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edited by Priska Gisler and Silke Schicktanz

Content

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Editorial
The new role(s) of social sciences

Since the very beginning, social sciences have been dedicated to shaping or even changing society. In recent decades, many social scientists were engaged in societal and political matters, e.g. in the debates on nuclear energy, genetics, or climate change. They acted as experts, as consultants, as analysts, as concerned scientists, and sometimes even as interpreters of time or as prophets.

However, social scientists have become practical in other respect: they organize and manage participatory processes, in which experts and lay-people – and social scientists, too – negotiate contestable issues, such as the release of genetically modified organisms, or develop scenarios of future technologies, e.g. in the case of nanotechnology.

The current issue has been prepared by the guest editors Priska Gisler and Silke Schicktanz. It focuses on the roles social scientists should, might or do assume in science policy making processes. In their introduction to the issue, Priska Gisler and Silke Schicktanz give an overview over case studies and analyses concerning the question of how social scientists are involved in science policy making. They point to several emerging roles such as the *organizer* of participatory procedures, the *moderator*, the *translator,* the *expert,* the *evaluator*, or the *commentator*.

Gabriele Abels provides in her contribution "Organizer, observer and participant. What role for social scientists in different pTA models?" an overview of seven different types of participatory technology assessment, depending on the number and heterogeneity of participants.

Maud Radstake, Annemiek Nelis, Eefje van den Heuvel-Vromans, and Koen Dortmans ("Mediating online DNA-Dialogues. From public engagement to interventionist research") present their experiences with novel forms of dialogues between lay-people and experts via online discussion boards.

We wish to thank Priska Gisler and Silke Schicktanz for initiating and organizing this issue on a topic of considerable interest to social scientists working in the field of science, technology, and innovation studies.

Ingo Schulz-Schaeffer

Raymund Werle

Johannes Weyer

Introduction: Ironists, reformers, or rebels?

Reflections on the role of the social sciences in the process of science policy making

Priska Gisler (ETH Zurich, Switzerland),
Silke Schicktanz (University of Göttingen, Germany)

Introduction

Public engagement has become increasingly important within the sphere of science policy making.[1] A broad range of discursive experiments and participatory methods involving citizens, consumers, and other key stakeholders are frequently used to consult the public about their opinion of new developments in science and technology. This special issue of *STI-Studies* aims at addressing the role(s) of scholars in this important field. Having personally participated in a variety of public engagement exercises and public discourse experiments, and having carefully considered how we (as social scientists) fit within these exercises, we have come to realise that our roles are heterogeneous, complex and ambiguous.

Social scientists complete a number of tasks in participatory science policy making: For example, they initiate public and/or stake holder discourses by adopting or even developing participatory and discursive methods. They organise and moderate various dialogues (for the case of Germany see e.g. Renn 1999). They oversee various public discourse events and evaluate the process (for the case of Switzerland see e.g. Gisler 2000-2003). They analyse and comment on the impact of participatory methods, drawing on sociological and political theories (e.g. Maasen/Merz, 2006).

In brief, social scientists play a variety of *formal* roles, serving as organisers, moderators, evaluators, commentators and others. However, these formal descriptions are rigid and do not fully convey the underlying social, moral and political dimensions of these roles. Furthermore, there is some ambivalence between the formal functions and the socio-moral-political roles taken on by social scientists. This ambivalence arises due to a conflict between the 'form and content' of these roles as well as the fact that multiple roles may coincide with each other. For a better understanding of the ongoing debate on participatory science policy making, it is necessary to reflect upon this ambivalence because it affects social scientists' accomplishments in this important field.

Our contribution to the recent debate is a kind of self-reflexive turn: We would like to carefully consider the role of the social sciences and the role(s) social scientists

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[1] In the following we summarise this as "participatory science policy making", although we recognise that there may be important differences in the concrete historical, social, as well political contexts of policy making between science, technology, and medicine (see also Schicktanz 2007).

expect and are *expected* to play in the field of participatory science policy making. Therefore, in this introduction, we raise the following questions from a theoretical point of view: How do the social sciences influence participatory policy procedures? What kind of explicit and/or implicit role(s) do social scientists play in the construction of political procedures and public debates?

In an effort to address these questions, we will, first, argue how participatory policy making is linked to the social sciences and its methodologies (chapter 1).

Second, we will contextualize the development of participatory policy making within the methodological framework of the social sciences and the broader historical shift towards the democratization of society (chapter 2).

Third, we will assess some of the roles social scientists have come to play in participatory policy making. We suggest a way of rethinking such roles by unmasking their often rather implicit social, political and moral premises and by critically reflecting on the idea that there is only a 'formal' role played by the social sciences. This way of rethinking is inspired by an analysis of social constructionism, as described by the Canadian philosopher Ian Hacking (1999). We will highlight some of the complexities and moralities linked to the concrete roles the social sciences play, especially in the sphere of science and politics. This will be discussed in more detail in the case studies and articles assembled in this issue (chapter 3).

Fourth, and finally, we would like to consider some 'looping effects' that the deconstruction of social scientific roles may have on participatory policy making on a more general level (chapter 4).

The social sciences, as a collection of disciplines, could eventually contribute more to participatory policy making by reflecting on its current role(s) and by revising the methods that are applied to specific scientific fields. In doing so, the social sciences may gain considerable insight into how they function as a thought collective.[2]

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1 Tracing the evolution of participatory policy making in the social sciences: Methods and methodologies

It would be a mistake to overlook how the social sciences have influenced (and continue to influence) methodological knowledge and organizational skills that are commonly used in participatory processes. The organization of round tables, citizens' votes, consensus conferences, public forums, etc. were all largely developed within the social sciences and continue to provide the methodological tools by which current participatory processes are drafted (cf. Joss/Durant 1995, Beckmann/Keck 1999, Abelson et al. 2001; for an overview see: Felt et al. 2003). In general, there is a fine line between descriptive social science methods, such as surveys, opinion polls, and interviews, and interventionist and interactive participatory methods, such as group discussions or consensus conferences. However, in the field of science and technology studies, they can each be understood as an opportunity to investigate and to improve the relationship between science and society (Bauer et al. 2007).

For example, online-enquiry techniques strongly resemble quantitative survey traditions, yet they offer the possibility to post concerns on the internet while experts may respond to them and provide critical feedback (cf. Felt et al. 2003: 53). *PubliFocus*, a participatory method commonly used in Switzerland,[3] is based on group discussion methodology. Focus groups and group discussion methodologies, however, face similar problems, be they applied in a democratic participation exercise or a qualitative research project: As constructed exchanges of arguments and views, with debates organised by one or more people, they rely heavily on the capabilities of an interventionist, an over-cautious or, hopefully, a discerning and well-balanced moderator.

Moreover, some methodological techniques (e.g. the *Public Debates* carried out in the Netherlands) combine qualitative and quantitative elements, encouraging in-depth discussion and political reflection. They also seek to map a representative picture of public opinion (cf. Felt et al. 2003: 52).

However, each of these methods defines in some way what 'the public' means and how the public is allowed to act. As Pohl (2004) has shown such methodological premises about the public, furthermore, influence the role of social scientists and the social sciences as well. Lezaun and Soneryd (2007) highlight the often static images of the public produced through specific methods selected by organizers of public engagement exercises. The authors show that these images are sustained from a governance perspective by a wish for a malleable public, whose opinions and views can be changed through education or policies.

It is also important to note that many of the procedures are time-consuming and cost-intensive and thus depend on how and by whom they are implemented. Moreover, as with research results, the reports often reach only a small audience and only rarely attract the attention of expert consultants and other actors from the broader political arena. And, as Abels argues in this issue, the outcome of these procedures can be difficult to measure.

Of course, participatory methods are only one part of science policy making and have often been criticised (cf. Chilvers 2008). Science policy making often continues to be dominated by expert opinion, although, this certainly varies according cultural and national characteristics. Biotechnology, stem cell research, organ transplantation, and human cloning are, for instance, topics that tend to be negotiated by expert committees, which appear as established tools used in the governance of the life sciences in most countries. Consulting the public about biomedical policy making or social health care issues

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[3] For more information see: <www.ta-swiss. ch/e/doku_buer.html>, accessed 20.7.09.

continues to be the exception rather than the rule.

Interestingly, social scientists are infrequently asked to sit on expert committees or advisory boards dealing with diverse aspects of biotechnology or biomedical assessment.[4] In other words, with just a few exceptions,[5] social scientists are rarely considered 'experts' on the various aspects of science and technology.[6] Although an important topic, the notion of social expertise, and the power struggle between different kinds of knowledge, is beyond the scope of this paper.[7] Instead, we wish to focus on the heterogeneous roles of social scientists in the science policy process. How does this process depend on social scientists' self-understanding, and how does this self-understanding explain the fact that many social scientists are more interested in public engagement than their own active engagement?

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[4] See for an analysis of involved experts and lay-people in policy making in the medical context for Germany (Schicktanz 2008). For Switzerland Maasen and Merz (2006) have shown the predominance of natural-sciences issues in assessments by TA-Swiss, the "Swiss Technology Assessment Agency", and concluded that this trend leads to the neglect of the social scientific perspective.

[5] Bogner (2009) refers in his study of German ethics councils to the requirement for heterogeneous knowledge competence, where expertise from the natural sciences and medicine is listed first. However, his analysis also reveals the crucial role of lawyers who seem to contribute a kind of base-line principles guiding the process. (We would like to thank Alex Bogner here for forwarding us a preprint version of his article).

[6] 'Biotechnology and Medicine' is one of the six key areas TA-Swiss is consulting on. An evaluation of the eleven biomedicine-related studies and public participation procedures organized by TA-Swiss since the year 2000, produced the following result: 64% of the advisory board members had a background in a medical profession or in the sciences, while 10% of the members came from the social sciences and the humanities (<www.ta-swiss.ch/d/arch_biot.html>, accessed 20.7.2009).

[7] See Kelly (2003) for a critique of bioethics commissions and the lack of societal competence.

2 Contextualizing the different roles of social scientists in the policy process

One plausible answer to this question is the recognition of the so-called "participatory turn" in the social sciences, which describes the inclusion of various social actors (such as citizens, NGOs, or other stakeholders) in techno-scientific and biomedical policy making (Jasanoff 2003). Jasanoff interprets the pursuit of a democratic representation of views in political processes under this umbrella term. Furthermore, Helga Nowotny, Peter Scott and Michael Gibbons in their book "Re-Thinking Science" (2001) identify a normative approach embodied in their notion of the *agora* in a 'mode-2-society'. From their perspective, science has been forced to meet the public which led the public to "speak back to science" (ibid.: 247). In this light, we can distinguish public participation exercises as forums for such encounters – between 'the public' and (natural/medical) sciences – to occur.

Developments in science and technology have motivated a range of European and North American countries to introduce novel ways of consulting their citizens; seeking to include them in the political decision making process. Although an array of methodologies have been developed and employed towards this end, one can observe a broad shift from quantitative surveys in the 1980s towards increasingly qualitative approaches (cf. Joss/Bellucci 2002: 140pp, Bauer et al. 2007). Without wanting to dwell on the point too much, it could thus be stated that the encounter with scientists has been organized via social scientific methods.

Yet, it is certainly important to remember that efforts to integrate various publics into science and technology decision processes reflect a more general societal trend; one that is not unique to science policy and the social study of science. As Jürgen Gerhards (2001) illustrates, the trend towards public participation can be traced back to the economic prosperity following the end of the Second World

War. This period of economic development was accompanied by an expansion of social realms and endeavours; facilitated by improved education systems in the Western world, which resulted in a greater number of educated people who were able to articulate their individual points of view. At the same time, worrying techno-scientific developments led to increased scepticism towards academic, and especially scientific expertise (cf. Habermas 1969, Irwin/ Wynne 1996), contributing to the rise of new social movements: Environmental activists fought against air pollution and experts' definitions of risk, patients' groups demanded new or altered treatments and alternative medicine, communities rallied for the establishment of parks instead of shopping malls, and so on. This kind of *participatory turn in society*, sometimes described as 'grassroots movements', highlighted a growing demand for science and technology assessments that reflected social values and moral norms.

Therefore, the participatory turn was not unique to the social sciences; rather it was a general trend undergone by modern, democratic, liberal societies. Moreover, the active engagement of the public, especially concerning medical science and health care policy, is still a recent development. Consequently, politicians and natural scientists, as well as some social scientists, remain sceptical in this respect (like in Germany, cf. Schicktanz 2007).

The overall trend of participatory interventions may have been coined by structural changes and motivated by democratic and political thought, as Gerhards argues. However, it also corresponds with seeing and understanding the world according to *social constructionist theory*. Work in this area suggests that many questions, such as which diseases should be investigated and treated, what counts as a disease and what are the underlying bioethical and social norms and values that have to be considered, can no longer be answered by mere scientific facts and (natural scientific) experts' knowledge. The

treatment of these issues as urging consensus, rather points towards an epistemological and normative constructionist understanding of research in science, technology and medicine.

Thus, the participatory turn challenges established actors and dominant voices in the public sphere – including leaders of political parties and representatives of pharmaceutical companies – and demands a kind of interaction that avoids privileging a certain core episteme. However, despite the goal of increasing democratic participation concerning science and technology, STS-authors such as Kerr et al. (2007) have pointed to a range of problematic issues arising from these exercises. A result of their study on public events about the new genetics, showed the colonization of lay positions by expert speakers. The authors called for stronger reflection on expertise consequentially.

Thus, a certain risk of one-sided influence of the participants (e.g. by organisers, funding agencies, or moderators, etc.) remains with these procedures. The risk stretches out to the social scientists involved in the process, be they organisers, evaluators, moderators or members of an involved stakeholder group. It also leads us to ask more precisely how public dialogue is designed and which roles are foreseen for the actors involved.

3 The construction of what?

The idea of a social construction of reality, departing from Peter Berger's and Thomas Luckmann's (1967) famous treatise, offers insight into the "intersubjective 'constitution' of social phenomena" (Coulter 2001: 83). This approach is linked to the belief that social processes, problems, and situations have been socially constructed (i.e. based upon implicit ideas and reinforced by social interaction). Since the introduction of this concept, many social scientists have analysed how society is built upon social and cultural practices and have strived at disentangling social worlds and showing how

society is constructed (see for example Beck, 2001).

In his book "The social construction of what?" Ian Hacking argues that social constructivist theory takes a critical stance towards the status quo, such as "[...] X as it is at the present, is not determined by the nature of things; it is not inevitable" (1999: 6) (where 'X' stands for objects, ideas, practices, classifications, etc.). Furthermore, social constructionists implicitly, and sometimes explicitly, draw conclusions such as C_1 "X is quite bad as it is" and C_2 "We would be much better off if X were done away with or at least radically transformed" (ibid.). Of course, not everybody draws conclusions like C_1 and C_2. Hacking observes, however, a variety of similar but not identical engagements in undoing assumptions about social worlds.

Protagonists in the sociology of science used constructionist ideas to analyse science and technology matters (i.e. Knorr-Cetina, 1981, Latour/Woolgar, 1986). For many years, constructionist thinking has been applied to developments in science and technology that are publicly questioned and negotiated in the political arena. Natural occurrences, as well as technically coined social problems, such as acid rain, environmental pollution, nuclear waste, increases in allergies and eczemas, the spread of infectious diseases, etc. have been evaluated for their social constructedness.

Public participation exercises have built upon these efforts and have begun to reach social consensus over the handling of such matters. The construction and design of the very same procedures, however, are rarely questioned with respect to their disciplinary or functional make-up or the capacities or capabilities involved in their design.

