

**Parallel Session 28: Discourse analysis contributions to PCST study**

**THE RHETORIC OF BREAKTHROUGHS IN THE COMMUNICATION OF BIOTECHNOSCIENCE**

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**Abstract**

The rhetoric of breakthroughs consists of representing science by its products, subsuming scientific processes to the teleological and cumulative pursuit of results, with an exclusive emphasis on outcomes that can be evaluated *ex post facto* as breakthroughs in applied science. This is tantamount to ignoring the cognitive pursuit of science as a process, disregarding the role of productive error in scientific decision-making processes, and identifying scientific ends to actual results, by excluding unanticipated and hazardous results, and, ultimately, risks. It must be acknowledged that biomedical technoscience is capable of providing means to an end, rather than producing results.

**Key words:** Rhetoric; Breakthroughs; Result evaluation

**Text**

The crisis of the linear model (AAVV, 1985) of the communication of science, permitted the emergence of an interaction model still open to discussion. An issue both frequently and superficially pointed concerns the representation of science and its following public perception according to its results rather than the process that lead to them. In effect, the euphoric and spectacular avowal of communication of science privileges (Nelkin, 1995; Semir, 1999) is not far from becoming a common-place, along with the display of its results to the detriment of the exposition of scientific process.

In the epicenter of the conceptual controversy in which the linear model has been questioned one can detect a assortment of demarcations between: what is science and what is not; literacy (of scientists) and illiteracy (of laymen) (Bauer, 1992); the domain of science and non-scientific public domain. The interaction model (Felt 2000b) between scientists, communicators and the publics emphasizes that interaction ought to be understood not as cooperation but rather as negotiation and, strictly, in the extent that those demarcations, far from remaining stable or stabilized by means of consensus, are rather permanently rebuilt, in a process of dissension and conflicts, befalling on those who hold the authority to discuss the very criteria of demarcation.

To this process of negotiation the henceforth classic concept of "boundary work" has been applied. It consists of a process concerning: when, how, and to what ends the boundaries of science are drawn and defended in natural settings often

distant from laboratories and professional journals (Gieryn, 1994). Boundary work is brought on by disputes over credibility, about who has the legitimate power to represent a sector of the universe, on what grounds, by what methods or virtues, and in which circumstances (Gieryn, 1999). Boundary work intensifies when people fight for, legitimize or defy the cognitive authority of science (Felt 2000a). In that sense, a rhetoric (Gross, 1996) of breakthroughs can easily be placed in the core of boundary work occurring in the communication of science.

Essentially, the rhetoric of the breakthroughs consists of:

- representing scientific activity by its products;
- subsuming scientific processes to ultimate and cumulative attainment of results;
- exclusively isolating as results those *a posteriori* assessed as successful accomplishments.

The above implicitly stands for:

- ignoring scientific activity as a process whilst proceeding through protocolar observance of *a priori* criteria of methodological rigor of investigation, advances in a non-linear, erratic and tentative way - that is akin to saying that it whitewashes both the intrinsic reversibility of all scientific knowledge and the rational reconstruction inherent to the pursuit of cognitive interests;
- canceling the role of productive error in decision-making and scientific choices, in such a way that success in the attainment of results can be ascribed to the rigor of methodological conception - which implies the necessary elimination of whatever surpasses the domains of rigidity delimited by method, and regarded as its spurious outgrowth rather than a mark of its limits of validity;
- producing an effect of positive censorship of science: either as producer of risks - to the extent that it encourages the illusion of the control of technoscientific risk - or as the provider of means, to the extent that it assimilates ends to results, defining in retrospect the former via the latest and exclusively identifying as results of scientific process those evaluated as positive, excluding haphazard, unexpected and adverse results.

Scientific process is defined by the means it employs and not by the results that it pursues or effectively reaches. This implies not at all the underestimation or disregarding of results, but it merely rearranges them within the discursive economy of the communication of science (Jeanneret, 1994). Thus, it becomes imperative to assert that biomedical technosciences are able to provide means rather than produce results, contrary to the rhetoric that hastens the illusion of the control of risk (Beck, 2000).

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