

Parallel Session 9: Theoretical framework evolution around PCST

**SCIENCE COMMUNICATION AND SOCIAL PARTICIPATION
TO COMMUNICATE SCIENCE FROM THE SOCIOCULTURAL
APPROACH**

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Abstract

The super-specialization and complexity of science has generated an exclusive vocabulary of techniques and terminologies that is difficult for many to understand. This situation has created a great breach in communication between scientists and the general public. The PCST provides one of the most suitable channels through which to unite these two parties. But this process must take into account the cultural characteristics of participating actors ↓their values, beliefs, traditions, habits, phobias, symbols and knowledge↓ to ensure that scientific and technological decision-making is more transparent and is open to the general public. This work proposes to study the PCST from a sociocultural approach.

Key words: communication, cultural diversity, scientific knowledge.

Text

The Need for a Cultural Model of PCST

The term culture is multidiscursive¹ and its definition has motivated many studies. Anthropologist Leslie White(1989)² supposes that science is not just part of the culture, but that could even determine the culture.

In this study, culture is understood as a system which, although having emerged from a biological origin, it changes and develops with biological principles and from its own laws that cannot be explained solely using a biological reductionist analysis. [...] Culture acts like fast mutant. It sends new variations to the order of natural selection and it changes the epigenetic rules through succession of generations and the new information obtained in each offspring.³

Science and technology have a social obligation, for this reason it's necessary that the general public understands its procedures, results and effects. The general

public must assume a civic conscience⁴ and participate in the decision making with respect to those subjects.

The majority of projects designed to communicate science to the public follow models of an asymmetrical type, like those of deficit or diffusion.⁵ They are limited models which analyse communication as a process with a unidirectional path (moving from the scientific to the public). Not only do they assume that the transmitted information is neutral, they also ignore the cultural characteristics of the actors. These are the main reasons why communication between scientists and the general public is problematic.

For this reason it is necessary that the Public Communication of Science and Technology (PCST) recognizes the cultural characteristics of its actors, as suggested by Brian Wynne (1996). In his analysis about risk communication, they recognized that in the interaction between science and the public the tacit cultural dimension has an important influence. That is, the tacit dimension conforms ↓in great manner↓ the states of (in)communication and distrust. According to Wynne (1996), these states recognize that the cultural dimension of science is loaded of significance. This contrasts with the traditional image that is had of science, like a neutral knowledge about an immutable reality.

If we accepted that dialogue will have to be cultural, then the traditional unidirectional model of the communication will have to be reformulated from a sociocultural perspective, to become a more complete model. This model should take into account the connections between forms of organization of the society (the politics-cultural), socio-economic mediations and the discursive practices of science and its divulgation.

Although scientific investigations dream of achieving international (global) projection, they must acknowledge (local) cultures before communicating with the general public. Pierre Fayard (2002) summarises this point, “If science is global, its measurement, to be efficient, ought to be developed locally. << Think global, act local>>”.⁶

To communicate is to dialogue, is to relate a fact to the cause that produces it and with the effect that it generates. In this study the PCST is understood as a sociocultural practice that operates within a given society, with defined cultural political orientations and with an adequate discursive management for specific publics.

The Characteristics of the PCST

The PCST is involved with all types of extension activities and scientific knowledge updates. It can be undertaken within non-formal education,⁷ with support of the mass media and in spaces opened for dialogue over scientific-technological issues.

There is no consensus on who is the most suitable person to communicate science publicly. A solution is the joint work between scientists and journalists. But this cooperation is insufficient without the contribution of other professionals, educators and the family.

Just as music requires interpreters to be appreciated, science needs professionals who can interpret scientific studies for the public. Maurice Goldsmith compares a public communicator of science with an art critic, to whom he calls scientific critic. To this professional, Goldsmith suggests him a multidisciplinary formation that integrates courses of general science, of history and philosophy of science and technology, of art and of communication psychology.

Conclusions

It is necessary to restore the balance between knowing how to do science-technological, and the knowing how to do it humanely. This balance must guide decision-making with respect to science and technology.

In order that science and technology support the formation of a civil conscience ↓ and comply with their social obligations ↓ it is necessary to develop PCST studies from a socio-cultural perspective. This analysis should incorporate the following in the communication process: institutionalization, mediations, and social agents who to take part in this communication process.

It agrees: 1) to surpass the split between human and exact sciences, 2) to value and to reinforce the contribution of social sciences to the study of the PCST and 3) to promote interdisciplinary analyses about. Only open dialogue will overcome the obstacles to greater communication between scientists and the general public, which ultimately, could obtain the ideal that Stephen Hawking summarizes below:

“If we discovered a complete theory of the Universe, it would have to be understood, with time, in its basic principles by all; not only by a few scientists. Then everybody: philosophers, scientists and common people could take part in a discussion about why the Universe and ourselves exist. If we found the answer to this, it would be the final triumph of human reason”.⁸

Notes

This could refer to nationalism, fashion, anthropology, literary criticism, vitiviculture, marxism, feminism, the cultural studies and even common sense.

Leslie A. White conceived culture as a global system, sustained by three subsystems: ideological, social and scientific. This last one is attributed a basic role in the fight for the survival of species and it is considered determinant in the construction of culture.

³ Cfr. Enrique Pallares (2000), p. 24.

⁴ From PUS (Public Understanding of Science) to PEST (Public Engagement with Science and Technology), in *Science*, vol. 298, 4th October 2002, p. 49.

⁵ B.C. Lewenstein (2003), "Models of Public Communication of Science and Technology", in <http://communityrisks.cornell.edu/BackgroundMaterials/Lewenstein2003.pdf>

⁶ Cfr. Pierre Fayard, (2002), p. 238.

⁷ Non-formal education is understood as a complement to formal or institutionalized education. It's difficult to have the didactic contents updated with respect to scientific and technological advances; so, in as much as those reforms are applied, non-formal education could empower those who wish to contribute to the public understanding of science and the technology, through the PCST.

⁸ Fragment of documentary *A Brief History of Time, Inc.*, UK, 1991; Anglia Television Ltd./Gordon Freeman Production, UK, 1992; Globus Comunicación, S.A., Madrid, 1993.

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