3.1 Social constructionism

In the social study of science, technology and medicine, the aim has been to deconstruct phenomena that have become taken for granted and regarded as inevitable and to understand them as contingent and transformable. For example there were diseases whose existence had long been questioned by society, such as 'sick building syndrome'. A meticulous historical study, such as the one performed by Michelle Murphy (2006), was required before this reality could be understood and appreciated.

Of course, there is considerable controversy as to how far it is possible to go with constructivist claims. Indeed, this epistemic debate divides many social scientists from philosophers to natural scientists. We share Ian Hacking's view that the threat of universal constructionism or absolute relativism does not point to the core of what social constructionism is all about (cf. Hacking 1999: 4). We are more interested in how this work is accompanied by a demand for co-determination in decisions concerning knowledge production and application.

According to Hacking, the first question one should ask regarding social construction is, *what* is or can be interpreted as socially constructed? From a kind of political-philosophical stance, Hacking points out that something often is identified as being socially constructed when there is an urge from some actors to raise awareness that this construction is *not* self-evident, natural, and ineluctable (ibid.: 6). Therefore, for such actors the concept of social constructionism seems liberating, as it allows them to question the function, self-evidence, and neutrality of something.

Considering social constructionism in relation to the role(s) of social scientists in science policy making gives rise to various thoughts: Perhaps the most interesting part of the constructivist undertaking is, first, the epistemological insight that the enforcement of a certain way to do or see the world is not a given and thus cannot be generally enacted by a certain form of behaviour or validated by a certain 'truth'. The constructivist approach helps to understand how social phenomena come into existence, how they are made self-evident

and how they are necessarily linked to processes of social exclusion and inclusion, resulting in social closure.

In addition to this epistemological dimension, there is a self-reflexive dimension linked to social constructionism, which enables us to evaluate the social, historical, and economic pathways and routes something has taken in order to become what it is taken to be. In other words, although something is framed in a certain way, and taken to mean a certain thing, its existence contains social, political and also moral contingencies and it is open to change.

Ian Hacking has clearly analysed these two dimensions of social constructionist theory. According to Hacking, by identifying and criticising the social construction of 'X' (where 'X' could mean sex, gender, age, race, disease, etc.) scholars, or 'social constructionists' assume they have the opportunity to change the manner in which society conceives of something and thus influence social behaviour. This becomes obvious when one takes a moment to reflect upon Hacking's work on one of the most influential social constructionist doctrines of our time: *gender.* Discussing various feminist theorists, he shows how the perspectives and priorities of these scholars differ substantially from one another (Hacking 1999: 7ff). While some feminists simply want to deconstruct biological or psychological differences between men and women and to show that gender attitudes are not inevitable, other feminists go beyond this form of analysis: They want to unmask an ideology as intrinsically male. Furthermore, social construction work often tries to reform or even rebel against social reality or conditions of injustice. When Ian Hacking demands more precision in considering social constructions, he thus differentiates between various *levels* of engagement in the work of social constructionists. Specifically, he identifies six grades of commitment, including:

1. very weak 'historical' considerations concerning the development of 'X', on one end of the spectrum,

2. an 'ironic' approach, followed by
3. a 'reformist' approach,
4. an 'unmasking' approach,
5. a 'rebellious' approach and, finally,
6. a 'revolutionary' approach on the other end of the spectrum (cf. Hacking 1999: 19ff).

The least demanding form of social constructionist analysis is the historical approach because this research does not attempt to assess 'X' as good or bad. Next, ironists hold an ironic attitude towards the notion that the world could have been quite different in the past; contingent upon a certain time and place, and yet tend to accept this irony and seem to leave the world (or 'X') unchanged. Reformers and unmaskers go a step further. But while reformers concentrate on evaluating the deconstructed 'X' as bad, unmaskers criticise the theoretical function from which it will lose its practical efficacy. Rebels go well beyond the point of unmasking. Scholars subscribing to this approach criticise the idea of 'X' vehemently. Finally, activists, who seek to move beyond the world of ideas and try to change socio-material realities, are revolutionaries.

These six approaches differ in their belief in the consequences of deconstruction: Ranging from making intellectual comments to actively transforming social practises. Of course, these roles are socio-political-moral roles and are played out quite differently depending on the intellectual radicalism and moral priorities of individual scholars.

3.2 Formal roles and social roles

Social scientists classify social realities in a range of ways and aim at showing how they are constructed. Accordingly, the critical question for us is: How do the socio–political-moral roles (cf. chapter 3.1) intersect with the formal roles of social scientists engaged in participatory policy making (cf. introduction)?

It is precisely the notion of different forms of engagement – different 'roles' as we label them – that is of interest

in this issue. If we try to identify the heterogeneous range of possible roles, we find for example, social scientists serving as (a) designers of public consultation exercises, e.g. through their development of various methodologies. Sometimes they act as (b) organisers. They are installed as (c) moderators. They frequently serve as (d) evaluators. As (e) commentators, they analyse and criticise public debates on scientific and medical developments (e.g. regarding the over- or undersupply of participatory events). Finally, social scientists sometimes (f) take part in expert committees and/or engage in policy work.

Each of these roles implies different perspectives and priorities. Moreover, the duties and roles of social scientists are sometimes blurred – in their own perception but also in the external perception of the general public – and sometimes they collapse.

The *formal roles* exemplified above now can be revisited in face of the socio-moral-political roles, described in chapter 3.1.

In the following, we will push Hacking's scheme and ask, in more explorative terms, how these roles may be employed. Hence, our aim is not to define ideal roles in a normative sense, but to elaborate and test the various positions a scholar might occupy in participatory policy making processes.

(1) The historian

She describes the historical development of the public's role in science policy making but does not offer her personal opinion as to whether the present (or former) situation is (or was) good or bad. The *historian* appears relatively detached from recent events and engagements. Of course, one could ask about her normative position or stance. But, if we consider her role closely, the historian is not interested in being a commentator, a moderator, or even an organiser of any participatory exercise and, therefore, she might be criticised for taking a 'neutral' position, when a neutral position is not possible.

(2) The ironist

She is a powerful intellectual who analyses how the public is (or is not) involved in science policy making. Thus, an ironist might personally believe that more participation would be desirable. However, because of her intellectual scepticism towards policy processes and governance structures, she does not believe that her comments would alter the status quo. We might encounter an ironist approach in situations where scholars analyse and comment on public engagement in science policy, but reduce their analysis to descriptive comments, far removed from political and normative approaches. Thus, she neither favours a specific discourse nor a socially interactive approach.

(3) The reformer

A reformer is someone who believes she can change the situation by analysing the relationship between methods and outcomes in public engagement. Therefore, she tries to reflect upon hidden restrictions and may consider ways to optimise current methods. The reformer may be an active moderator or developer of participatory methods, but she still accepts the existing framework, including its ideas, structures, and practices.

(4) The unmasker

She takes a clear normative stance towards public engagement, including: how much public engagement is desirable. She tries to unmask ideologies, which she believes underpin different methods of public engagement. For example, as an evaluator, she criticises methods which in her opinion are dominated by a specific ideology. The unmasking approach can be a helpful part of new methodological developments because it attempts to overcome perceived shortcomings (cf. Davies, 2006).

(5) The rebel

She deconstructs present forms of public engagement and tries to develop

new methods for improving the relationship between science and society. The rebel strongly believes that the public should be engaged more often and in different ways than the present. The rebellious approach can be associated with the development of new engagement methods, where, for example, present forms of hierarchy (e.g. between lay-people and experts) are explicitly criticised. This includes active engagement in participatory science policy making. However, the aim is rather to maintain established scientific criteria, which is not the case for revolutionists.

(6) The revolutionist

She is actively engaged in science policy itself and seeks to change current participatory practices. The revolutionist contributes to blurring specific roles because of her critical stance towards predominant notions of science and society. Thus, she might simultaneously act as a scholar, an active organiser, or a designer of public engagement practices.

Even though the description of these roles is an analytic construct, roles and their understandings are 'real' insofar as they generate institutions (such as public engagement organisations, assessment methods and reports). Furthermore, reflecting on these roles may allow us to detect unwarranted ambivalences and ambiguities that may arise in their application. The contributions presented in this volume allow us to probe some of the reflections on these roles.

3.3 Making and un-making social sciences: contributions to this volume

The making and un-making of the roles of social sciences and social scientists in participatory policy making was the subject of a workshop, held 26-27 June 2008 at the Collegium Helveticum, UZH/ETH Zurich.[8] Participants from different disciplinary backgrounds in

Science and Technology Studies (STS), including the history of science, the political and social sciences, bioethics, public participation practise, environmental studies, and technology assessment, discussed the different epistemological, methodological, political and normative aspects of social scientists' roles in science policy making and public participation. The wide range of international participants attending this event provided an occasion to analyse individual experiences and local case studies. The three contributions in this volume provide a selection hinting at the discussions explored during the workshop on the role of the social sciences in the field of participatory policy making.

In her contribution *"Observer, translator or participant: What is the role of social scientists in different pTA models?"*, *Gabriele Abels* proposes a typology of seven different procedures based upon their function and the ways participation is achieved. Her discussion reveals the non-triviality of expanding from organisational structures to rethinking the roles of the social scientists involved. She concludes that social scientists mainly inhabit three roles in pTA. While their acting as 'observers' seems more traditional, Abels adds the function of 'translator', which yet awaits its application. The reformist potential of this role seems clear, yet the very idea of it becoming realized or 'formalized' as we may say, may serve to push the 'unmasking' effect of the social sciences aspirations.

She, then, focuses on participants engaged in participatory technology assessment, including experts *and* lay-people. She argues that social scientists could gain influence in participatory policy by acting as 'experts' rather than as organisers or moderators'. Abels suggests accordingly that social scientists engaged as expert participants may gain more scientific authority than by performing managerial tasks.

In his contribution *"A helping hand or a servant discipline? Interpreting*

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[8] For a commentary on the workshop see Jung (2009).

non-academic perspectives on the roles of social science in participatory policy-making" Kevin Burchell asks if social scientists take part in participatory technology assessments as academics or as practitioners. Do they merely serve as a helping hand? While Abel critically discusses the various forms of public engagement and focuses on social scientists' potential as translators, Burchell stresses the importance of social scientists' active involvement in bringing about social change. In his contribution, he discusses how practitioners (i.e. non-academic actors) conceive of academics within the participatory sphere, and studies their expectations for the social sciences. In this context, Burchell observes that social science is often thought of in utilitarian terms (i.e. it lends a 'helping hand'). Hence, social science is credited for its problem-solving capacity and is attributed a *historian* or *ironic* status.

Crucially, according to Burchell, academic social scientists do not see themselves as mere 'problem-solvers', rather they identify careful critique and analysis as their most important contributions to the field. While practitioners are willing to change participatory exercises from within, academics favour political mechanisms, trying to maintain an independent scholarly stance. Hence, academic social scientists often attempt to live up to an ideal, serving as *unmaskers* in the sphere of political analysis. However, practitioners' perception threatens to neglect social scientific knowledge, dismissing academic insights as too detached.

With Burchell we learn that the gap between a self-defined role as *unmasker* and the external expectations as *rebel* or even *revolutionary, which both groups experience,* can be used more productively by fostering stronger commitments towards each other, instead of obfuscating the differences.

The third article in this volume discusses the question, how social scientific methods are linked to the ways in which social scientists contribute to public participation. Maud Radstake and her colleagues focus on the construction of 'the public' and the manner in which social scientists interact with it through the use of certain methodological tools.

Consciously, they began to experiment with the roles social scientists can play through an online discussion forum that served as a site for public dialogue on genomics-related issues. They observed that moderators, who oversee such forums, cannot only integrate lay-people, but may also help guide and direct the participation of experts. Radstake et al. discuss from their own experience, the diverse roles played by social scientists and their relationship with other experts (including scholars in the life sciences). Experts often serve as informants and thus manage to keep lay-people aligned with heir own understanding of facts; thus, they may range from *historian* to *ironist*, or even *reformer*, if they are determined to convince participants of a certain argument.

Reflecting on an exercise they are intimately involved in, the authors seek to develop an alternative way of conducting 'public engagement with science'. By focusing less on 'the public' and 'lay-people' and more on the roles of experts and organisers, they address the engagement of social scientists in participatory exercises from an unconventional perspective. They argue that it is necessary to merge the role of the organiser/moderator, which in their case is one and the same, with the role of the social scientist and thus point inadvertently to the gap between the formal role and the implicit tasks set by a certain disciplinary background. As they describe, the social scientist, as a researcher, is expected to be critical; the practitioner is expected to be practical. In order to describe the catalysts and resistances to successful dialogue, they define the "interventionist dialogue researcher". Thus, blurring these roles may provide clearer insight into the goals of participatory exercises. Rather than bringing a range of hetero-

geneous actors into fruitful dialogue – as it may still do – it becomes clear that the exercise itself becomes a political forum, while it continues to provide a place for further reflection. This approach alters the neutral position of the social scientist because it takes place in a political arena with 'real world' consequences. The contribution takes us back to Ian Hacking by making it very clear that taking any scientific stance already means intervening.

4 Outlook: Is there a 'looping effect'?

This introduction started off with a central premise testing the gap between the formal roles offered to social scientists in participatory policy making and the socio-political-moral dimensions inherent in adopting and expanding on these roles. The aim of this volume is a critical reappraisal of the attribution of certain (contingent) roles to social scientists by various disciplinary branches, policy makers and also social scientists themselves, and the ways these roles are performed and played out in the public sphere. By identifying this contentious territory, we open the door to a range of questions; even if we cannot claim to have all the answers, we still hope to take the debate a step further.

The papers presented in this volume illustrate exemplarily that there are a range of ambivalences and ambiguities incumbent in the official tasks and the expectations raised by those interested and involved in political processes, as well as those developing and performing them. These ambivalences, though, could be seen as a challenge for the future relationship between (social) sciences and society: On the one hand, the social sciences present an opportunity – like no other discipline – to address and articulate public concerns towards science and medicine. On the other hand, clarifying public expectations for the social sciences may increase their visibility and strengths.

The different contributions in our issue show that it makes sense to go be-yond the formal roles often attributed to specific actors engaged in policy making and to consider, instead, the socio-moral and political roles they have come to hold. Andrew Stirling's (2008) 'opening-up' approach to public engagement focuses on the many decisive moments in political processes before decisions are taken. He encourages scholars to "foster more discriminating attention to the conditions and perspectives bearing on appraisal and commitment" (2008: 284). He may be read as a reminder that it can be quite worthwhile to reflect upon the make-up of roles and their performative achievements when we assess the social sciences in participatory policy making. Hacking advises us to carefully reconsider the issues at play and to reflect upon how these problems, concepts, models, etc. are approached in an interdisciplinary and also inter-practical way.

Participatory policy making, like other forms of policy making, relies on conflicting accounts of social reality. Hacking was adamant in pronouncing the importance of being clear about the products of these constructions. His classification may help us understand those involved in contributing to them. However, it remains within our intellectual faculty to reflect upon possible looping effects. This means that 'even' scholars analysing participatory events, methods or scientific reports are not particularly neutral but take a stance – a socio-moral-political role – in science policy making. A "causal understanding, if known by those who are understood" (Hacking 1995: 351) may be a conveyor of change. The conceptualization of additional formalized roles, as Gabriele Abels points out, the reconfiguration of new ways of collaboration between social scientific academics and practitioners, as ascertained by Kevin Burchell, the re-thinking of notions of self-understandings, as demonstrated by Maud Radstake and colleagues, are exemplary contributions hinting at what could be possible in this respect.

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Organizer, observer and participant

What role for social scientists in different pTA models?

