

SPECIAL SESSION ON SCIENCE COMMUNICATION

SHORT NOTE

THE SCIENCE COMMUNICATION ECOSYSTEM

Alessandro Tavecchio

Master in Science Communication - Interdisciplinary Laboratory For Advanced Studies (ILAS) - International School for Advanced Studies (SISSA) via Bonomea 265, 34136 Trieste TS; atavecch@sisssa.it

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BULLET-POINTS ABSTRACT

- The credibility of science as an institution is itself dependent on the credibility of science communication.
- Science communication is best understood as an ecosystem, with many stakeholders and forces interacting and contributing to the construction of shared meanings about science and scientists
- The current science communication ecosystem is characterized by the loss of trusted gatekeepers and by the blurring between different genres of communication (especially self-promotion, advertising and informational content).
- There is very little to no correlation between lay public knowledge about science and attitudes towards science; trust is very often the critical factor.

Science is - in principle - the ultimate source of reliable information. No other institutions in modern society can be relied upon to produce credible knowledge, especially when issues are politicized. If science communication is tainted by special interests, if it is confused with persuasion, if there is constant suspicion of bias, this harms not only informed decision-making, but also the institution of science itself. Science communication, in the most general sense, is the crucial connection between the world of science production and the rest of society. Therefore, the credibility of science as an institution is itself dependent on the credibility of science communication.

Science communication is an evolving ecosystem, with many stakeholders contributing to the creation of shared meaning about scientists and science. To understand the recent growth of science communication endeavours must also understand the goals and interests involved. More and more frequently financing institutions explicitly require science communication efforts to be included in grant proposals. For instance, the follow up to the Horizon 2020 European research framework - the 100 billion euros Horizon Europe initiative - requires all grant proposals to include a work package on both Public Engagement/Dissemination (PE) and Responsible Research and Innovation (RRI) efforts to receive funding. It is one of the many ways in which scientists are under a growing pressure to communicate: some observers have noted that the already broken “publish or perish” system is changing towards

an even more demanding “publish and be social or perish” paradigm. Nevertheless, most institutions do not provide any specific training in science communication for their scientists.

While, in theory, it is reasonable to expect scientist to be the best communicators of their own research work, in practice this expectation often turns out to be false, due to the competition for public attention. Scientists involved in science communication can sometime reach wide popularity, very often independently from the value of their research, and more often than not as controversial figures. Inside the scientific community there is still a strong ambivalence towards those who receive media attention due to science communication efforts. This phenomenon, the so-called “Gould Effect” (named for the paleontologist Stephen Jay Gould), is becoming ever more important due to impact of social media and the rise of quantitative indicators of reputation like altmetrics. More importantly, from a science communication perspective, these “visible scientists” are the main actors in the construction of shared narratives about what it means to be a scientist and, consequently, about the nature of science itself.

The idea that scientists ought to communicate with the largest possible public has quickly reached enormous popularity, due to being aligned both with appeals for a more open and reliable science and, at the same time, with the needs of political legitimation and institutional PR. The problem of justifying scientific funding has been deferred to universities and research

