually do not have a background in science, nor the time to research fully every topic presented to them. Of the 435 members of the U.S. House of Representatives, only a handful hold doctorate degrees in a science discipline, including: Vern Ehlers (nuclear physics), Rush Holt, Jr. (physics), Bill Foster (physics), John Olver (chemistry), and Bob Filner (history of science). A few dozen more have a background in medicine, mathematics, or undergraduate science degrees, enough to firmly plant scientists in the minority of Congressional occupations.

Legislators and the media value sources that deliver non-biased, accurate information in an understandable manner. Hone these relationships, honor their deadlines and processes, and you will be called upon repeatedly to share your knowledge.

Understand the Larger World

We all have suffered embarrassment at some point in our lives because of misunderstandings. To avoid these mishaps in our professional lives, it is necessary to develop a broader understanding of the world. Simply put, learn about your surroundings so that your science message is contextual, timely, and accepted.

Rebecca Skloot reminds us that science may have consequences of which we should be aware. In her novel, *The Immortal Life of Henrietta Lacks*, she tells the story of an African-American woman who traveled to Johns Hopkins Hospital in 1951 to receive a diagnosis of an aggressive form of cervical cancer. A small tissue sample was taken from her without her understanding or consent. Ms Lacks died within months of her diagnosis, but those cells lived on and became the first immortal cell line grown in culture. Known as HeLa, the cells have been vital in advancing cancer research and other scientific discoveries. Several Nobel Prizes have been

awarded for research involving HeLa cells. For decades, the Lacks family was unaware of Henrietta's standing in medical history and today still struggles with the meaning of it all.^{xiii} In 2010, *Popular Science* named Henrietta Lacks the "Most Important Woman in Medical History,"^{xiv} yet bioethical issues are raised as HeLa cells were obtained without consent and the Lacks family did not profit from the multi-billion dollar industry that her cell line produced. In addition to educating others about HeLa cells, the Skloot novel will bring these issues into the public forum.

In 1999, the Institute of Medicine released its report, *To Err is Human: Building a Safer Health System*. The report, the first in a series on quality-of-care concerns, called for a "comprehensive approach to improving patient safety." To prove its case, the report extrapolated data to discover the following:

When extrapolated to the over 33.6 million admissions to U.S. hospitals in 1997, the results of the study in Colorado and Utah imply that at least 44,000 Americans die each year as a result of medical errors. The results of the New York study suggest the number may be as high as 98,000.^{xv}

By the time the report was made available, media headlines screamed that medical errors kill 100,000 Americans every year. While there was a desire among many in the medical community to explain these data correctly, it was more important to recognize the broader issue of improving patient safety. One death from a preventable medical error is one too many. A focus on correcting the safety system should be paramount.

Scientists should know how to frame their messages within the context of the larger world. This will help make scientific discoveries and research more relevant to the lay audience. By developing an understanding of society, building relationships, and communicating clearly, scientists and the information they impart will be embraced by the public.

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