Gabriele Abels (Tübingen University, Germany)

Abstract

Public participation has become an important issue in science and technology studies as well as in politics. Procedures creating such multi-actor spaces of public participation are usually discussed under the label "participatory technology assessment" (pTA). PTA is considered to be a possible and promising way to foster direct interaction between members of the general public (lay people), organized interest groups, scientific experts, and sometimes also policy makers. Over the last ten years pTA has been utilized in many European countries, but also elsewhere in the world. However, there are vast differences regarding participatory methods. Abels and Bora propose a typology differentiating among seven different types of procedures. These seven types adopt divergent approaches with regard to the participants involved (who), the ways and means of participation (how) and the supposed functions of public participation (what for). The paper investigates the role social scientists play in pTA. It argues that social scientists can act in three different roles: as organizers of pTA, as scientific observers and as participants. The last role can take two different directions. Social scientists can be involved in pTA as "regular" scientific experts, or they can serve as "translators" in the complicated communication among social groups. It is this role as translator that is considered to be most innovative and worth exploring in the theory and praxis of pTA.

1 Introduction

Policy-making today is heavily dependent on expertise. Scientific knowledge from various disciplines has become an important source for legitimizing political decisions. Scientists serve as policy-advisers in the field of research and innovation. At the same time, they also assess the implications of technologies for society, i.e., their impact on the economy, the legal system, on academia, education, etc. The traditional model of expert-based technology assessment (TA) certainly entails an established role for social scientists as experts. They employ social science methodologies and theories for predicting how scientific-technological innovations will effect social change and bring this policy-relevant knowledge into the TA process.

Practitioners have developed and experimented with different models (cf. Abels/Bora 2004; Abels 2008; Decker/Ladikas 2004; Joss 2003; Joss/Bellucci 2002; Joss/Durant1995; Joly/Assouline 2001; Healey 2005). The model of expert-based TA has been challenged since the early 1990s. Since then we have observed a burgeoning growth of what is called participatory technology assessment (in short: pTA).

"Public participation is seen as a way both of facilitating discussion among experts, policy-makers and citizens and of mediating between different social actors' conceptual and practical perspectives of scientific-technological developments and their wider ethical, legal and social repercussions." (Joss 2005: 197).

According to its advocates, pTA helps to counter the shortcomings of traditional TA. Major shortcomings include the inherent epistemological as well as local limits of expertise, the rise of counter-experts (expert dilemma), the specific problems of risk assessment, a strong focus on factual knowledge and, finally, the problem of normative assessments. Participatory TA claims to respond to these problems by looking at the way in which science, values, norms and interests are intertwined. According to

its advocates, this new approach – essentially rooted in a participatory, deliberative concept of democracy – is thought to be more "democratic" since the spectrum of legitimate participants and relevant knowledge is expanded. Integrating a variety of actors, especially lay people, should help to actively involve in policy-making more groups who are affected by socio-technological change. In addition, pTA confronts the traditional concept of expertise, i.e., as a specific form of objective, factual and professional knowledge, with other forms such as every-day knowledge, as well as with normative questions involved in expertise (cf. Bechmann 1993; Durant 1999; Andersen/Jæger 1999).

For many years a very enthusiastic euphoric, and normative assessment of pTA prevailed. Lately, more pragmatic and critical voices are being heard, as current social science research on participatory TA directs attention to its theoretical foundations as well as its practical ramifications (cf. Abels/Bora 2004; Bora/Hausendorf 2006; Bora et al. 2009; Hansen 2006). The procedural core of pTA entails deliberation among a plurality of societal actors, including the general public or lay people, organized interest groups, professional/scientific experts and sometimes even policy makers.

Recently, several typologies have been proposed that allow us to differentiate among various pTA models. The main differences concern the following formal and functional aspects:

1. Who can actually participate?
2. How does participation work?
3. What are the expected outcomes?

The typology proposed by Abels and Bora (2004) distinguishes among these different models according to the *form* and the heterogeneity of participating actor groups. Their typology demonstrates that in all but one model of pTA scientific experts do indeed partake, yet in different roles. Abels and Bora (2004) claim that the differences regarding roles have profound effects on the assumed *functions* of pTA.

This paper discusses the role of social scientists in pTA, their role in pTA, in general, and in different pTA models, in particular, in an effort to explain what social scientists actually do and what more they could contribute. My key argument is that social scientists can assume a *triple role* within pTA.

Organizers

Firstly, social scientists often serve as the organizers or facilitators of pTA events. As organizers they can help to improve the functioning of the process based on scientific research on pTA and on general social theory. This is, in fact, why we find such a strong influence of Habermasian discourse regarding ethics and deliberative reasoning in pTA. In this sense, social scientists work as reformists of pTA and help to improve the process per se. While setting the organizational framework is, of course, very important, it is not this specific social-scientist role, i.e., as an organizer that I want to shed light upon in this paper, but rather I want to focus on two other possible roles.

Observers

Secondly, social scientists can function as academic observers engaging in social science research on all kinds of TA and addressing the underlying question as to how modern societies deal with socio-technological challenges. This professional role is undisputed, and it is sometimes closely linked to the first role as facilitator. Since pTA is still in an experimental stage, there is a need for further academic research in order to develop an empirically and theoretically sound basis for improving the methodology.

Participants

Thirdly, social scientists can be participants in a pTA event in a dual sense. Social scientists bring a specific expertise to bear on these issues, meaning they can contribute as members of expert panels in a given pTA event. They can moreover act as *translators* between the different actor groups representing

different social systems, such as the social, the political, regulatory and technical sphere involved in pTA. Social scientists are trained to understand the linkages and problems in communications arising between these actors and spheres. Thus, they can help to improve communication between these groups by "de-coding" communication specific to certain social systems and connecting it to kinds of reasoning in other social systems.

The study begins, first, by outlining the pTA typology developed by Abels and Bora (section 2), followed by a discussion of the specific role played by scientific experts in the different models. Then I examine the contributions social scientists can make as "translators" in the pTA process (section 3). Section 4 summarizes the main findings and draws some conclusions.

2 Linking forms to functions – a typology of pTA

Let us now examine our inductive and heuristic typology of pTA models, which is rooted in a critical review of the German and English pTA literature, focusing especially on pTA case studies conducted not only in Germany but in Europe and elsewhere (for details on the literature, cf. Abels/Bora 2004). While each pTA case is unique, given its specific context, it is nevertheless possible to draw up a typology based on certain key features of pTA. One such core feature is the participation of groups that are usually not involved in forms of traditional expert-based TA. While alternative classifications are possible, the major advantage of our typology is that it focuses on the structural, i.e., formal as well as functional dimension of pTA. The underlying assumption is that there are systematic links between the form (who participates and how) and the function (why and to which ends does s/he participate).[1] Based on this

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[1] Often involving social scientists, organizers are, of course, also important actors; organizational issues can have a great impact on the effectiveness of pTA on its social and political environment.

Table 1: Typology of participatory technology assessment procedures

			Number and heterogeneity of participants − → +				
	Type 1 Dialogue procedure	**Type 2 pTA in a narrow sense**	**Type 3 legal public hearing**	**Type 4 consensus conference**	**Type 5 extended consensus conference**	**Type 6 voting conference**	**Type 7 scenario workshop**
Specific feature	Interest group oriented procedure	Expert –stakeholder procedure	Decision oriented procedure involving those concerned	Lay people – expert procedure	Lay people, interest groups and extperts	Voting-oriented procedure	Procedure involving those affected, experts and policy-makers
Participants							
Lay people			X	X	X	X	X
Scientific experts		X	X	X	X	X	X
Interest groups	X	X			X	(X)	X
Policy-maker						X	X
Criteria for selecting participants	Representative; partly affected groups	Representative	Everybody; those who feel affected	citizens: representative & lottery; experts: deliberate selection by lay people	citizens: representative & lottery; experts: deliberate selection by lay people; interest groups: co-optation	citizens: representative & lottery; experts & Policy-makers: representatives	Representative
Form of participation							
Social roles	Participants enjoy equal procedural rights	experts = key position	Decision-maker (administration) = key position; Citizens give arguments, experts deliberate	Lay people = key position; experts deliver knowledge	Lay people = key position; experts deliver knowledge (esp. for dialogue with interest groups)	Participating groups enjoy equal procedural rights	Participating groups enjoy equal procedural rights
Procedural rules	Dialogue/discourse between interest groups (sometimes experts are con-sulted); transparency regarding interests involved; under-standing for different perspectives	Discourse between scientific experts and interest groups	Legal decision; affected persons have an advisory role	Questioning of experts by lay people	Participating groups often deliberate separately; interest groups deliver opinion, which is evaluated by lay people	Evaluation of different scenarios handed in by stakeholders; Voting on scenarios	Evaluation of different scenarios; participating groups deliberate separately as well as in joint sessions

Function of participation							
Major issue	Technology assessment and planning	Technology in general	Specific cases	Technology in general	Technology in general	Technology in general	Technology in general
Target group	Policy-makers; interest groups; general public	Policy-makers in general; general public	Public administration, decision-maker	Policy-makers; interest groups; general public	Policy-makers; interest groups; general public	Policy-makers; interest groups; general public	Policy-makers; interest groups; general public
Primary tasks and objectives	Initiate dialogue between opposing groups; interactive exploration of goals; identification of areas of consensus and lack of agreement	Resolving status of scientific knowledge by experts and counter-experts; in so doing, clarify political options; legitimize political decisions	Deliberation in a strict sense, i.e. influence decisions by good arguments	communication between lay people and experts; fostering and enlightening of public debate	fostering and enlightening of public debate	fostering and enlightening of public debate; reveal perspectives of different groups	Planning process; dialogue between all involved groups of actors; improve understanding for divergent perspectives
Attributed/expected achievement	Disclose divergent perspectives of concerned interest groups; overcome inertia; feed-back into interested associations; settling alternative options for policy-makers	Risk assessment based on technological state-of-the-art; identify uncontested knowledge as a basis for decisions	Inform citizens and of administration; representation and legal protection of citizen's interests; foster acceptance and legitimacy of administrative decision	Typical opinion of informed lay person; also agenda setting	Exploration of objectives; typical opinion of informed lay person	Filter for competing policy options	Disclose divergent perspectives of participating groups; agenda setting; political legitimation; overcome inertia
Underlying model of democracy	Pluralist, but with deliberative elements	Not specified, rather deliberative	Formally participatory, actually deliberative	deliberative	deliberative-pluralist	Deliberative with some pluralist elements	Participatory-deliberative with pluralist elements
Typical procedure	Mediation-oriented stakeholder discourse	Discursive pTA in a more narrow sense	Public hearing as part of administrative decision-making	Consensus conference, citizen's jury	Modified consensus conference, citizen's jury	Voting conference	Scenario workshop (Danish style)
Empirical examples	Dutch Gideon Project; German Discourse on Agro-biotechnology; Traffic forum in Salzburg	pTA on herbicide-resistant plants at the Science Centre Berlin (WZB)	German law on atomic energy as well as law on administrative procedures	UK Consensus Conference on Plant Biotechnology; Consensus Conference on GM Food, Australia	UK Citizen Foresight Project GM Food; Citizens Jury on GM Crops, India	Danish Voting Conference Drinking Water	Danish Szenario-Workshop Urban Ecology; Future Search Conference Traffic Copenhagen

Source: Abels/Bora 2004 (translation by the author)

formal criterion (heterogeneity of participants), our typology identifies seven different models (cf. table 1). We can specify four principal groups of participants:

1. lay people (often also called the general public);
2. interest groups, i.e., organized groups usually selected by the facilitators (and/or sometimes by the lay panel);
3. scientific or professional experts;
4. and identifiable policy-makers.

Under the simplest procedure, all participants belong to one and the same social group. At the other end of the spectrum, we find procedures involving participants from all four principal groups, such as the *voting conference* and the *scenario workshop.* Yet, most models include only two social groups: scientific or professional experts and lay-persons, or experts and interest groups. In the following I sketch out these models, then focus on important similarities and differences between them.

2.1 Dialogue procedure

The dialogue procedure involves only interest groups. Empirical examples include the German "Discourse green biotechnology", along with the Dutch Gideon project on sustainable plant protection of the Novo Nordisk dialogue.[2] According to this model, a variety of interest groups is selected either because the groups are deemed representative in terms of the issue to be discussed, or because they are directly affected by it (stakeholders). The "form" dimension is characterised by two factors: all participating interest groups are considered equal with regard to effective procedural rules, i.e., they are endowed with the same rights. The key objective is to set up a dialogue between or among competing interest groups, to explore the diversity of goals, as well as to identify consensus between the groups and to

"open up" thematic areas where there is lack of agreement.

In this sense, the major mode of communication is arguing; yet given that we are dealing with stakeholders there may be also be some element of bargaining involved. The assumed effect is to unravel competing perspectives, to serve as a clearing-house for competing interests, to function as a blockade-runner, as well as to filter policy-alternatives. The procedure is accompanied by more concrete planning processes (e.g., an authorisation of field release of genetically modified organisms, GMOs). The target group for the output to be achieved consists of policy makers, interest groups and the public in general. While this essentially entails a liberal-pluralist procedure, given the key role and plurality of interest groups, it clearly has deliberative elements insofar as interests have to be defended based on good reasons; they are further assumed to be open to change as a result of the deliberation.

Empirically, this procedure leaves hardly any room for social scientists; however, they sometimes serve as facilitators for this pTA model. Most of the communication between the partaking interest groups focuses on scientific, factual knowledge, the interpretation of uncertainty and its political implications. Admittedly could allow for a role for social scientists either as translators or as mediators between competing interest groups. The question is whether or not the involvement of social scientists, as translators or mediators between conflicting parties, could actually enhance the deliberative quality of communication and the social learning process. However, there is the risk that social scientists might be perceived as "interested" parties themselves, not as neutral mediators. This model is certainly of interest for social scientists as a subject of pTA research. At least three major questions arise: Does the procedural framing foster a mode of arguing over the usual bargaining style of interest group interaction? Under which political conditions does the model work or

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[2] A number of "typical" empirical case studies are documented in Joss/Bellucci 2002; for a more extensive description of empirical cases fitting into the different types see also Abels/Bora 2004.

fail to work? Finally, if and how are the results perceived by policy makers?

2.2 Narrow pTA model

Model 2 is a pTA type in a narrow sense of the term insofar as it is a "pure" expert-stakeholder discourse based on argumentative reasoning; furthermore, interest groups are selected according to representative criteria. The best example is the TA procedure regarding herbicide resistant plants, organised by the Berlin-based Science Centre, WZB. Participants are selected because they represent relevant scientific or social perspectives. While scientific experts occupy a key position, and stakeholders are forced into an arguing mode, the participants exercise strong control over the procedural rules via ongoing co-ordination between groups. The empirical objective here is to achieve a scientific consensus about areas of uncontested knowledge, brought about by arguing between experts and counter-experts.

The salient normative expectation regarding its function is to identify policy alternatives that help to increase the legitimacy of follow-up political decisions. The model is applicable to general debates about technologies; the target groups are policy makers and the general public. At first glance, this model seems to be very *expertocratic,* given the strong position of scientific reasoning that excludes modes of non-scientific communication and all alternative kinds of expertise. Actually, it entails rather deliberative communication insofar as political disputes are transformed into a scientific discourse, the results of which can then be appraised in political debates; all arguments are fed back into the deliberation. However, the communication is first and foremost limited to a deliberation over scientific, i.e., natural science knowledge.

Interestingly, this procedure was clearly dominated by social scientists as organizers, because the WZB discourse was also a social experiment, and social scientists were clearly the facilitators. This deliberative event has been well analysed, documented, and often strongly criticized in the literature (cf. Saretzki 1996; Joss 2005: 210). Empirically speaking, social scientists were engaged in two roles: as organizers and as academic observers. Yet, there need not be such a close linkage between organizer and observer – in fact, critics argue that it should be avoided. The WZB event has been accused of forging too close a linkage between these two different roles, implying that the organizers' role brought along a bias regarding the concurrent role as scientific observer. This critique highlights the need for independent and scientifically sound evaluation of pTA events. So far, such evaluation is still lacking. But as Simon Joss (1995) has already rightfully argued, evaluating participatory events is not a luxury, but a necessity.

