

## **Parallel Session 27: Cultural Differences in Public Understanding of Sciences**

### **FRAMING AS A THEORY FOR THE COMMUNICATION OF SCIENCE AND TECHNOLOGY**

*Urs Dahinden*

*University of Zurich, Switzerland, E-mail: [u.dahinden@ipmz.unizh.ch](mailto:u.dahinden@ipmz.unizh.ch)*

**Keywords:** theoretical framework, media, public opinion, framing, content analysis, survey, international comparison, biotechnology,

#### **Text**

Science and technology are issues that receive increasing attention in mass media (Dahinden. 2002). However, the analysis of this media coverage is often done with little or no theoretical background at all. Framing provides a promising theoretical framework that can fill this gap.

In the past several years, the framing approach has received increasing interest in communication studies (Reese. 2001) and also other social science disciplines like sociology, psychology or in political science. Despite the relative success of the concept, there is no agreed-on definition of what framing as a process or frames as results of such processes might be. Nevertheless, the following definition by Entman (1993) can be considered as a least common denominator of the various efforts to define the term: "To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such away as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation" (Entman. 1993: 52). This definition highlights that frames are not issues, but background patterns of interpretation that structure the perception and evaluation of a specific issue. Based on that definition, public debates can be described as framing contests between competing actors that try to frame an issue according to their own point of view (Pan. 2001).

The framing approach has a number of strengths: First, it is independent of the very issue under consideration and therefore a suitable theoretical tool for cross-issue comparisons. The frame concept has been applied to a number of very different issues in science communication, that includes science in general (Dunwoody. 1992; Peters. 1994) biotechnology (Bauer, et al. 2001; Priest. 1995) or nuclear energy (Gamson. 1989). Drawing from these studies, five general frames can be identified that are independent of the specific issue to which they are applied:

- 1) Progress by scientific information
- 2) Economic aspects
- 3) Conflicts (related to distribution of resources)
- 4) Ethical and legal dimensions
- 5) Individual impacts, personalization of a topic

As a second strength, the framing theory can be applied to all phases of mass media communication processes, including public relations, journalism and media effects on audiences.

However, there are also some weaknesses in framing research, like the lack of terminological precision and the diversity of empirical frame descriptions. Therefore, this paper gives an overview on framing theory and its various empirical frame typologies (Dahinden. 2002).

The biotechnology debate in Europe has been selected as empirical case study. The empirical discussion draws on data from a media content analysis and from population surveys (Gaskell. 2004). In both data sets frames are identified by means of inductive statistical techniques (factor and cluster analysis). The comparison of media frames and audience frames shows a number of shared, but also some different frames. Media effects are found with regard to some frames, but other audience frames are not linked to media use, but to other factors (e.g. gender, age and education). The paper discusses these findings and draws some conclusion for further theoretical and empirical research.

## References

- Bauer, M.W., Kohring, M., Allansdottir, A., and Gutteling, J. (2001). The dramatisation of biotechnology in elite mass media. In G. Gaskell, Bauer, Martin W, (Ed.), *Biotechnology 1996-2000 - The years of the controversy*. 35-52. London: Science Museum.
- Dahinden, U. 2002. Biotechnology in Switzerland - Frames in a Heated Debate. *Science Communication*. 24(2): 184-197.
- Dahinden, U. 2002. Biotechnology: From inter-science to international controversies. *Public Understanding of Science*. 11(2): 87-92.
- Dunwoody, S. (1992). The media and public perceptions of risk: How journalists frame risk stories. In D.W. Bromley, Segerson, Kathleen (Ed.), *The social response to environmental risk. Policy formulation in an age of uncertainty*. 75-100. Boston.
- Entman, R.M. 1993. Framing: Toward Clarification of a Fractured Paradigm. *Journal of Communication*. 43(4): 51-58.
- Gamson, W., Modigliani, A. 1989. Media discourse and public opinion on nuclear power: a constructionist approach. *American Journal of Sociology*. 95: 1-37.
- Gaskell, G., Bauer, Martin W., (2004). *International Research Group on Biotechnology and the Public*. In: <http://www.lse.ac.uk/Depts/lse/>.
- Pan, Z., Kosicki, Gerald M. (2001). Framing as a Strategic Action in Public Deliberation. In S. Reese, Gandy, Oscar, Grant, August (Ed.), *Framing Public Life - Perspectives on Our Understanding of the Social World*. 35-65. Mahwah, New Jersey, London: Lawrence Erlbaum Associates.
- Peters, H.P. (1994). Wissenschaftliche Experten in der öffentlichen Kommunikation über Technik, Umwelt und Risiken. In J. Friedrichs, M.R. Lepsius, and F. Neidhart (Eds.), *Kölner Zeitschrift für Soziologie und*

Sozialpsychologie. Sonderheft 34: Öffentlichkeit, öffentliche Meinung, soziale Bewegungen. 162-190.

Priest, S.H. 1995. Information Equity, Public Understanding of Science and the Biotechnology Debate. *Journal of Communication*. 45(1): 39-54.

Reese, S., Gandy, Oscar, Grant, August. (2001). *Framing Public Life - Perspectives on Our Understanding of the Social World*. Mahwah, New Jersey, London: Lawrence Erlbaum Associates.



