

Editorial

Cultural determinants in the perception of science

Those studying the *public understanding of science* and risk perception have held it clear for long: the relation between information and judgment elaboration is not a linear one at all. Among the reasons behind it, on the one hand, data never are totally “bare” and culturally neutral; on the other hand, in formulating a judgment having some value, the analytic component intertwines – sometimes unpredictably – with the cultural history and the personal elaboration of anyone of us.

A new and plastic demonstration of all this has been provided by the experimental study carried out by Dan M. Kahan and his team on risk perception associated to nanotechnologies.¹ The team has analysed a sample of 1,600 citizens, representative of the adult population in the US by gender and ethnic group and selected among people with a medium-high income and a higher education.

As known, nanosciences have developed only recently and the technologies related to them are barely known to non-experts. So, the sample has been divided into two equal groups. One group was questioned without previously receiving a special exposure to focussed information, whereas the other was previously exposed to a considerable amount of information on the issue.

Within the poorly informed subgroup, risk perception is hardly diversified by gender (males have a lower level of risk perception if compared to women, under the same conditions) and not diversified at all by ethnic group. Instead, within the group exposed to an amount of information, risk perception does change considerably: after having provided focussed information, risk perception decreases within the male component in the sample, whereas it increases within the female component. An even more significant data is the one regarding the response to information by ethnic groups. Among white people, indeed, after the exposure to information, risk perception decreases considerably, whereas among non-white people, risk perception increases considerably. Before the exposure to information, there was not any perception difference between the two groups.

The experimental study by Dan Kahan and his colleagues supports at least two hypotheses that have long appeared as well grounded to those who deal with science communication, like we do. The first is that in this sector – like any other communication sector – there is no silver bullet. There is not a communication process able to define in a linear and deterministic way a perception and a judgment of some value. It is because, despite many efforts on making the communicator job “unbiased”, that bullet never is completely made of silver. And then because that bullet hits (culturally) different targets, which respond in different ways – sometimes even opposite, as in the case of the American sample – to the impact.

Nothing new, some may say. And yet, the experiment by Kahan and his colleagues says that non-linearity in communication and in judgment elaboration concerns even social groups on the same level of income and education, also on issues – such as nanotechnologies – which are novel and therefore devoid of a deep perceptive history which could work implicitly and explicitly on consciences.

All of that generates at least three considerations useful to those working on science communication.

1. It is totally illusory to think – as some scientists, managers and politicians do – that when some issues do not receive media coverage and remain unknown to the general public of non-experts, risks related to prejudices decrease, as do those related to non-merely analytic judgments. Certainly, a public not exposed to certain issues does not have, by definition, any prejudice: yet (either positive or negative) prejudices are formed as soon as it is exposed even to a small amount of information. Generally, it is something explainable *a posteriori*, yet unpredictable *a priori*.
2. It is totally illusory to think that communication is a neutral and intrinsically unbiased one. Even the most formalised and analytical information has some more or less visible encrustation: i.e., it has got a cultural heritage which is historically determined and more or less deep. So that any type of information may generate different and unpredictable effects even in highly standardised publics.

3. On the other hand, there are not culturally standardised publics in absolute terms. Any individual has a history leading them to act differently even in similar environmental conditions. The union of these three elements and – more in general – the cultural determinants in the perception of science are a wealth and not a limitation for the democratic governance of the society of knowledge.

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Notes and references

- ¹ D.M. Kahan, P. Slovic, D. Braman, J. Gastil, G.L. Cohen and D.A. Kysar, *Biased Assimilation, Polarization, and Cultural Credibility: An Experimental Study of Nanotechnology Risk Perceptions*, (February 4, 2008). Available at SSRN: <http://ssrn.com/abstract=1090044>.