2.3 Legal public hearing

A legal public hearing (in German: *Erörterungstermin*) is an essential part of an administrative authorisation process; it is commonly used, for instance, in urban or environmental planning. European Union regulations for the deliberate release of GMOs, for example, also require some form of public participation; for some time member states set up legal provisions for public hearings (cf. Bora/Hausendorf 2004). This is the only model closely linked to public administration and authoritative decision-making, while all other pTA models are purely advisory.

In the legal public hearing, law and politics are strongly intertwined. The participants are scientific experts and all those who feel affected by the issue at stake (often locals). This is the most open procedure in terms of access for the general public: everybody can participate. The administrator plays the pivotal role. A key feature of this model is that the procedural rules are severely restricted by the legal framing. Only those arguments considered valid with regard to legal standards are taken into account in the administrator's final decision. This entails a preference for arguments based on scien-

tific, factual knowledge privileging the natural sciences. Other kinds of objections are procedurally excluded, although they may, in fact, be highly relevant for those affected and participating (e.g., religious, ideological or economic reasons). A comparative European project has illustrated that this effect is linked to structural features, not to the specific national context (cf. Bora/Hausendorf 2004, 2006).[3]

Affected persons who join the public hearing have an advisory role and contribute their local or everyday expertise. Given the legal-administrative framing, the organizer and addressee of the hearing is the public administrator who has to take the final decision and who can be hold accountable for the decision.

The normative objective of this model is deliberation in a very Habermasian sense, that is, to influence policies by using good arguments. Given its strong legal basis, this model is most explicit about its five normative functions: informing the affected citizens; informing the administrator; representing stakes; legal protection of the applicants and those who feel affected; and increasing the legitimacy of the final administrative decision.

This model is highly participatory, because there are no legal or procedural limitations as to who can participate (access). Due to its open character, it can have a very mobilising function and affect the public discourse. This model is indeed very deliberative since only good arguments can prevail in the procedure. There are, however, limitations

regarding what counts as a "good" argument in the context of the legal framing, namely arguments rooted in sound (i.e. natural) sciences. This procedural limitation turns out to be the key normative problem for the legitimacy function of this type of pTA. At the same time, there may be a high degree of accountability given that the administrative unit in charge – at least in German administrative law – has to respond to all objections raised, whatever their nature or legal relevance, and to justify if and in which way they are being taken into account.

Empirically, there is only a limited role for social scientists in this model. Social scientists hardly participate as experts. In fact, social science knowledge is procedurally marginalised by the strong linkage between politics and (natural) science: The relevant standard against which all arguments are judged is "the state of the art in science and technology." This does not leave much room for social scientists as participants.

However, there is a strong role for social scientists acting as observers. The legal public hearing is actually the best researched pTA procedure (cf. Bora 1999; Bora/Hausendorf 2004, 2006). Social science research has illustrated that the strong linkage between science and the law comprises the major shortcoming of this procedure. The discrepancy between a complaint made by local people against, for example, the deliberate release of a particular GMO and the objections based on factual and legally recognized knowledge in the final administrative decision lead to a high degree of frustration among the lay people. Their objections are often grounded in different sources of knowledge and experience, as well as in strong normative arguments. Yet, anything but natural science knowledge is deemed not legally valid. Therefore, scholars propose further procedural differentiation (Bora/Hausendorf 2006). They argue that direct public participation in administrative decision-making proves counter-productive and suggest alternative ways of integrating participatory

[3] In an application procedure dealing with the deliberate release of genetically modified plants which possess an enhanced capacity for soil remediation, local people were, for example, afraid of negative media reporting. They accused the scientists of having a kind of "colonial" demeanor (the scientists came from West Germany, the field experiment was to be conducted in East Germany); and they further claimed to have local knowledge and strategies of dealing with land contamination. In legal terms, these objections were completely irrelevant – but highly relevant for the locals.

models into public administration (e.g., in administrative rule-making).

2.4 Consensus conference

The most famous, and ubiquitous, pTA model is the Danish-style consensus conference. Given formal similarities, this model includes procedures such as a citizen jury, a citizen's forum, citizens' conferences, PublicForum (Switzerland) and the like (such as the "planning cell"). The consensus conference model has its roots in civil society engagement and the search for "the public interest". Its worldwide boom is built on perceptions of a failure of parliamentary democracy (cf. Joss 2003) and its inability to include moral, normative issues.

There are two principal groups of participants in this model: lay persons and experts. The lay persons sit in the driver's seat: supported by a facilitator, they set the agenda, they question the experts, and they write up the final citizen report. The lay panel usually consists of a random selection of citizens (in addition, other selection criteria such as sex, age, geography etc. are usually employed). The experts are selected by the lay people based on their area(s) of expertise; expertise is hence not limited to scientific expertise. The consensus conference requires a very time-consuming procedure. The major normative objective is to trigger communication between lay persons and experts. This communication is assumed to allow for mutual social learning and for normative evaluation of the specific technology up for debate. The outcome, the citizens report, offers a typical, yet informed lay person perspective on the debated issue. This report is intended to enlighten the public and enhance political debate; it may also have an agenda-setting function.

Even though the consensus conference model is often praised for its participatory approach, the participatory elements are very limited due to the selection of only a few citizens for the lay panel (usually 10-30 people). Furthermore, the public only has access to the hearing with experts but not to the internal debate conducted by the lay panel.

The theoretical foundations of consensus conferences have recently attracted some scholarly attention. It is clearly considered to be a model based on deliberative democracy (Einsiedel 2000; Smith/Wales 2000). However, there is a lack of research on the actual communication that takes place between the lay panel and the experts (as well as within the lay panel). We find some hints that there are, in fact, strong communicative limitations in place. The subjectivity of the lay people moreover seems to be neglected, which "may result in participants' alienation from the event, effectively undermining the endeavour's participatory promises" (Görsdorf 2006: 177; cf. also Görsdorf 2007a).

I would like to suggest that social scientists can engage in all three roles with regards to consensus conferences.

- First of all, they should observe and evaluate these pTA events.
- Secondly, they should participate in the expert panel of a consensus conference. Lay people are most interested in the social effects of contested technologies, and social scientists possess the professional expertise necessary for analysing and evaluating such effects. For lay people, social science findings may be more easily linked to their everyday experience and knowledge and, therefore, be more accessible than knowledge based on the natural sciences.
- I argue further that there is a third potential role to consider: Against the background of limitations in expert-lay people communication, social scientists might serve as *translators,* especially in consensus conferences, since it is this procedure where we witness the most direct encounter between lay people and scientific experts (cf. also Joss 2005).

The expert hearing is the procedural core of the consensus conference model. At the same time, it is the most

problematic part, since the communication requires forms of translation between lay-talk and expert-talk. Factual scientific knowledge has to be rendered "meaningful" to lay people and, correspondingly, natural scientists have to understand the concerns of lay people. Given the scarce evidence we have regarding expert-and-lay persons' communication, it is naive to assume that (a) each group can "translate" arguments from the other groups in its own language and schemes of relevance; and (b) that mutual social learning (whatever that is) will occur automatically just by talking to each other.

2.5 Extended consensus conference

The extended consensus conference adds co-opted interest groups to the procedure, yet lay persons predominate. The interests groups deliver a statement, which is then evaluated and "judged" by the lay persons with the help of experts. The output and main normative functions are the same as for model 4. It is expected that interest groups will become more responsive to public interests by being forced to defend their own stakes in an argumentative mode. Therefore, the procedure is assumed to be deliberative, but it also has some pluralist elements, due to the involvement of interest groups. A typical example is the UK Citizen Foresight Project GM Food.

Regarding the suggested roles of social scientists, they are the same as depicted in model 4. Yet, the role of translator becomes more complex, since the involvement of interest groups brings along a new dimension of strategic knowledge, which is used for achieving certain group preferences. Moreover, there may be competition between interest groups over winning support from the lay people. Again, this could affect the role of social scientists as translators and their procedural impartiality.

The following two models involve interest groups and policy-makers among the participants.

2.6 Voting conference

In a voting conference (e.g., the Danish Voting Conference Drinking Water; cf. Joss 2005: 213f.) a representative panel of up to 180 lay persons, experts and policy-makers is selected; all participants are endowed with the same procedural rights. The highlight of the procedure is a hearing in which interest groups present scenarios or action plans. Each has to argue in favour of its own scenario based on "good reasons". The general public is invited to attend this hearing but has no voting or other rights; this adds a participatory element. At the end, the participating groups vote in a secret ballot on the proposed action plans. The main normative aim is to evaluate perspectives from different interest groups and to find out, how they are being assessed by different social groups.

By combining voting with deliberation it is expected that the procedure will eliminate the knowledge gaps often encountered in pure voting systems (e.g., public referenda). Especially due to the voting aspect, the procedure can serve as a filter for competing policy options, since a vote amounts to a strong form of judgement, even a sanction. This is precisely why this model is more contested than purely deliberate procedures; there is only limited space for consensus-building. Voting on competing options inevitably creates winners and losers. The losers may question the procedural legitimacy. There is some evidence that such procedurally created partisanship is "turning up the heat" (Hendriks et al. 2007; cf. also Hendriks 2002) in pTA. Public interest groups may profit more than special interest groups; the last ones may fear that losing has negative repercussions for their traditional channels of pressure group politics (this would be a kind of informal sanction). Therefore, they may refrain from participating in a public participation event.

Here I would suggest that social scientists can be helpful in this model as "regular" pTA participants. They can partake in the group of experts and contribute their professional expertise on

the social effects of techno-scientific development. Yet, they do not hold a privileged position but rather function as normal "expert-citizens," adding a specific kind of relevant knowledge to the pTA event.

2.7 Scenario workshop

This model shares some similarities with the previous two. It was also developed by the Danish Board of Technology and then adopted by the European Commission for the "sustainable cities campaign"; significant examples are the "Scenario Workshop on Urban Ecology" and the "Future Search Conference on Traffic in Big Cities." In a scenario workshop, a total of 60-90 lay people, policy-makers, experts and interest groups deliberate in separate groups – in order to identify group-specific perspectives – as well as across groups – in order to identify commonalities. All participating groups enjoy the same procedural rights; participants are selected according to representative criteria. Participants either evaluate given cases, or they can collectively develop new scenarios.

The main normative objective is to influence the planning process and to initiate a dialogue among the various groups, helping to increase understanding for the different perspectives offered. There is some evidence that the model does have an agenda-setting function and can help to overcome procedural deadlock; the expected performance is to increase political legitimacy for the results. The participation of policy-makers may enhance the chance that the results will be taken into account in the actual policy-making process. At the same time, the participation of those directly affected brings along new tensions and conflicts.

Normatively speaking, this is a participatory-deliberative model, given that the local public and especially concerned groups have an opportunity to participate regarding local issues. The model also contains some pluralist elements, given the strong involvement of interest groups, and given that

consensus-building on the final action plan allows for some bargaining.

Social scientists can partake as scientific experts. The problem here is to trigger consensus-building within the diverse social groups. The group of experts can be very heterogeneous, with scientists coming from a variety of disciplines; the need for interdisciplinary dialogue and even consensus-building makes deliberation within this group even more complex than in the group consisting of lay-people or of policy-makers.

2.8 Comparison of pTA models

Comparing the various pTA models sheds lights on some striking similarities and differences in terms of formal and functional aspects (table 2).

Form

First and foremost, lay people constitute an important group of participants in all but two procedures (form dimension). It is striking that in most procedures one group holds a procedurally privileged position; yet, in two models (voting conference, scenario workshop), all participating groups are assigned equal rights (balanced models).

Function

It is likewise striking that most case studies found in the literature are rather vague and/or normative about the specific functions of pTA events (cf. in detail Abels/Bora 2004). Social learning and enlightened public debate, for instance, remain vaguely defined aims. The legal public hearing is an exception; its very explicit functions are derived from a long tradition and the strong legal framing of the procedure. In general, all procedures address the legislative and/or executive branch of government. Nevertheless, the actual link to political institutions and the impact on policy-making is not well documented in the literature. Beyond problems of timing, there are, of course, also methodological problems involved in measuring impact.

Table 2: Similarities and differences between pTA models

Similarities

- addressed to legislature and/or executive; institutional links rather weak
- foster and enlighten the general public debate
- communication between lay people and experts
- argumentative communication or discourse
- advisory character, not substitute for political decision-making
- based on theories of deliberative democracy, sometimes combined with additional participatory or pluralist elements
- many models wide-spread in the field of biomedical policy-making

Differences

- number and diversity of participants
- group that is in a key position; some models are more "balanced"
- general public does not widely participate, at best via the media
- expectations about the performance or effectiveness of the various models are often rather vague, especially when lay people dominate procedure
- involvement of social scientists

Yet, the problem goes deeper, extending to the very relationship between participation and representative democracy. Referring to Marten Hajer's work, one can speak of an "institutional void," meaning that there is a lack of linking pTA to institutions of representative government (Abels 2009). Joss (2005: 215) notes the "extra-institutional character" of deliberation, also highlighting the missing link between pTA and institutionalized processes of policy-making.

Interestingly, the *general* public and also the media are usually excluded, apart from the public hearing. Overall, pTA evaluations confirm that there is often a serious lack of media reporting; this thus limits its impact on public debate. Therefore, one radical conclusion could be to question whether the term "public" participation is really appropriate.

There is some empirical evidence that procedures ensuring a strong role for interest groups may function as a blockade runner, sometimes sign-posting a political route out of inertia and deadlock (cf. Bütschi/Nentwich 2002). Agenda-setting and filtering out policy-alternatives are further functions that

some models contribute to the policy-making process (e.g., the voting conference or dialogue model). Methodologically this is hard to prove, however. Even if a policy-maker is inspired by the result of a pTA, for example, s/he may never refer to it explicitly.

Biomedicine

Especially regarding the field of biomedical policy-making, it is most striking that there is a clear preponderance of the consensus conference model, while other models have been widely neglected. The main reason for this may be the overtly normative dimension, usually referred to as bioethical issues, combined with a focus on societal impact as well as the common good. In the end, this may lead to a strong preference for lay-dominated procedures. At the same time, we see fewer organized interest groups in the field of biomedical policy-making who could serve as participants. Many of the issues involved in biomedical policy-making that could be opened up for participatory TA are not bioethical issues at all – or at least not purely bioethical issues. Consider, for example, reproductive technologies and their availability to couples. Or consider

genetic testing in the workplace. These topics also involve conflicts over the allocation of resources in the health system, about worker's rights and the interests of employers in keeping production costs low. From this perspective, interests groups certainly do have a say in the debate over biomedical issues. They may actually be included in the participatory TA procedures but usually only as non-scientific experts. Depending on the mode of pTA chosen, they could become "regular" participants.

Roles of social scientists

Social scientists participating in (biomedical) pTA assume different roles, for example, as facilitators and scientific observers. Yet, social scientific involvement can go beyond these two palpable and undisputed roles, especially if we consider procedural innovations to the models outlined above. First of all, social scientists can (and, indeed, often do) directly participate in different models as part of the group of professional and scientific experts. They can thereby provide their special expertise about the possible impacts of techno-science on society. If social scientists act as participants in the expert panel, they enjoy equal procedural rights with other social groups, and they do not enjoy a privileged position. Yet, this only works for those models which involve the participation of experts.

