# Public Understanding and Public Participation in Science: Competing or Complementary Paradigms?

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Dr. Urs Dahinden
IPMZ Department of communication, University of Zurich
Kurvenstr. 17
CH-8035 Zurich
Switzerland
u.dahinden@ipmz.unizh.ch

## Introduction

Science and the public are not yet divorced, but there are a number of signs that indicate an increased alienation between the two. Various authors have discussed the reasons for this alienation from a theoretical and empirical point of view and made suggestions how it could be overcome in practice. Two main approaches can be distinguished that are addressing this question: The public understanding of science approach and the public participation approach.

## Public understanding or: the Deficit Model

The proponents of the public understanding of science approach consider the lack (or even deficit) in intellectual public understanding of science as the main cause of the low public support for science. Based on this analysis, the remedy is straightforward: Public understanding of science has to be promoted by specific programs. The mass media play a crucial part in these programs, but also other means (e.g. science museums, science cafes etc.) are suggested to promote both the intellectual understanding of and the social support for science. For a critical discussion of this perspective, see (Wynne 1995)

## Public participation or: the Democracy Model

In contrast to that, the public participation approach views the main reason for the lacking support of science in the limited options for public participation that could guide the development of science and technology. Therefore, rather than informing the public, it should be integrated into process of policy making that shape the course of scientific and technological development. A number of such public participation procedures have been developed and applied in the past, like citizen juries (planning cells) (Crosby 1987, Renn 1995, Hörning 1999), consensus conferences (Andersen 1999), deliberative polls (Fishkin 1991; Fishkin 1995) or focus groups (Dahinden/Dürrenberger 1997a, 1997b, Dürrenberger 1999).

The paper gives an overview on the differences between these two approaches: Adherents of the public participation approach are critical about the other approach, because they expect that more and better science journalism might backfire, because it might be evaluated by the public as biased public relations only. On the other hand, adherents of the public understanding approach are concerned that public participation procedures yield unsatisfactory, if not irrational outcomes. This concern is justified with reference to the limited resources dedicated within such a procedure to learning about science or with a general suspicion about group discussions and group decision making that are a key element in such participation procedures.

## Empirical case study: Focus groups on energy policy

This concern is investigated on the background of an empirical case study (Dahinden/Dürrenberger 1997a, 1997b, Dahinden 2000) . The topic of the public participation procedure was the introduction of economic means in energy policy. 24 focus groups were run with a total of 140 citizens in Switzerland. The groups discussed national energy consumption goals and various policy instruments, including both traditional command-and-control and new economic approaches (taxes, permits). The analysis of pre- and post-questionnaire data allowed an investigation of the dynamics of individual opinion formation and the development of a group consensus. The reasoning and the policy suggestion of the lay citizens are compared to expert judgement. Specific indicators for the rationality of the policy suggestions are developped. The findings suggest that the rationality of the policy suggestion was increasing during the course of the discussion (Dahinden 2000: 265-272).

## Conclusion

On the background of these findings, the paper discusses the complex relationship between public understanding

and public participation in science.

### *1) The two approaches have to be considered as complements, rather than competitors.*

Each of them gives only a limited picture, that has to be expanded by the insights from the other approach. Some points that the Public understanding approach can learn from the Public Participation approach:

- Increasing public understanding requires the subjective feeling of being actively involved (as a citizen or as a consumer).
- Learning is most intense in phases of conflict (knowledge gap model)

What the Public Participation approach can learn from the Public understanding approach:
Promoting the understanding of science: A necessary, but not sufficient element of all public participation procedures
Public participation a way of providing equal access to scientific expertise

### *2) "Paradise" lost: no way back to blind trust in science*

The paper concludes that the "paradise" of unquestioned, blind trust in science is lost. There is no way back to these "good" old times. And there is also little evidence that either of these approaches (Public Participation Public understanding of science) can be (mis-)used in a simple and straightforward PR-sense of increasing public support for science. Rather, science as a social institution has to put up with the perspective that a scientifically informed public with the possibility of democratic participation in the process shaping science and technology will do both agree or disagree with the solutions suggested by science.

### *3) Further research*

On that background, it is likely that there will be a continuing and long-term need for projects promoting both public understanding and public participation in science. Public participation procedures seem to be especially promising, but not yet well understood instruments that need further research. The area of public participation is an emerging markets to which social science can contribute by developing procedures that are able to meet the competing demands of citizens, experts, public officials and interest groups. The social sciences have developed other procedures and techniques that have been considered as useful, e.g. psychoanalysis or group dynamics. Public participation shares with these procedural innovations that they combine research and application, academic interests and societal needs. However, due to the complexity of individual and social processes taking place in a deliberative elicitation, the development task of these methods can not be assigned to a single social science discipline, but requires the integration of a wide number of theoretical perspectives and empirical findings, stemming from sociology, psychology, political science and economics, just to mention a few. Theoretical and empirical questions interdisciplinary field are the following:

Theoretical questions:

- What can be a new role for science in society? What does the popular notion of the "dialogue" between science and society mean in theoretical and practical terms?

Empirical questions:

- What are the practical requirements (time, money, skills, partners etc.) of such procedures?
- Which public participation procedure suits best for which issues that differ with regard to their complexity and the level of conflict they have reached?
- How can a true dialogue, that implies equality of the participating partners be realized in a public participation procedure?
- What are the positive and negative impacts of these procedures?
- How can empirical participation projects be documented and evaluated in order to produce comparative and cumulative knowledge?

### Appendix

See Power point slides in separate file

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