public communication

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‘We are at the end of a heroic phase’

Science communicators need to be more aware of the changing interplay of science and society, says Massimiano Bucchi. An interview about the theory and practice of science communication, and the role of new media.

In the past decades, science has undergone drastic changes in its organisation as well as in the application of its results - some scholars speak of post-academic science to emphasise its connection to practice, business interests and societal expectations. Bucchi points at direct-to-consumer genetic tests offered via internet: “In these and similar cases, decision-making on the use – and to some extent also on the validity of the results of science and technology is transferred from the collective to the level of individual consumers. These situations completely displace traditional, state-centred forms of regulation.” Another shift is in the arena of scientific debate and controversy. “These used to be confined to scientific meetings and academic journals, but more and more take place in public – think of recent cases like climate change or the H1N1 pandemic. The internet revolution is one of the reasons for this.” What does it mean for the relationship between science and society, the role of science communicators and the role of social scientists such as Bucchi himself? These are the types of questions that occupy him.

STRONG INTERACTION

Until about a decade ago, information about science trickled down a number of stages, all the way from the stage where specialist scientists communicate with each other to, finally, the popular press and TV-documentaries. Bucchi notices how these levels of communication, which used to be separated in terms of persons and time, have become mixed. Scientists may blog about their own research and non-experts access online scientific databases. “As a result the public does not get only the diluted, established part of the story anymore. Instead people are confronted with science in its making and even with minority views.”

When interviewed, Massimiano Bucchi attends the annual Kluyver Centre symposium. “The strong interaction, here in The Netherlands, between industry and research struck me. In my field that is called post-academic science, but you could call it as well ‘science 2.0’. In Italy, science and industry are still more segregated.”

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'After my presentations, I am often asked what to do and how to communicate. I do not think there is a simple, straightforward solution. Actually, discussing these issues at a science conference is already a very positive step, in my view.'

SCIENCE COMMUNICATION

What is science communication and what is a science communicator? Just the one who translates science for 'the public at large'?

"Science communicators used to be science journalists or professionals working in a science museum. What I see now is a much more fluid range of activities, which includes all sorts of communication levels and which is heavily influenced by the new media revolution. Nowadays it has become difficult to draw the line between a professional communicator and a scientist blogging about his own research. Likewise, I think we ought to expand our notion of science communication. In describing science communication, we should be more focused on the process and the activity rather than on the person. This poses a huge challenge for the training of science communicators, as most job opportunities are to be found outside public communication, e.g. in companies or scientific institutes."

What makes science communication good or bad?

"We are at the end of a heroic phase where everything was fine, if it was done in the name of science and science communication. No-one asked whether these communication activities were performed well or sloppy or whether the resources employed were proportionate to the aims achieved. What does it mean to have two million people a year visit a science museum? Just for fun, or has it had any impact? And do the effects contribute to achieving the aims? That is why we need to have quality indicators for public outreach, just like those for scientific research. Think about factor such as human resources devoted to public communication, accessibility of information for the public and attention to ethical issues in research. Such indicators are a major prerequisite for the profession to enter a new phase."

Popular communication about science is often about medicine and natural science. Why is that?

"The public perceives the medical sciences to have a potential impact on our daily life, much more than e.g. sociology. Another reason is the cultural perception that, historically, natural sciences have moved away from everyday life, such as relativity and quantum physics. To bridge that widening gap, one needs communication.
The idea persists that social science is by definition closer to common sense and you would not need such an effort to communicate about it; that is a misconception. Unfortunately there has not been a lot of research or professional practice in communicating the social sciences. However, when looking at a field as economics, it is obvious that there is a need for public communication!
Recently, I studied fifty years of science coverage in Italian newspapers. Until the beginning of the eighties, the physical sciences dominated. But around 1980, there is a complete take-over by the life sciences. This coincides with increased research funding in the life sciences. Biology did not use to be 'big science' until the genome projects were launched in the end of last century. Now, out of every two articles about science, one is on biomedicine.
At the same time, the attention for life sciences reflects the expectations of the public. Biomedicine was said to provide the pharmaceutical industry with the tools to deliver new cures. In addition, the way health is perceived has been transformed. From the absence of disease to greater well-being, longevity, improved sexual life and enhanced bodies. This puts very strong demands on science."