Lay people

A number of pTA models involve lay people who interact in different ways with other social groups, especially professional and scientific experts, but also with interest groups and with policymakers. The consensus conference model centred on the expert hearing is the classical example. This lay people-expert encounter amounts to very demanding social communication that has to be researched. Surprisingly, there is a noteworthy lack of empirical studies actually analysing what happens *inside* the blackbox of lay-expert communication. Nonetheless it is above all this kind of communication where social scientists

could assume a valuable role as translator. In the rest of the paper, I discuss why there is a need for social scientists to serve as translators and outline some ideas as to what this could mean in the practice of pTA.

3 Social scientists as translators in pTA

Advocates assume that pTA implies to "democratise expertise". The term democratisation refers to the representation of a plurality of social actors and voices. Expertise nonetheless stems from different sources, including non-scientific sources. *All* participants are expected to provide unique sources of knowledge depending on their specific social position. There are, however, differences between pTA models. In principle, there is not a privileged, authoritative position of scientific knowledge in pTA but different forms of knowledge are treated as equally relevant.[4] All models involving lay people aim at including everyday knowledge (*lebensweltliches Wissen*) as expertise in its own right; this expertise is necessary for analysing socio-technological developments in their entirety, including the normative implications of such. Thus, pTA aims at developing new modes of governing knowledge.

"Mode 2"

In this sense pTA can seen to offer an empirical case of what Michael Gibbons et al. (1994) have coined "mode 2 knowledge production", which is characterized as "socially distributed, application-oriented, trans-disciplinary, and subject to multiple accountabilities" (Nowotny 2003: 179). Mode 2 knowledge is "socially robust", dialogic and reflexive and undergoes social validation, i.e., it becomes robust against social claims and demands. Social science involvement in pTA has to be embedded in this structural context. It is

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[4] The legal public hearing is an exception, due to the close link between administrative decision-making and science; also the narrow pTA model sticks to a more traditional concept of factual knowledge.

just one out of many voices in a whole pTA choir. While traditionally scientific knowledge was thought to be superior to other forms of knowledge, under conditions denoting a politicisation of expertise scientists are confronted with the loss of their previous "natural" authority. Robust knowledge calls for new arrangements between politics, science and the public. Different actors do not just provide different kinds of knowledge, but they also provide different interpretations, assessments, and utilizations of knowledge based on diverse values, interests and norms. This complicates communication between different groups and requires "translation".

Even though communication is considered to lie at the very core of pTA, surprisingly this aspect thus far has been, by and large, "black-boxed" and under-researched. Studies analyzing communication within pTA (Bora 1999; Bora/Hausendorf 2004, 2006; Görsdorf 2006, 2007b; cf. also Joss 2005) draw attention to massive communicative problems that require "translation". They emphasize, for instance, the "troubled communication" between lay people and experts. When everyday knowledge and sense-making meets scientific expertise, this is prone to misunderstandings on both sides. In pTA, interests, values and arguments are deeply intertwined. For example, from studies on risk perception we know that there are systematic differences as to the ways in which experts and lay people perceive risks. This is highly relevant to pTA since many debates over techno-science are framed as risks debates.

Biotechnology

In the case of biotechnology, for example, natural scientists often complain about lay persons' irrational fears and arguments against GMOs, or they note that arguments brought forward are not specific to the GMO case but express wider concerns about the price of technical modernity. In much pTA, we can observe the tendency to polarise "science" and "the public": while the latter

engages in ethical debates, the scientific debate is left to (natural) scientists. In a pTA event, these differences in perceptions, along with the interlinkages between interests, values and arguments, have to be opened up and made "communicable" to the groups involved. It requires that the expert discourse be "translated" into a discourse accessible to a non-expert, general public. Simultaneously, public concerns have to be "translated" for an expert audience, if they have an impact on the research agenda and process.

Interest groups

In liberal democracies interest groups comprise an essential group in politics. Beyond the scientists, they are also important in most pTA models. Sometimes they rather play the role of handmaiden; in balanced models, they are equal to other social groups. While interest groups are used to bargaining; participatory TA tries to force interest groups into a deliberative mode. Interest groups thus play a dual role: they bring in expertise, and they lobby for their own special interests. Expertise is their major resource. However, their use of knowledge is always strategic: it has to serve their preferences. In their communicative interaction with lay people, interest groups have to defend their special interests based on "good" arguments that take public interests into account. This is a real challenge; it brings tensions into the pTA event and may shift the power balance among interest groups in their relation to their political environment (Hendriks 2002; Hendriks et al. 2007). Again, social scientists could serve as translators between different interest positions and lay people by improving their two-way communication.

Furthermore the quality question should not be neglected. Helga Nowotny (2005) calls this the Achilles' heel of the mode 2 model. When lay people dominate pTA, reports and recommendations often seem to be very general; frequently lay people may have very optimistic expectations about what should happen

with the policy recommendations they have developed.[5] This may affect the "usability" of citizens' reports for policy-makers who are the main addressees of and sometimes also participants in pTA.[6] Citizen concerns therefore have to be "translated" into policy-relevant language. The political system works on different relevance criteria; policy-makers are, first of all, strategic actors and party members, not knowledge recipients. Against this background, social scientists could assist in writing reports and recommendations by "translating" the logic of politics for the public, and vice versa. Recommendations could thereby become more policy-relevant.

Functional differentiation

I have briefly demonstrated that communication between the public in pTA and other involved social groups is complex and prone to "misinterpretation". Often facilitators and communication experts involved in pTA may function as "translators" – mixing up procedurally different roles. I propose a functional differentiation of roles in favour of social scientists as translators. Social scientists are trained to understand differences and interlinkages between social groups, between facts and norms, public and private interests. In the weakest form of involvement, advisory boards assist the facilitator in preparing and conducting the pTA process; in fact, a number of pTA events involve such boards. In a stronger form, social scientists might have a direct role in the pTA communication at different stages: for example, supporting lay people in the preparation of public hear-

ings, conducting public hearings, providing support in writing up reports, preparing for the public presentation of final reports, disseminating results etc.

This is not be confused with the role of participating in the "regular" expert panel involved in most pTA; the possible roles of "regular" experts and translators should be kept apart. However, we have to acknowledge that the principal expert dilemma also pertains to social sciences; their "translational achievement" may be contested, and may become a matter of dispute just as any other kind of scientific knowledge.

4 Conclusions

The development of pTA represents a fairly new and fascinating trend in the governance of science and technology, which has resulted in different models. These can be distinguished based either on formal characteristics (heterogeneity of participants) or on their functions. They share a number of similarities, e.g., fostering (public) debate and social learning among participants, but they also evince major differences, e.g., in terms of procedural rules enjoyed by participating groups and the main functions they pursue.

Organizers

Social scientists can play various roles in pTA. First of all, they can be (and quite often are) organizers of pTA. The very idea of pTA and procedural innovations can actually be traced back to the strong involvement of social scientists.

Observers

Secondly, they are also scientific observers of pTA. They are the ones who research, analyze and theorize the contested field of science governance, a unique task for social scientist. This role is palpable and undisputed. In doing so, they can supply advice to improve the procedural and substantial quality of pTA.

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[5] This is an observation by the author based on attendance at a number of pTA events, especially involving presentation of reports to the public, and on reading many citizens' reports.

[6] It is only fair to mention that even high quality policy advice does not imply a guarantee that it will have an impact on policy-making. Policy-makers are strategic actors who evaluate the quality of policy advice not based on scientific criteria of quality control, but based on strategic political criteria if it serves their interests.

Participants

The third role is to serve as participants in pTA in two different ways. They can be (and many are) regular members of the expert group, as seen in the consensus conference but also in the scenario workshop or voting conference model. In this role, they function, first of all, as providers of specific knowledge. In the balanced models (voting conference, scenario workshop), experts are endowed with the same procedural rights as the other participating groups. This allows social scientists to partake as "expert-citizens".

Translators

Finally, social scientists might also be involved as translators. They can interpret and decode communications between different social groups and spheres involved in pTA and in different stages in the process. They can connect different logics and systemic languages and, hence, help to improve pTA and its links to its diverse social environments.

This requires two things: first of all, there is a need for procedural innovations in current pTA models. Yet, since there has been much creativity in the pTA field in developing models and adopting them to different social contexts, this is not a structural problem. Secondly, recent developments and the effect of innovations have to be thoroughly analyzed. There is still a strong need for researching what is actually happening "inside" pTA. Yet, any assessment, if inserting extra roles into pTA events – such as the role of translator – actually makes a difference and improves the linkages of pTA to its environments, all of which requires additional empirical research.

It would be naive, however, to assume that the role of translator will be uncontested. Based on the logic of mode 2, social science knowledge brought into the process by social scientists acting as translators underlies the same mechanism of social robustness; it has to be socially validated, reflexive and robust. I consider the development of such a translator role to be one of the most innovative features of pTA – and therefore worth further exploration for the theory and praxis of pTA.

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Mediating online DNA-Dialogues

From public engagement to interventionist research

Maud Radstake, Annemiek Nelis, Eefje van den Heuvel-Vromans, Koen Dortmans (Radboud University, Nijmegen, The Netherlands)

Abstract

In a pilot project called *The DNA-Dialogues* online discussion boards of popular magazines featured as sites for public dialogue on genomics-related issues. As organizers and mediators of those online discussions, we experienced problems that have hardly been attended to by dialogue practitioners nor by social scientists who study and criticize public engagement activities. We illustrate those problems with examples from an online discussion on the storage and use of neonatal screening blood. We draw two lessons. First, practitioners as well as analysts tend to consider dialogues as public engagement activities, whereas we learned that the engagement of experts is just as difficult and equally crucial. Second, the role played by organizers and moderators of dialogue events is often left implicit, whereas we actively contributed to framing the issue at stake in the discussion. As an alternative for the notion of dialogue as a form of public engagement, we propose to 'do dialogue' as a form of interventionist social science research. We instigate an outline of what such interventionist dialogue research would involve, and argue that it requires an integration of the roles of dialogue practioner and critical analyst.[1]

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1 Introduction

"Why did you think involving parents in this discussion could mean anything?"

This question was pos(t)ed on the online discussion board of the Dutch website *Ouders Online* (Parents Online).[2] It addressed the initiator of the discussion, who published an article with the title "What should happen with the heel prick blood?" in the online magazine of the website (Radstake 2007). The initiator was a staff member of the Centre for Society and Genomics (CSG), who had attended an expert workshop with medical scientists favouring the extension of existing limits for storing blood collected for the neonatal screening programme, to use it for research. The article discussed the rationale behind such an extension as well as potential issues of privacy, information and consent. The readers of the article and other visitors of the *Ouders Online* website could react on the online discussion board of the website. The scientists in question were invited to participate in the discussion as well.

The writer of the online article is also the first author of the article that you are presently reading. She initiated the online discussion for the CSG as part of a pilot project for public engagement with genomics-related issues.[3] *The DNA-Dialogues*, as the pilot was called, ran for a year in 2006-2007 and resulted in four real-life discussion meetings in collaboration with various societal groups, and three online discussions in collaboration with popular printed and online magazines. Besides those events, its outcome has included research projects that are currently carried out at the CSG.

The objective of those PhD projects is to develop an alternative way of doing what is commonly called 'public dialogue' or more generally 'public engagement with science'.[4]

In this article we use one of the online discussions from the pilot as a case to present and analyse the kind of experiences that urged for a more thorough approach. Although the pilot was set up as a communication project rather than as a research project, in hindsight it can be considered as a probe for such an alternative approach. The potential contribution to existing literature and practices of public engagement is twofold. First, we experienced that the increasingly popular notion of 'dialogue' in public engagement has largely focused on the engagement of publics, and neglected the engagement of scientists and experts that is as least a crucial. Second, existing accounts of public dialogue pay little attention to the work done by organizers and moderators in framing and shaping discussions and events. We go beyond a plea to take more notice of that role – we argue that 'doing dialogue' is a form of interventionist and (quasi-)experimental social science.

1.1 Dialogue and public engagement

Dialogue has become a buzzword in research and policy reports on science and society (House of Lords Select Committee on Science and Technology 2000; Parliamentary Office of Science and Technology 2001; European Commission 2002; Council for Science and Technology 2005). Many 'dialogue events' have been developed to engage the public with science and inform policy processes, including consultations, stakeholder dialogues, citizens' juries,

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[2] *Ouders Online* <www.ouders.nl> is a much-frequented Dutch website with an online magazine and a discussion board with around 30.000 new messages each month, on a large variety of topics from pregnancy and birth to educational matters and medical issues, with a lot of exchange of personal experiences and online friendships. All quotes have been translated from Dutch.

[3] The pilot project was carried out and evaluated by Maud Radstake in collaboration with Huib de Vriend, LIS Consult, the Netherlands (Vriend & Radstake 2007).

[4] Eefje van den Heuvel-Vromans currently organizes and studies online discussions in a PhD project supervised by Maud Radstake and Annemiek Nelis at the Centre for Society and Genomics. In another CSG PhD project, Koen Dortmans organizes and studies real-life discussions in debating centres, under supervision of Annemiek Nelis.

consensus conferences and also internet dialogues (Rowe and Frewer 2005; Davies et al.2009). Dialogue has found its way into mainstream discourses of public engagement with science. It has been presented as an alternative to the deficit model that has long been dominant in science-society communication, offering a two- or even multi-way mode of communication with science and society as mutual informants. What dialogue means, however, is anything but self-evident. The indistinctness of the term concerns the objectives as well as the methods of dialogue.

The term dialogue has been used for participatory events that aim to inform policy as well as for meetings that do not directly seek to do so (Davies et al.2009). Several authors have questioned the ways in which publics, experts and issues have been framed in policy-oriented events (Barnes et al.2003; Irwin 2006; Wynne 2006; Kerr et al.2007; Lezaun and Soneryd 2007). Events that have no direct connection to policy-making, like our *DNA-Dialogues*, have hardly received any attention by critical social scientists, because they do not even claim to have any direct transformative effects on relations between science, society, and policy. Rather than to policy-making, however, such events contribute to learning processes by participating citizens and scientists. Such individual learning processes are often considered to be an essential part of "a gradual step by step change in science and society" (Davies et al.2009: 341).

Reflexivity by scientists about the social impact and implications of their research is considered to be a condition for a socially robust development of science and technology. The same applies to the consciousness of publics about the ways in which science and technology affect their lives (Nowotny 2003; Felt and Fochler 2008). Raising such reflexivity and consciousness has been the rationale behind many dialogue events, including the *DNA-Dialogues*. Dialogue events do not straightforwardly result in socially robust genomics development, but a suc-

cessful dialogue event may be a 'stepping stone' to subsequent more substantive interactions between expert and public participants.

Means to assess or to improve the quality of a dialogue that intends to contribute to a step by step change (rather than to policy) are hard to design or even imagine. Following up on critical literature on public engagement, we decided to go ahead in an exploratory mode.

1.2 The DNA-Dialogues

In the autumn of 2006, the Centre for Society and Genomics started *The DNA-Dialogues* as a pilot project to invite publics to interact with experts on genomics-related issues. The pilot lasted one year. During this year we initiated a series of real life discussion meetings with civil society groups (including women's organizations, and a Lions Club department) and a number of online discussions that took place on discussion boards of Dutch popular magazines. The *publics* that we intended to involve were groups and individuals who were (potentially) affected by genomics-related research and technology. We actively invited experts to participate in real-life as well as in online events. As *experts* we identified those who are involved in the development or professional use of genomics research or technology, or in policy-making for such development and use.

In the pilot we opted for a practical solution to heed a central critique on public engagement, which is that public engagement usually departs from experts' framing of the issue under discussion (Wynne 2007). For *The DNA-Dialogues* we would not invite publics to engage in discussions on techno-scientific issues, but stimulate experts to engage in discussions on public issues related to genomics research and governance. That is why we selected popular online discussion boards as a site for dialogue.