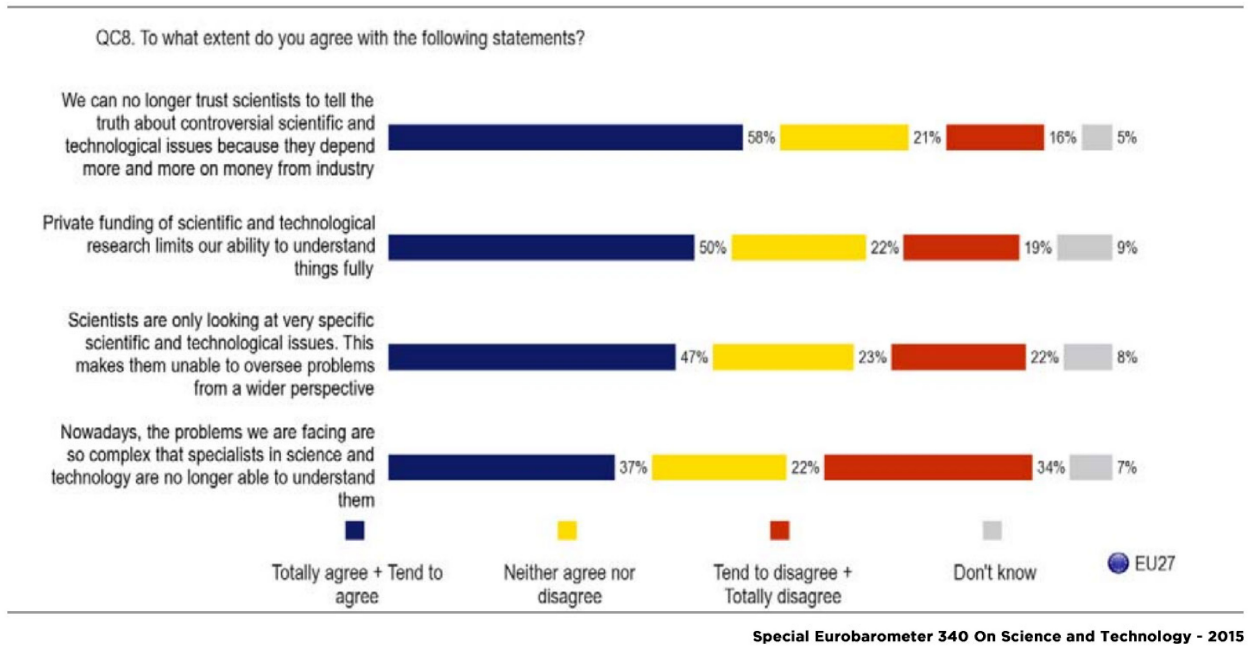


Fig. 1. While trust in scientist is still high compared to most other professions and categories, Europeans feel that scientists cannot be trusted to tell the truth about controversial scientific and technological issues because they depend more and more on money from industry. This very specific erosion of trust is more dangerous than lack of knowledge, and the driving force behind most recent changes in the science communication ecosystem. From the Special Eurobarometer 340 On Science And Technology – European Commission (2015).

centers that have to document the quality of their research and their spending as “public accountability”. Outreach and competition for attention are more often than not already understood to be a central element of academic activity and inherently desirable.

The competition for attention from a mainstream audience means institutions often rely on a “push communication mode”, very different from the participatory and democratic rhetoric used to justify the importance of science communication. Inevitably, this kind of practice mixes institutional propaganda with informative comment, being economically motivated by branding, image building and marketing. Consequently, since the early 2000s, new stakeholders have risen in the ecosystem of science communications: press officers and public relation specialists, involved in corporate communication for Universities and research centers.

Another fundamental stakeholder in the science communication ecosystem are science journalists. Since the early 20th century, science journalism has gone through deep changes in philosophy and in business practices, transforming science journalists from “translators” of frontier research, to promoters of science literacy, to critical observers and commenters. Now more than ever the role of science journalists is changing for two related reasons: the death of traditional print journalism business models and the ascent of social media have stripped journalists of their “trusted middleman” or “gatekeeper” role, creating new direct avenues of communication between knowledge production and society. While, in theory, science

journalists should be the most disinterested actor (in the sense of independence from special interests) and consequently a reliable source of science information, or even a supervisor and “watchdogs” over the practices of the scientific community, economic and social pressures have brought on the rise of “churnalism” (the uncritical spreading of PR material), sensationalization, clickbait, personalization and political bias in scientific journalism. While scientists in general continue to be among the most trusted professionals in surveys, trust in journalists has collapsed in the last 40 years, and now they are at the bottom of the rankings together with politicians and bankers.

Unfortunately, some studies seem to indicate that the trust in scientist and science is decreasing, and, for the first time since the sixties, the trend is downward. This is particularly visible when looking at privately funded and industry funded scientists, but the pattern holds true even for publicly-funded research.

Generally speaking, the contemporary science communication ecosystem is characterized by the loss of trusted gatekeepers and by the blurring between different genres of communication (especially self-promotion, advertising and informational content). The credibility of communication and the trust in the communicator are the main instruments of persuasion, and their importance in science communication efforts cannot be understated. Navigating this complex ecosystem and communicating science effectively requires well defined goals and careful planning.

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Alessandro Tavecchio is a science communicator. As a freelance science journalist he writes for Motherboard, Vice, Wired and others on issues spanning from biotechnology to open access to science frauds. He's also a founding member of the science popularization initiative "Italia Unita per la Scienza", blogger, podcaster, social media manager for Science festivals, press officer and content developer for Fondazione Telethon. He's also completing a post-graduate masters in Science Communication at the International School For Superior and Advanced Studies in Trieste.