CHALLENGES FOR SCIENCE COMMUNICATORS

Should science communicators show more about the way in which science operates?

"The dominant public image of science is that it produces certainty and results, mostly in the form of technology. This is an image cultivated by the media, but also by the scientific institutions themselves. The tragic irony is that, while cultivating this image, you cannot meet the expectations of the public. Uncertainties and controversies are an essential part of the scientific world and there is nothing wrong with scientists having different visions, even in a conflicting way. But this contrasts with the prevailing image of science. It might be important to find a way to be transparent about the uncertainties and even the mistakes."

How could science communication address this challenge?

"I do not think there is a single mode of communication. Even the old-fashioned one-way approach is still pretty good for particular situations. In case of a very novel technology you have to tell people what it is about. Take e.g. nanotechnology, which is not yet an issue. I do not see how people can engage effectively in debates at this stage.
The contrary happened with GM foods in the nineties. The public was already

Massimiano Bucchi is professor in sociology of science at the University of Trento, Italy. As of 2011 he is distinguished visiting professor of CSG and the Kluyver Centre (NGI genomics centre, employing genomics to improve microorganisms for use in industrial fermentation processes). Bucchi has written and edited several books – such as the Handbook of public communication of science and technology - and numerous articles on science communication and the sociology of science. He does not like to consider himself to be situated between science and society, where science communication is often positioned: "I do not see my professional mission in this light. I give my input (in helping) to improve our understanding of the interaction between science and society. I cannot tell how science communication should be practiced."

'We tend to underestimate the media revolution, but it is like having a nuclear weapon in your backyard while you were used to fireworks.'

sensitised to an array of issues such as food safety, environmental impacts and the role of multinational companies. Public communication however, was framed in terms of propaganda and the public did not accept that frame. Other modes of communication such as public dialogue and participation would have been more appropriate. It is the context of the technology that determines the approach for public communication."

How do the new media impact science communication?

"The new media provide none-experts with unprecedented access to scientific information. Recent statistics on the users of *Medline*, a medical archive, showed that 30% of the visitors have no professional expertise, e.g. patients. These information users are confronted with a mix of genres, such as scientific papers, advertisements, criticisms and policy documents. This places a huge burden on the competences of the users. We tend to underestimate this media revolution, but it is like having a nuclear weapon in your backyard while, until a few years ago, you were used to fireworks.

Communication professionals have to come to terms with increased fragmentation of the supply of information. The professional used to send a single message to the big media: newspapers and TV.

The web is very good in the cultivation of niches for specific communities and that poses new challenges.

Internet typically cultivates minority views, dissenting opinions, and even pseudo science. In traditional media, where space was limited and the voice of mainstream science was louder than that of others, these dissenting voices out would have been ruled out."

All that as a result of the new media?

"Society must have changed dramatically in the past decades to embrace such a media revolution. It was ready and probably looking for it. Digital technologies, such as the web and the use of mobile phones, resonate with an individualistic society.

The increased level of education is a major factor as well. In some fields of science, the public even takes part in the production of new knowledge. Think e.g. about the role of amateurs in astronomy. This shows that digital technologies are not the sole cause of the transformation of science in the media.

Whenever a new medium appears, it does not erase the previous media; it redefines their role and use. TV was not the end of cinema but it made it into a more cultural activity. On its turn, internet redefines the role of TV or printed media."

THE GAP BETWEEN PRACTICE AND THEORY

On the hand, social scientists study the theory of science and society, while others do the job of science communication. How could they benefit from one another?

"To overcome the gap between practice and theory is an important challenge and we need to deal with it urgently. In the past science communicators could do their job without critical reflection. But nowadays, I do not see how you can practice that profession without trying to understand what is going on in science and society."

This article is an English translation of an article in Dutch, 'We zijn aan het eind van een heroïsche fase', from LEV, the magazine of the Centre for Society and Genomics, The Netherlands, May 2011.