Online discussion boards are sites where many people meet spontaneously to discuss issues that interest

or affect them. They are accessible at any time of the day. People can take as much time to write a message as they want, and they cannot be interrupted. Messages can be posted anonymously and can be read by anyone with access to the internet. After registration, anyone can post a message, but the editors of a board can remove messages that conflict with their rules.[5] This article is about the online part of the pilot and will use one of the online discussions to illustrate our experiences.

The DNA-Dialogues were initially not set-up as a pilot for a research project, but as an experiment in public engagement. During and after the pilot, we came to realize its potential as an object and instrument of social-scientific research, as we will show later. Yet in the pilot project we ourselves first and foremost acted as dialogue practitioners. We identified potential issues and publics and we initiated, organized, moderated, and evaluated online discussions on discussion boards of popular magazines. More concretely, we contacted editors, (co-) wrote introductory articles, invited experts to take part, asked editors to open a discussion thread, stimulated experts to participate, and posted messages ourselves when necessary.

In the next section, we present some experiences from the online discussion on the storage and use of blood from neonatal screening for research on the website of *Ouders Online*, with which we started this paper. That discussion constitutes the main empirical background for our argument. Our analysis and reflections, however, have also been informed by our experiences in two other online discussions that were

part of the pilot,[6] and an additional online discussion that was organized in the spring of 2008 by one of our students (Jeucken 2008; Radstake et al.2009).

2 A case story: What should happen with the heel prick blood?

In the spring of 2007 we initiated a discussion on the website *Ouders Online*. The starting point for this dialogue was an invitational expert workshop that one of us had attended. During the workshop scientific and policy experts discussed the question whether blood obtained in the neonatal screening programme (by means of the 'heel prick'), which is currently stored for five years in the Netherlands, could be stored for longer, if possible indefinitely. Scientists would like to extend the limit of anonymous storage, since, as they see it, at present a lot of valid epidemiological data is destroyed. They also argued for extended possibilities to combine data. However, they anticipated societal resistance because of privacy issues and foresaw problems with informed consent. They were looking for ways to address such issues. Furthermore, they wanted to enrich the discussion with the idea that blood donation fosters solidarity between individuals and generations and that medical use of this blood would be for the 'common good'. When the CSG offered to organize an online discussion on the topic, this was cordially accepted.

The editors of *Ouders Online* also reacted positively when we approached them with the idea to initiate a discussion on the issue. We wrote a short article for the online magazine (Radstake 2007), discussing the scientific arguments for longer storage and neces-

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[5] When we set up the online discussions in the pilot, we were not aware of the quite extensive literature about online discussion boards, mainly in the field of communication sciences (Jankowski and Selm 2000; Graham and Witschge 2003; Stromer-Galley 2007). Such literature will be included in the design and analysis of the discussions that are set up as part of our current experimental research projects.

[6] A discussion on genes and childhood obesity was also organized on the discussion board of *Ouders Online*, in the Autumn of 2006. On the discussion board of a popular Dutch women's magazine (VIVA), we organized a discussion on medical applications of genetics and genomics, in particular testing, in January 2007.

sary changes in accompanying policies of informed consent or opting out, as well as privacy concerns, solidarity and the common good of medicine. The article invited readers to voice their opinion on the online web forum in a discussion with the title *What should happen with the heel prick blood?*. We invited all scientists and policy makers who participated in the expert workshop, to take part in the discussion. Five of the about twenty invited experts responded positively: they expressed the intention to follow the discussion and contribute to it. In our correspondence with them, we stressed that we aimed for dialogue and explained that we expected them to not merely provide information, but to engage in an actual exchange with the regular forum participants.

The number of parents[7] that participated in the discussion was rather low for the standards of *Ouders Online*. Only 13 parents participated and three others: one scientist who participated in the expert workshop, a member of an NGO known for its critical stance towards human genetics and bio-banking (invited by the CSG) and the CSG staff member who had attended the workshop and who organized the discussion.[8] The whole discussion contained 45 messages.

Initially the article and the questions in the opening message evoked diverse reactions from the participating parents: some people did not see any problem whatsoever, others emphasized the importance of complete and timely information, whereas others fiercely opposed the whole endeavour because they feared their privacy would be violated, in particular when commercial firms, insurance companies or particular government bodies would get access to the data and information.

2.1 Framing the issue

Like most experts who attended the initial expert workshop, the public health

professor who participated in the online discussion, considered ethical issues such as privacy and the need for informed consent as the most important topics for a societal discussion on blood storage and use. However, some parents resisted the expert's framing of the issue. In a response to one of the professor's messages, one of them wrote:

"I have the impression that you are somehow stuck in your own frame. For the benefit of a proper dialogue, I would very much like to open your frame to another perspective."

And:

"It is all about commitment. You need everyone to want what you want. To achieve that, it does not help to repeat over and over again what it is that you want. Listening, and I mean really good listening to what citizens say about it, is far more important."

Although the writer of this message expressed the strongest views, some other parents also indicated that they were not merely concerned about privacy (as the experts had anticipated) nor about the relevance of heel prick storage for their personal situation (as we as organizers had anticipated). According to them, the expert's framing of the issue in ethical and regulatory terms was too narrow. They rather were worried about the possible commercial and political (mis-)use of stored blood. In her messages, however, the professor continued to explain the scientific and societal urgency of longer storage and the need for policy changes. She did not deny the importance or the relevance of the issues raised by the parents, but she did not explicitly relate them to her own professional agenda and the responsibility of scientists, as the quoted parent urged her to do. In personal communication after the discussion, the professor expressed to us as organizers her appreciation for the discussion, because it had pointed out that the worries of the public should be taken into account when designing education and information.

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[7] We use 'parents' to refer to the uninvited visitors of the *Ouders Online* website.

[8] Maud Radstake.

By contrast, another professor and workshop participant let us know that the course of the discussion made him decide to refrain from participation. He had initially been interested to provide information to young or prospective parents with serious questions and concerns. He had been put off, however, by what he considered to be the abundance of misapprehensions, fears, irrationalities and frustrations expressed in the actual discussion.

What the two opposite reactions by those experts have in common, is their framing of the relevant issues in terms of regulation and information. What is more, in both cases this framing did not change in the discussion with parents. The course of the discussion merely endorsed it and confirmed the accompanying notion by the experts of their own role as that of an information provider. The same goes for the way in which some parents framed the issue at stake. The responses by the professor, for example, did not make the quoted critical parent reconsider her premises.

Since neither the experts' nor the parents' initial framing of the issue at stake was substantially affected, the discussion did not become a dialogue. Actually, the discussion on the storage of neonatal blood made us who organized *The DNA-Dialogues* reconsider our largely implicit notion of dialogue. The idea of dialogue as a potential contribution to a 'step by step change' in genomics and society became more articulate, as well as our role in the performance of dialogue.

As initiators and mediators we did not merely bring publics and experts together. We were actively engaged in framing work by selecting the topic and site, writing the introductory article and inviting and introducing experts in the discussion. However, that did not result in a collective framing of the issues at stake by those who are affected by a particular science-related development or technology (the publics), and those who take decisions that may affect that development (the experts). When such a collective effort does not take place, dialogue has failed. What prevented the discussion on the neonatal screening blood from becoming a dialogue?

2.2 Engaging publics and experts

Like other dialogue events, *The DNA-Dialogues* were conceived as a public engagement activity. Critics have noted that public engagement in science tends to embody a static notion of the general public that marginalizes possible counter-publics (Barnes et al.2003) and usually distinguishes publics from stakeholders (Lezaun and Soneryd 2007; Martin 2008). In most public engagement exercises disinterested citizens or laypersons are invited to engage in a discussion on the social or ethical implications of a particular techno-scientific development. By contrast, our notion of the public participating in *The DNA-Dialogues* was loosely built on a pragmatist idea of publics forming around issues (Marres 2007; Dijstelbloem 2008), with the public being "all those who are affected by the indirect consequences of transactions to such an extent that it is deemed necessary to have those consequences systematically cared for" (Dewey 1927). Engaging the public in a pragmatist sense is not a matter of getting disinterested citizens interested in science or technology, but of 'making public' a particular techno-scientific development. People will be engaged when they recognize the development as something that possibly affects them.

A public can form around an issue that is different from what is considered to be relevant by experts and public engagement practitioners. This is what happened in the discussion on neonatal blood storage. The public health professor viewed the discussion as diagnostic instrument to find out what are the particular worries and misconceptions of members of the general public who could be affected by changes in the existing policies for the storage of neonatal screening data. The topic of neonatal blood storage, however, also evoked

another public of parents who were affected as citizens by possible political and commercial use of the data. Using existing sites for public discussion rather than creating new ones, as we did in *The DNA-Dialogues*, reflected this pragmatist notion of the public.

Despite the claim of mutual interaction implied by the notion of 'dialogue', assessment of the impact of interactive public engagement events is usually (implicitly or explicitly) limited to either the outcomes for policy, or the effects on the participating citizens. Very little attention has been given to how participating scientists and other experts are affected by such events. Some academic projects and articles have identified this omission (Jackson et al.2005; Burchell 2007) but those have not addressed the implications of their exploratory ideas and findings for the actual organization of dialogue events that do not merely engage publics with science, but also experts with society. If public sites are the venue for interactions between publics and experts, it is the latter who need to be invited and convinced to participate rather than the former. *The DNA-Dialogues*, therefore, presented us with the challenge of *expert engagement*.

Our relatively unarticulated notion of dialogue at the onset of the pilot project was challenged by the difficulties we encountered in engaging experts in online discussions. Only a few experts participated. Moreover, we did not get any indication that their participation actually made experts reconsider their own role, their professional agenda or their societal responsibility. Of course, that does not mean that it did not happen. Learning and reflection are time-consuming processes shaped by many factors. Since we did not follow up on the experts who participated in the pilot, we cannot be sure about the impact.

Others have also experienced that the ideal of dialogue does not easily translate in an actual interaction between publics and experts. An Austrian series of dialogue events with scientists

and laypeople about ethical issues related to genome research, for example, was complicated by mechanisms like the framing of the issues, the public setting of a discussion and participants who emphasize the distinction between facts and values (Felt et al.2009). Similar experiences have resulted in calls to study and evaluate dialogue events in order to identify barriers and opportunities and make changes (Davies et al.2009).

It is clear that merely bringing the public voice to the experts' ears does not establish dialogue. Asking experts to act as discussion partners rather than informants, like we did, is not enough either. Engaging experts involves instructing, briefing and preparing them as well as making them aware of their position, role and biases toward both their own knowledge and that of their (imagined) publics. But the challenge of expert engagement is not only about making experts participate in a discussion or about keeping them on board. It requires an analysis of the ways in which various interactive settings enact particular roles and meanings for experts as well as for publics.

2.3 The mediator at work

The critical parent who challenged the participating professor did not only address this expert, but also called us as discussion organizers to account, asking why we thought that involving parents in the discussion could mean anything.[9] The parent stated that she did not understand the purpose of this discussion, since present policy for anonymous blood storage and use are clear and the reasons for scientists to challenge this policy are not. Thus she asked us how parents' opinions could make any difference.

In response to those questions, we posted a message explaining the mission of the CSG, which is to contribute to a societal agenda for genomics research by means of (social science and

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[9] See the opening quote of this article.

humanities) research and (public) communication. We stated that:

"That does not mean that we aim at acceptance of that kind of research by 'the public'; we rather consider it to be our duty to inform both researchers and (potentially) involved citizens about what is going on, and allow them to form an opinion about it and let it be heard. One of the ways in which we do that is by bringing scientists into contact with people who are (or might be) affected by (the consequences of) their research."

Presenting ourselves as 'neutral facilitator', however, was rather problematic. Some of the invited experts were genomics scientists who were funded by the Netherlands Genomics Initiative (NGI) that also funds our own organisation, i.e. the CSG. Moreover, the starting point for the discussion had been an expert workshop with a rather obvious purpose, being the extension of limits for the storage and use of blood from neonatal screening for research. Experts supported the idea of an online discussion probably because they hoped that it could take away or counter reasons for potential societal resistance.

Our purpose in organizing a dialogue, however, was to explore whether such resistance would occur, and if so, for what reasons. We intended to create the conditions for the collective articulation of relevant issues by publics and experts. When some dominant parents did not accept the expert's framing of the issues and the expert's framing was not affected by the issues put forward by the parents, dialogue was not realized.

That we were not neutral was also apparent in our response to the critical parent who challenged our position. We combined our role as mediator with taking position:

"I have tried to clarify what I think that (the participating scientist) means, and I will try to get across to her and her colleagues what is the opinion of the public that they so often fear. I think I can do that, because I do understand your arguments and basically I agree with them."

About the scientists we stated:

"Yet I cannot promise that they will listen. Neither can I promise scientists that 'the public' will listen to them, nor is it my duty to convince the public that scientists are right. What I do try to do is make it possible for you to discuss with scientists. (...) That is all I can do."

We already indicated that as organizers we framed the discussion by writing the introductory article and selecting experts as participants. The preceding quotes exemplify how we continued this framing work by responding to parents' questions about the purpose. With our postings we attempted to keep both the expert and the parents on board for the discussion.

2.4 Multiple roles

In this discussion, as well as in other discussions that were part of the pilot, we performed multiple roles. During the workshop and in the introductory article, we presented ourselves as *matchmakers*, whose main role was to select and connect parents and scientists, both explicitly and implicitly in many of our actions. When we invited experts to participate, we acted as scientists' *colleagues*, especially when these experts were involved in one of our CSG research projects. We also acted as *experts* ourselves, writing the introductory article for the discussion.

When writing the article and also by means of our interventions in the discussion, we played the part of a *translator* between parents and experts, explaining to both categories of participants what we thought the other side meant. By means of our interventions in the actual discussion, we acted as *mediator* between parents, who attempted to review and widen agendas, as well as experts, who look for ways to confine the discussion to the limits of their expertise. In the previous quotes, we acted as parents' *advocates*, but the critical parent also criticized us for being scientists' advocate.

The multiple roles of dialogue practitioners have received little attention

in public engagement literature. Most critics discuss events that are commissioned by governmental institutions and lump together practitioners and commissioners in their analyses of public engagement activities. Yet our position as initiators, organizers and moderators of the online *DNA-Dialogues* has confronted us with the particular dynamics of that role. Although the multiplicity of our position sometimes confused participants as well as ourselves, we also came to realize that we could use our versatility to gain a better understanding of the factors that impede or stimulate dialogue. On the basis of our own experiences, we propose to integrate the roles of dialogue practitioner and of (critical) social scientist in interventionist dialogue research.

3 Discussion: dialogue as interventionist research

While we started *The DNA-Dialogues* with the idea that online discussions could enable *interactions* between publics and experts, we gradually came to understand and use the fact that such interactions necessarily imply that we as organizers and moderators perform *interventions* (Zuiderent-Jerak and Jensen 2007). The kind of experiences that we have discussed in this paper will sound familiar to many people who have been involved in the organization of public engagement activities. Critics who have analysed the flawed methods and objectives of dialogue events have usually focused on notions of publics rather than on experts. Furthermore, social scientists who study dialogue have generally been distinguished from those who organize and moderate it. Although practitioners may also have a background in the social sciences or humanities, the social scientist as researcher is expected to be *critical*, whereas the practitioners are portrayed as *practical*.

