

Parallel session 4: Cultural Identity Implications in Genomics Research
and Communication

**CAN GENETICS HELP US RETHINK COMMUNICATION?
PUBLIC COMMUNICATION OF SCIENCE AS A 'DOUBLE HELIX'**

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Abstract

Public communication of science is still largely conceptualized within a 'transfer' paradigm that describes it as a displacement of results and ideas from the specialists to the lay public, problematizing the public, the media, (sometimes) science, but very rarely the notion itself of communication. This paper is a preliminary attempt to see if the discourse about genes and the genome can help us to problematize the concept of communication in relation to science, rethink our models of public communication of science and more in general the metaphors we employ to describe communication. It is suggested that the relationship between science and the public could be better understood by viewing communication through metaphors drawn from contemporary biology, e.g. as 'cross-talk' between the specialist and public discourse or as a 'double helix' coupling the two dimensions under certain conditions.

Key Words: Public Communication of Science; Communication Theory; Public Discourse on Genetics.

Introduction

Scientists and policy makers routinely complain about the difficulty in getting the message of science across public opinion. Public hostility to applications of science research - like for instance those in the field of biotechnologies - is attributed to scarce receptivity on the part of the public and to the inadequacy of mass media in channelling the information provided by the scientific community. Despite several initiatives, investments and research, scarce evidence is available of the impact of public communication of science on public opinion and attitudes, let alone behaviours. Indeed, recent studies show for instance that that lack of information cannot be used as the only explanation for public scepticism (Gaskell and Bauer, 2001; Bucchi and Neresini, 2002).

However, when discussing public communication of science, the public is often problematized, the media are often problematized, science is sometimes problematized, but communication itself as a concept is rarely problematized. This paper is a preliminary attempt to see if the discourse about genes and the genome can help us to problematize our concept of communication in relation

to science, rethink our models of public communication of science and more in general the metaphors we employ to describe communication .

The ‘transfer’ paradigm

The transfer model has been now for at least sixty years the dominant paradigm for describing communication as a process concerned with the transfer of knowledge from one subject or group of subjects to another subject or group of subjects. Within this paradigm, ‘successful’ communication is defined as the achieved transfer of information from one party to another, assuming that: a) knowledge can be transferred without significant alteration from one context to another, i.e. we can simply ‘take’ an idea from the scientific community and ‘bring’ it to the general public; b) the same knowledge in different contexts will result in the same attitudes and eventually in the same type of behaviour.

Criticisms of the transfer paradigm and sociological models of science communication

Since the 1950s, the transfer paradigm has been challenged both in general and in the area of science communication, describing science communication as a *continuum* with several stages allowing for a more complex interaction between different levels (Cloitre and Shinn, 1985; Bucchi, 1996, 1998). Despite its innovative elements, this model largely remains within the limits of the transfer paradigm: the whole process is still about transferring knowledge from one science communication level to another and even if it allows for knowledge to transform during the transfer, , the direction of the transformation remains largely pre-established, with the touchstone of the transformation firmly remaining located at the specialized level. Eventually, what the continuity model describes seems to be a more complicated transfer process.

The ‘discourse of gene action’: a case of public misunderstanding?

My proposal here is to use the case of genetics to step out of the ‘transfer’ paradigm of science communication, and eventually to find a different metaphor to think about the very process of communication. To do this, I will consider the two extreme levels of science communication, namely the specialist level and the public level. As several studies have illustrated, an analysis of in relation to genetics reveal a sharp disjunction between them: while at the specialist level “the concept of gene is no longer useful” (Keller, 2000), at the public level we are still largely witnessing an overwhelming success of genetic determinism.

Obviously the transfer approach has a handy explanation for this disjunction as a result of imperfect transfer of specialist ideas and results, i.e. what is often referred to as ‘public misunderstanding’ or as ‘deficit model’. Put more time, resources and efforts in communicating gene research to the public, and eventually the gap will be covered: public discourse will match the specialist one. However, there are several indications that public discourse about genetics has not arisen as a filtered or trickled down version of specialist discourse.

Is another explanation possible? Let us put aside the transfer metaphor and consider the specialist and public dimensions not as layers of the same

discourse, but as two different types of discourse which are developing in parallel. One way to describe public communication of science without the mechanical strictures of the transfer paradigm is by considering the possibility that ideas circulating within public discourse and within specialist discourse can, under certain conditions, '*cross-talk*'.

The 'double helix' of science communication

A model of science communication as *cross-talk* implies seeing communication not simply as a *cause* – e.g. of changes in opinions and attitudes among the public – but also as the *result* of developments in both discourses allowing the formation of an intersection zone. Actually, if we need another form of visualization to replace that of transfer, we could indeed take the biological metaphor one step further, representing interactions between specialist and public discourse as 'double helix' – one strand representing the specialist discourse, the other strand representing public discourse - with intersection between strands taking place only at certain junctions rather than a transfer process. If we apply this metaphor to the case of genetics, our surprise and disappointment for how imperfectly results like the mapping of the human genome have been channelled to the public may well disappear, replaced by an appreciation and wonder for how richly have such achievements intersected with popular discourses about heredity and identity.

Implications for public communication of science practice

Some, and in particular science communication practitioners, could draw here the impression that public communication of science is a difficult, desperate or flatly impossible endeavour. This impression is justified only if we keep the transfer paradigm as a term of reference. Still, the model is not devoid of implications for science communication practice: since it is quite difficult for a single actor to control the communication process and communication as described here requires the concurrence of several conditions, a model of science communication as double helix emphasizes the importance for a science communicator to thoroughly map the configurations of such conditions, including conditions traditionally neglected within the transfer paradigm, e.g. fine structure of public discourses directly or indirectly related to science issues. This eventually makes the process of public communication of science – and thereby the activities in which science communication practitioners are routinely engaged - more relevant, not only as a means to achieve certain objectives but as a central space to understand (and participate in) the interacting transformations of both science and public discourse.

Notes: Please do not quote or circulate this version. The complete version of this paper will appear in a special issue of the journal *New Genetics and Society* dedicated to "The Meanings of Genomics" to be published in autumn, 2004.

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