

## The Many Facets of Science: Five Decades of Science Studies

If science editors have an academic home, it is the multidisciplinary field that subsumes science communication and is referred to variously as “science studies”, “sociology of scientific knowledge”, and “science and technology studies”. Its scholars come from history, philosophy, psychology, sociology, and, more recently, communication. They also include natural scientists whose long experience in science leads them to write about it. According to Robert K Merton, a pioneer in science studies, its rudiments were outlined in 1952. Since then, heated debate has been occurring in the field: Is science neutral or influenced by such things as politics? And what is the best way to determine that? Science editors, working at the front, are likely to be aware of the politics in science but in awe of how it can transcend politics. Here are some summaries of classic work.

**Merton RK. Priorities in scientific discovery. *Am Sociol Rev* 1957; 22:635-59.(Information and a photograph of Merton posted at [www.cc.columbia.edu/cu/record/record2002.13.html](http://www.cc.columbia.edu/cu/record/record2002.13.html).)**

Merton maintained that disputes over priority of discovery reveal problems inherent in science. Editors, take note: “The indispensable reporting of research can, however, become converted into an itch to publish that, in turn, becomes aggravated by the tendency, in many academic institutions, to transform the sheer number of publications into a ritualized measure of scientific or scholarly accomplishment.” Sound familiar?

**Ziman JM. Information, communication, knowledge. *Nature* 1969; 224:318-24.**

A respected theoretical physicist presents an interesting theory on the proliferation of journals in science. Ziman also states that the results of research become completely scientific only when published, although the process is not always pleasant: “The editing and refereeing of journals is a fertile source of folklore, anecdotes, grumbling and bad feeling.”

**Edge D. Quantitative measures of communication in science: a critical review. *Hist Science* 1979;27: 102-34.**

This founder of the journal *Social Studies of Science* here addresses the use of such methods as citation analysis to study science. Edge thoroughly discusses what may and may not be gleaned from such methods: “One is tempted to say that formal communication in science is ‘the tip of the iceberg’ were it not [that] (a) the ‘tip’ is very large, extensive and important; and (b) . . . is *radically different* in kind from what is ‘below the waterline’” (author’s emphasis).

**Star SL. Introduction: the sociology of science and technology. *Soc Probl* 1988;35:197-205.**

This article is a reasoned discussion of science studies and the field’s divisive issues in plain language. The author argues that studies of science and technology serve as “vehicles” for understanding important social questions. For example, as people from different worlds meet, how do they find a common language in which to conduct their joint work? How do people come to believe what they believe about nature and social order?

**White WJ. A communication model of conceptual innovation in science. *Commun Theor* 2001;11:290-314.**

This article may help break the communication scholar’s perspective on science out of the box of journalism into true science studies. *Conceptual innovation* refers not only “to the processes through which scientists originate, evaluate, and develop ideas”, but also “to the dissemination of those ideas within and among scientific communities.” In response to the suggestion that the explanation of how new ideas emerge is at the heart of the science studies debate, White attempts to resolve that debate by merging ideas from sociologic and communication theories. In the process, he produces an interesting table of facets of communication in science. Whether this communication model resolves the debate in science studies remains to be seen.