On the basis of our experiences in the *DNA-Dialogues* pilot study, we advocate the combination of those two roles into that of an interventionist dialogue researcher. The role of an interventionist researcher in public dialogue is different than the role of the organizer and moderator in a public engagement event. An interventionist dialogue researcher invites experts to participate in a public discussion and stimulates as well as studies the articulation of a particular issue that implies specific publics and experts. Merging the roles of (critical) analyst and public dialogue practitioner makes it possible for a social scientist to experience and describe resistances and catalysts for dialogue from the inside. Moreover, it enables the direct input of preliminary research results in the process under study.

Unlike most critical public engagement studies, interventionist research can do more than identify problems, barriers or opportunities for dialogue. It takes seriously the performativity of doing dialogue, actually testing hypotheses about relevant factors and condition by means of experimentation (Felt et al.2009). Those factors can be connected to participants (including experts and moderators), to the framing of the issue under discussion, to the design and lay-out of the discussion space, and to relations between all those elements.

Doing dialogue as interventionist research rather than public engagement requires a particular set-up that the pilot project described above lacked. *The DNA-Dialogues* involved the initiation, organization and observation of discussions between publics and experts about various issues related to genomics research, applications and governance. When doing dialogue as experimental research, such activities need to be complemented by interviews with participating experts and others concerned before and after the discussion to gain understanding of the trajectories in which discussions are enacted and affect the agendas of participants – or do not.[10]

Interventionist public dialogues are experiments in the collective articulation

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[10] The PhD projects of Koen Dortmans and Eefje van den Heuvel-Vromans (see footnote 4) have been designed as interventionist dialogue research.

of issues by opening up genomics research and governance agendas, rather than by closing them down with premature definitions, solutions or recommendations (Stirling 2008). The point of such interventions is not to 'design' an issue, but to make connections that enable the collective articulation of an issue by dialogue participants. That is not a neutral position, but a normative one.

In a recent collective experiment in public engagement with the ethical and social dimensions of genome research, Austrian colleagues have analysed the various meanings attributed to 'public participation' by participating publics and experts. They concluded that the meaning of public participation is "inextricably linked to specific assumptions about the science under discussion in its relationship to society, as well as on the processes of its governance and the actors involved in it" (Felt and Fochler 2008: 490). The tensions in the online discussion on the storage of blood from neonatal screening were clearly related to governance issues as well. However, interventionist dialogue research is not about such issues per se. It rather takes an ethnographic approach and follows the actors, which include the participants, the topics under discussion, and us as initiators and moderators. It also traces connections to other issues and discussions, which are actively made or more implicitly performed in the interactions that we study.

The normative stake of the dialogue researcher is not in any particular framing of what is the relevant issue, but in making public the techno-scientific developments considered to be interesting or important by life scientists, and opening them up for the involvement of those who are potentially affected by such developments in discussions about their course and governance. This way, public dialogue experiments can contribute to the incremental change of science and society into a robust relation.

4 Conclusion

In this article we have used our experiences from the pilot project for *The DNA-Dialogues* to show how we came to consider 'public dialogue' as a method of interventionist research rather than as a mode of public engagement. Distinguishing the role of critical analyst from that of practical mediator hinders the mutual benefit that combining and confronting the two in practice promises. If dialogue research and intervention remain distinct, it will be difficult for social science analyses to land in dialogue and public engagement practices. Not merely studying, but also 'doing' dialogue, makes it possible to find frictions that require and allow for intervention. Therefore, we plead for interventionist public dialogue research as a mode of social science research that goes beyond a distinction in terms of 'ironists, reformers or rebels' (Gisler and Schicktanz 2009, this issue).

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A *helping hand* or a *servant discipline*?

Interpreting non-academic perspectives on the roles of social science in participatory policy-making

Kevin Burchell (Kingston University, United Kingdom)

Abstract

In the UK, a diverse network of actors has emerged around the delivery of government-sponsored processes of public participation in science and technology. Although this network includes social scientists, the relationship between social science and participatory policy-making remains an ambiguous one. My objective in this paper is to reflect in an exploratory manner on non-academic perspectives of the roles of social science in public participation. In particular, I draw attention to the contrasting conceptions of the policy relevant roles of social science that appear to prevail among academic social scientists (a discipline in which the analysis and critique of modes of thought and action are valued highly) and the non-academic actors (a discipline that is valued for its instrumental, problem-oriented potential). Further, I explore the ways in which the non-academic conception of social science as an instrumental discipline might be interpreted; for example, as merely providing a *helping hand* or, more pointedly, as a *servant discipline* to the objectives and interests of others. I conclude with an exploratory discussion of the challenges and opportunities that this contrast presents for social scientists. Further, I make the case that social scientists should clearly advocate the policy relevance and value of analysis and critique.[1]

1 Introduction

In recent years, social scientists working in science and technology studies (STS) and associated disciplines have (re)turned their attention to the relationships between social science itself and the governance of science, technology and innovation.[2]

Within the context of an emerging institutional 'participatory turn' in science and technology policy making in Europe and elsewhere, as well as the role that social scientists have played in advocating and practicing public participation, it is not surprising that scholars in STS are also turning their attention to the potentially multiple and diverse roles of social scientists in these participatory developments.[3]

My objective in this paper is to reflect on the roles of scholars working in and around STS in public participation in science and technology. In particular, I focus on this issue from the perspectives of the non-academic actors who also work on public participation in science and technology in the UK.

To frame my analysis, I first describe some of the specificities of the UK 'participatory turn' in science and technology policy-making, and I comment on the network that has emerged around this activity (section 2).

Thereafter, I discuss the conceptions of the role of social science in participatory policy-making that appear to prevail among the non-academic actors in the UK public participation network. To do this I discuss some of the key themes that emerged from an exploratory case study among this group that I conducted in the UK, as well as from the London workshop itself (section 3).

In addition, I draw upon other recent analyses of the roles that are defined for social science by institutional actors, particularly with respect to science and technology policy. My analysis suggests that, for these non-academic actors, social science is valued as an instrumental, problem-solving or problem-oriented discipline (section 4).

Thereafter I note that social scientists themselves – or, at least, those who attended the two workshops described earlier – identify contrasting relevance for social science based upon the analysis and possibly critique of institutional modes of action and thought. Within this context, I then explore the ways in which the non-academic conception of social science as an instrumental discipline might be interpreted. For example, I discuss the ways in which this constitutes social science, perhaps benignly, as providing a helping hand or, perhaps more pointedly and malignly, as a discipline that is servant to the objectives and interests of others (section 5).

I conclude with an exploratory discussion of the research opportunities that are presented by these conditions, and I make the case that social scientists should clearly advocate the policy relevance and value of analysis and cri-

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[2] For example, Andrew Webster (2007a/b), Helga Nowotny (2007) and Brian Wynne (2007) have exchanged views on the desirability, challenges and limitations of policy engagement. Using nanotechnology as an example, Phil Macnaghten et al.(2005) have presented a modest blueprint for the role of social science in the development of novel technologies. Jane Calvert and Paul Martin (2009) have offered similar reflections in the context of synthetic biology. At the same time, Claire Donovan (2005), Macnaghten et al.(2005), and Laurent and Fisher (2009) have concentrated on the contrasting ways in which the relationship between social science and scientific governance is constituted by the institutions of science and of scientific (including social scientific) governance.

[3] This was the topic of two workshops in the summer of 2008, on which I concentrate in this paper; these were the *Ironists, reformers or rebels? The role of the social sciences in participatory policy making* workshop in Zurich (cf. Gisler and Schicktanz, this volume) and the *Roles of social science in public dialogue on science and technology* stakeholder workshop in London which I organised (cf. Burchell and Holden 2009). In addition, this was the topic of a conference paper by Parry and Faulkner (2006) and a session at a conference of the UK Economic and Social Research Council (ESRC) Genomics Network in October 2008 (ESRC 2008). Most recently, in April 2009, this was a recurring theme at the opening seminar in the new ESRC-funded *Critical studies of public engagement in science and the environment* seminar series (ESRC 2009a).

tique (as well as instrumental problem-solving, section 6).

2 The UK 'participatory turn' and the public participation network

Although it is true to suggest that the 'participatory turn' in science and technology has relevance in many parts of the world, there are important distinctions between individual country cases (Hagendijk and Irwin 2006). With this in mind, I now provide some specific details about the UK 'participatory turn' and the network that has emerged around UK government-funded public participation in science and technology policy-making.

The UK is *similar* to many other countries in the extent to which public participation activity has been driven by academics, NGOs, think tanks, citizens' groups and so on. However, the UK is perhaps *unique* in the extent to which the public participation agenda – or, at least, a particular form of it – is currently becoming institutionalised across government departments and public policy areas.[4] At these governmental sites, public participation is advocated as an integral component of contemporary governance and policy-making, and is variously cited as a route to better policy decisions, democratic renewal, citizen empowerment, and greater citizen trust in the institutions of governance and policy.

At the forefront of the UK government's public participation agenda, and specifically focussing on science and technology, is Sciencewise (2009). Indeed, based upon its emerging ambitions to institutionalise and professionalise public participation in science and technology policy-making across government

departments and intermediary bodies, Sciencewise appears to also be at the vanguard of the emerging international public participation agenda. Sciencewise conducts a specific form of public participation, which it calls public dialogue. This is defined on the Sciencewise website as follows:

"Public dialogue is a way of giving people in the UK the opportunity to have their views on future and emerging science and technologies heard, and listened to, by those who make policy decisions. The aim is to help politicians and policy makers make better decisions on which areas of scientific research should be pursued and how advances in science can be best used to benefit everyone in society – not just the few. Public dialogue is a 'two-way' conversation between decision makers and experts on the one hand, and the public on the other." <www.sciencewise-erc.org.uk/cms/public-dialogue-3>

Although it varies from project to project, the format of public dialogue appears to be increasingly oriented around focus group-type discussions among public participants, with the participation also of experts of various kinds and in a variety of formats. In general, the STS response to these developments has focussed on discourses of possibilities and limitations. Public participation is said to be a potentially significant component in the delivery of more democratically accountable, and socially and technically robust forms of scientific governance. However, doubts linger about the extent to which institutional public participation has more to do with smoothing the path of institutionally-desired innovation strategies and technologies (Irwin 2006; Wynne 2006; Felt and Wynne 2007).

A particularly notable outcome of the emphasis on public dialogue within Sciencewise is the emergence, or at least the evolution, of a diverse network of actors in what is now a multi million pound 'veritable extractive industry' (Lezaun and Soneryd 2007). In this paper, I focus specifically on the perspectives of what I refer to as the non-

[4] For instance, see *Sciencewise* (2009) (funded by the Department of Innovation, Universities and Skills), *People and Participation* (2009) (funded by the Department of Communities and Local Government, The Ministry of Justice and the Sustainable Development Commission), and the Ministry of Justice (2008) national framework for greater citizen engagement.

academic actors within this network. These actors are drawn from:

- government departments (here we can distinguish between individuals who work on policy for dialogue and those who use dialogue in policy);
- government intermediary bodies (such as the research councils, the Human Genetics Commission and the Human Fertilisation and Embryology Authority);
- commercial organisations and freelancers (from a diverse range of backgrounds from PR, market research, corporate affairs and project management, to conflict resolution, environmental consultancy, public policy research, stakeholder engagement, and community-based research);
- and, a range of not-for-profit organisations (such as bodies that promote science, think tanks, and learned academies).

These actors variously perform a range of emerging and evolving functions, such as: funders, users, commissioners, practitioners, programme managers, participation experts, evaluators, expert participants, disseminators and analysts. Some of these actors are commissioned by *Sciencewise* on an ongoing basis to advise government departments on public dialogue and to develop knowledge on specific practical issues. Others are contracted to implement and deliver individual public dialogue projects on specified topics. Others still provide invited, yet informal, guidance and advice. In addition to these non-academic actors, social scientists working in STS and associated disciplines also perform some of these functions and act as 'experts' within dialogue processes.

The emergence of this network raises a range of fascinating questions. In this paper, I am particularly interested in questions concerning the relationships between this non-academic network and the social scientists who study and practice public participation. In addition, we can ask:

- how might we understand the ways in which this network operates (through practices of project initiation, tendering, design, management, reporting, and evaluation, as well as the development of longer term strategies);
- how might we understand the contrasting and potentially contradictory norms, assumptions, objectives, interests, practices and commitments that are at play in different parts of the network and the ways in which they interact, circulate, align and misalign;
- and, what is the political and democratic significance of this network and the agenda which it serves?[5]

3 The exploratory case study and the workshops

The exploratory case study that I conducted in the spring of 2008 was designed to illuminate just one aspect of the network that I have outlined here: as indicated earlier, the perspectives of the non-academic actors in the network on the roles of social science in public dialogue. Rather than providing any definitive answers, my intention was to employ the results to raise issues and questions, and to prompt discussion, at the Zurich and London workshops. In addition, my objective was to begin to foster greater mutual understanding among the diverse groups described above.

With these objectives in mind, I conducted a highly exploratory, and rather rapidly executed, qualitative and interpretative study with the intention of deriving a dataset that is *indicative* (rather than *representative*) of the general perspectives among these groups. To investigate this issue, I drafted six questions on the following topics:

1. Examples of the actual roles of social science in public dialogue.
2. What questions should social scientists address?

3. What is the success of social science in this regard?
4. What are the normative roles and purposes of social scientists?
5. What are the challenges of working with social scientists?
6. Other comments?

These questions were emailed to approximately sixty individuals in around forty five institutions in the non-academic parts of the UK public dialogue network described above, along with an invitation to attend the London workshop. The response to the research questions was disappointing; eight responses were received, representing the views of twelve individuals (some responses were joint responses). Respondents included:

- a group of four from the British Science Association (formerly the BA), a largely government-funded body that 'advances the public understanding, accessibility and accountability of the sciences and engineering',
- a joint response from representatives of the Science and Society teams at the Economic and Social Research Council (ESRC, the UK government funder of social science) and Research Councils UK (RCUK, which provides strategy and oversight for the seven UK research councils),
- two commercial practitioners (both of whom have social science PhDs),
- a senior evaluator,
- a commissioning expert,
- a high profile public engagement practitioner and policy actor,
- and a representative from the Academy of Social Sciences.

With this sample size in mind, we must obviously be cautious about the extent to which the results are indicative of more general views and perspectives among the population of interest. Nonetheless, the data was highly successful in terms of raising issues and questions, and prompting debate at the two workshops.[6]

4 Non-academic perspectives on the roles of social science in participatory policy-making

In this section, I focus on the ways in which social science relating to the governance of science and technology appears to be conceived by non-academic actors in the UK.

First, I comment on the ways in which the relationships between social science and policy-making are constituted by the ESRC, the main UK government sponsor of social science, with particular reference to science and technology (section 3.1). Thereafter, I focus on these issues in the context of my own exploratory case study (section 3.2).

In each of these contexts, I wish to highlight two key themes. The first is the ways in which social science is constituted by UK non-academic actors as an instrumental, problem-solving discipline. The second is the extent to which the problems that social science is expected to solve are identified by actors that are external to social science itself.

4.1 Perspectives of the ESRC

The objective of the ESRC is described on its website homepage as follows: *"We aim to provide high quality research on issues of importance to business, the public sector and government."* <www.esrc.ac.uk/ESRCInfoCentre/index_voluntary.aspx>.

Tellingly, in this comment the ESRC states that the issues which social scientists are to investigate should be defined "by business, the public sector and government", rather than by social science itself.

ESRC-funded social science is further concentrated around these externally-defined issues through the increased reliance of the ESRC on specifically-themed funding programmes (Donovan

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[6] The London workshop was attended by thirty one members of the UK public dialogue network, including social scientists, policy actors, commissioners, practitioners and representatives from think tanks, learned societies and organisations that promote science.

2005) and, more recently, networks. As Donovan also suggests, a significant number of these programmes (and networks) are related to science and technology issues. Donovan notes the ways in which, within these programmes, social science is cast as an instrumental discipline tasked with solving the anticipated problems associated with the so-called social impacts or implications of novel technologies.

For instance, social science is variously expected to:

- envision the societal needs that science and technology might meet,
- anticipate risks and ethical concerns relating to novel technologies,
- give voice to public opinion concerning these issues (perhaps through public participation),
- and advise institutions on communication on issues that are held to have a scientific or technological relevance.

In the period since Donovan's analysis, this conception of social science was publicly reflected by Ian Diamond and Frances Cairncross, the current and previous Chief Executives of the ESRC respectively. In their introductory remarks at events related to the ESRC Genomics Network and the earlier ESRC Science and Society Programme, respectively, both of these senior officials construed these initiatives almost entirely in terms of, not only, understanding, but also, obviating the social challenges created by emerging technologies and scientific practices (Diamond 2007; Cairncross 2007).

In recent years, this ESRC attention to science and technology issues can be seen as part of a broader movement in which social science is cited by policy and scientific actors as a discipline that is central to novel approaches to the governance of science. In particular in the UK, as Macnaghten et al.(2005) have pointed out, nanotechnology has been institutionally cited as the test bed for this new governance (see also Laurent and Fisher (2009) on the U.S.). In these cases, tasks have been identified

for social science that are very similar to those identified above. Thus, in the context of the ESRC's programmes and networks on science and technology and the scientific and policy discourses on the governance of nanotechnology we see the evocation of social science as an instrumental, problem-solving or problem-oriented discipline. Further, we see the evocation of social science as a discipline that can be enrolled in the solution of problems that are identified and framed outside of social science itself.

4.2 The exploratory case study

I want to move on now to a more focussed discussion of the roles of social science from the perspective of the non-academic actors within the UK public dialogue network, as reflected in the exploratory case study. It seems sensible to start with the observation that the issue of the roles of social science in public dialogue is a cause of a degree of discomfort and frustration for some of the non-academic actors. For example, the group from the British Science Association asked:

"Can social scientists please apply their skills to this question of their own relationship with the practitioner community . . . to what extent do social scientists see themselves as passive observers and commentators as opposed to co-participants and actors?"

Similarly, the respondents from RCUK and the ESRC asked:

"Do social scientists regard themselves as scientists and therefore part of the science and society equation or as third party observers/researchers?"

These comments acknowledge that social scientists might perform a number of quite distinct roles in public participation:

- they might be observer/researchers,
- they might be participants of some description,
- or they might be scientists whose own work might be subject to the

logics and assumptions that underpin institutional public participation in the UK.

However, what's notable here is the sense of discomfort that this role uncertainty causes among some non-academic actors. Indeed, at the London workshop, a commercial practitioner challenged me to state which type of social scientist I am.

Having noted this discomfort concerning the multiple roles of social scientists, the case study respondents and most of the non-academic London workshop attendees were very clear about the role that they wished social science to play. They referred on the 'vital' or 'valuable' role of social science in public dialogue in terms of an instrumental development of practice and strategy.

The data revealed a number of ways in which social science does, might or should assist in the practice of public dialogue, including:

- the introduction of new and innovative methodologies;
- the framing of issues and questions;
- the development of models for measuring outcomes;
- and the interpretation and representation of public views.

Social science was also seen to perform a valued role in strategic thinking about public dialogue mainly by mapping the context in which it was sought and what its long term impacts might be. There were also a number of comments concerning the contextualisation of public concerns and the articulation of different viewpoints. Within this context, the British Science Association suggested that social scientists can act as 'critical friends' to the public dialogue network. It should be noted that there was just one response – notably, perhaps, from a commercial practitioner with a social science PhD – suggesting that social scientists might break out of this role to ask challenging questions about the broader political contexts and interests that frame and inform the objectives of institutional public dialogue. In

the next section I will discuss how this dominant non-academic conception of the role of social science in public dialogue might be interpreted.

In addition to the identification of a specifically instrumental role for social science, respondents also expressed frustration and disappointment about the extent to which social scientists often fail to perform this role. For example,

"I think practitioners … find a lot of the work that is published by social scientists on science and society issues to be largely irrelevant to their work. The ESRC's Science and Society programme has not yielded findings that seem relevant." (prominent public engagement practitioner)

"Social scientists, on the whole, are not making themselves relevant to the practitioner community. For example, most of the summary reports in the wide-ranging ESRC Science and Society booklets are about the ´areas explored' rather than practically useful findings, or are so general that they are of limited use to practitioners in the field." (the group from the British Science Association)

These two comments are particularly interesting because they create a link between the pre-framed theme of roles and an emergent theme of relevance. More specifically, these comments draw a direct link between the performance of a particular role and relevance on the one hand, and, perhaps more importantly, the non-performance of that role and irrelevance on the other.

These comments can also be seen as evidence of a lack of awareness of any other forms of relevance that might be present in social science research. The ESRC Science and Society Programme, to which both of these comments refer, produced a wide range of social science projects oriented around the new conditions that are felt to prevail in the relationship between science and society (ESRC Science and Society 2009). As indicated in the comment by the group from the British Science Association, these projects were often oriented

around analysis, and in some cases problematisation and critique, of the narratives and discourses that characterise contemporary trajectories in science and technology (referred to by the British Science Association as 'the areas explored'), as well as the ways in which science and society relationships are managed.

With this thought in mind, these comments could be interpreted as a rejection as irrelevant of the analysis and problematisation of the official narratives of science, and science and society. Although there is insufficient space to explore these issues in detail, the exploratory case study revealed that policy and practitioner actors also feel that social scientists compromise their relevance through the use of obscure language, the lengthy time scales of academic work, and methodological purism with respect to public participation (Burchell and Holden 2009).

In this section I have drawn on a variety of materials to illustrate the ways in which the role of social science is constituted by non-academic actors. This analysis suggests that, in the case of both science and technology policy and public participation in science and technology, social science is often constituted by non-academic actors as an instrumental, problem-solving discipline. Furthermore, form the point of view of these actors, the problems that social science is to solve are to be determined and framed outside of social science itself.

5 Interpreting instrumentalism

This section focuses on two contrasting ways in which this perceived instrumentalism might be interpreted: as a *helping hand* or as a *servant* discipline. However, to provide the context for this, I comment – very briefly – on the conceptions of social science that is common among the academic social scientists:[7]

1. First the internal scholarly and disciplinary relevance or the role of social science research is always advocated.
2. Second, although some social scientists are involved in somewhat instrumental research, the instrumental, problem-solving conception of social science is eschewed and problematised by many of the social scientists.
3. Further, the preferred conceptions of social science are oriented around notions of – crucial – independence, as well as description, analysis, reflecting back, contextualising, developing questions through research, critique and problematisation (Burchell and Holden 2009; Gisler and Schicktanz, this volume).
4. Finally, although some social scientists try to remain outside of policy debates, the majority maintains the policy relevance of such roles and activities (cf. section 6).[8]

With respect to the *topics* of such policy-oriented descriptions, analyses and critiques, Wynne (2007) reminds us of the ongoing need to examine the implicit and tacit modes of thinking, norms and assumptions that prevail within policy-making institutions as well as the more readily-observable policy-oriented actions and behaviours. Wynne's own deficit model heuristic might be a suitable and relevant example of such an analytical extension (Wynne 2006).

5.1 Helping hand?

With these thoughts in mind, how might the instrumental manner in which social science is constituted by non-social science actors be interpreted. As indicated in the title of this paper, the instrumental conception of social science might be interpreted in relatively benign terms as a 'helping hand'. Similarly, noting that the performance of this role might involve a certain amount

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[7] Data sources are the workshops at Zurich and London.

[8] This form of policy relevance – quite different to that espoused by the non-academic actors – is also reflected in Webster (2007a/b), Nowotny (2007) and Wynne (2007), as well as in Macnaghten et al.(2005).

of critique of practice or strategy, this conception might be interpreted as social science as a 'critical friend' (as the British Science Association group put it), or perhaps even as a 'reformer' (cf. Gisler and Schicktanz, this volume).

Crucially, these conceptions seem to imply a rather equal relationship between a range of actors, including social scientists, who work together, and pool their various resources and specialities, in pursuit of a specific goal. Certainly, critique of practice and implementation might be possible within this conception. However, the goal itself and its underpinning assumptions are pre-given and taken-for-granted, and are assumed to be agreed, shared, and largely unproblematic. This interpretation of an instrumental social science also suggests that there should be no particular concerns about social scientists engaging with policy and practitioner actors in this way.

5.2 Servant discipline?

As I suggested earlier, while some STS social scientists perform this kind of role in their research projects, many also emphasise the importance of independent analysis and critique. However this latter emphasis contradicts the assumptions of a taken-for-granted, agreed, shared and unproblematic goal that were evoked earlier. Indeed, many social scientists explicitly problematise this interpretation of an instrumental social science.

With this in mind, it is perhaps necessary to interpret this instrumental conception of social science a little more sharply. For instance, this interpretation may cast social science in a role of a servant, handmaid, 'midwife' (Webster 2007a: 462) or even 'slave' (Donovan 2005: 597) to the aims and interests of the public dialogue network and the government and scientific interests that drive it. These expressions are notable because they evoke highly unequal power relations. More specifically, they deny agency and independence to social science, and they speak of a social science that is required to

subjugate its own interests and actions to those of others.

Finally, since many social scientists themselves claim an independent, analytical and potentially critical role, these interpretations of an instrumental social science provoke concern for social scientists with respect to policy engagement. For instance, social scientists must carefully guard their 'reflexive and critical edge' in order to avoid 'cooption or capture' by institutional sponsors (Webster 2007a: 462). To put this in another way, they must preserve their more radical objectives while engaging in pragmatic ways (Wynne 2007). They must take care to not become 'dazzled by the mirage of influence', must be prepared to be instrumentally reinterpreted or ignored, must be aware that reflexivity is not a natural or easy condition within policy institutions, and must not allow policy engagement to become the sole criteria by which their work is judged (Wynne 2007: 491).

Finally, in extreme cases, they run the risk of bullying and vilification by institutional actors. Simon Davies and Gus Hosein (2006) were part of the LSE Identity Project, which was critical of the UK government's identity card plan. Following publication of their report, the research team was vilified in Parliament and in the media by a succession of government ministers.

6 Discussion

The objective of this paper has been to contribute to debates about the roles of social science in participatory policy-making with respect to science and technology. In particular, the objective has been to explore and draw attention to the roles of social science in these issues, in particular as they are understood by the relevant non-academic actors in the UK. In this discussion, I summarise the key themes of the paper and I suggest a number of avenues of potential enquiry and activity by social scientists working in STS.

Of course, relationships between social science and policy worlds vary over

time, from country to country, from social science discipline to social science discipline, from policy area to policy area, and even from individual to individual. Further, we should not underestimate the plurality of roles that STS scholars and academic social scientists more generally can and do play in policy arenas. In addition, the materials that have been discussed in this paper are exploratory in nature and should not be casually generalised. With this in mind, we should not homogenise or essentialise the perspectives of social scientists or non-academic actors and institutions that are presented in this paper: policy actors do not always constitute social science in instrumental terms, and social scientists do not always eschew instrumental or problem-oriented policy relevance in favour of a range of more analytical and potentially critical intents.

However, the materials that have been discussed here might be summarised in terms of the following working assumptions. Social scientists in STS and associated disciplines, and non-academic actors and institutions in the realms of science and technology policy (including public participation in science and technology policy) appear to be generally committed to a role for social science in these policy areas. However, there are fundamental differences in the ways in which these roles – or forms of relevance – are conceived:

- Non-academic actors are most comfortable with a conception of social science as an instrumental problem-solving discipline, whose objectives are defined elsewhere. From this perspective, social science might be interpreted as providing a *helping hand* or as a 'critical friend'.
- By contrast, academic social scientists appear to be most comfortable with a conception of social science as intellectually independent, and oriented towards description, analysis, critique, reflecting back, producing questions as outputs, and so on (though, certainly with the possibility of instrumental research of the kind described above in some cases). From this perspective, an instrumental, problem-oriented social science might be interpreted as having some of the characteristics of a *servant discipline*.

It is clear that, while they may not be universal or essential, these differences of understanding and expectation are relevant.

In addition, far from shunning policy relevant research, many social scientists as well as STS scholars, such as Macnaghten et al.(2005), Alan Irwin (2006), Wynne (2006; 2007), Webster (2007a/b), and Nowotny (2007), implicitly and explicitly advocate the use of description, analysis and critique as elements of a social science that is highly policy relevant.

As suggested earlier, this is perhaps a form of policy relevance in which social science helps institutions and individuals to reflect upon and better understand their established behaviours and ways of thinking. However, this conception of social science and its relevance and value to policy-makers seems to be little known, appreciated or understood by non-academic actors. Thus the work of social scientists can be judged by policy and practitioner actors on criteria that are very different. To paraphrase Donovan (2005), social science is not judged as social science. As a result, social scientific research can be readily dismissed as irrelevant by actors who are more instrumentally oriented.

I am not keen to present a set of programmatic proposals on the basis of these exploratory comments. However, to conclude I would cautiously raise three areas of enquiry and activity – with respect to relationships between STS and participatory policy-making – that may be fruitful for social scientists working in this area.

Scholarly significance

Firstly, there is no doubt that the 'participatory turn' in the governance of science and technology (as well as other

public policy issues), particularly the increasingly institutionalised and professionalised forms in which it is emerging in the UK and perhaps elsewhere, is of contemporary scholarly significance (Irwin 2006).

These developments clearly raise a whole raft of questions about: the nature of institutions, democracy, politics, governance, policy and expertise in contemporary liberal democracies; the visions of science, technology, medicine, progress, the public and society that are produced through processes of institutionalised public participation; and, the characteristics and practices of the networks that emerge around practices of public participation. With these thoughts in mind, and despite the challenges highlighted in this paper, there are very obvious reasons for social scientists to continuously engage in these policy developments.

In particular, drawing on Wynne's (2007) reflections on the importance of understanding the implicit and tacit modes of thinking, norms and assumptions that prevail within policy-making institutions (as well as behaviours and actions), this perhaps demands continued and enhanced efforts towards institutional ethnography by STS scholars.

Working assumptions and questions

Secondly social science might or should also contribute to these policy developments in a more direct way than via purely scholarly contributions. This notion appears to be taken-for-granted by many among the network of academic and non-academic actors that has emerged around public participation in the UK. However, significant variations in conceptions of the nature and objectives of such contributions emerge as soon as the surface of the issue is scratched.

This raises a range of questions that might be more comprehensively explored through research (perhaps including ethnographic work such as that described above). For instance, the working assumptions that I described

above bear much closer examination, especially within the context of actual social science research projects relating to public participation.

In addition, these working assumptions raise questions concerning:

- the ways in which social scientists manage potentially competing roles, imperatives and responsibilities that such circumstances might give rise to;
- the extent to which social scientists also instrumentalise the work of policy and practitioner actors for their own scholarly purposes?;
- when social scientists are invited in as critical friends, the range of issues that are and are not open to criticism;
- and, the circumstances and means through which formal and informal networks of 'helping hands' or 'critical friends' – social scientific or otherwise – become constituted.

The policy relevance of critique

Finally, social scientists might more firmly advocate – in interactions with policy and practitioner actors – the value of specific forms of policy relevance that lie outside of the instrumental, problem-oriented policy relevance that appears to be envisaged by non-academic actors. In particular, while non-academic actors quite reasonably appear to expect social scientists to tell them something about society or 'public views', social scientists might also advocate the value of telling policy-makers and practitioners something about themselves.

For instance, social scientists might advocate forms of analysis which would assist non-academic actors to examine, understand and reflect in novel ways upon: their own assumptions and practices, the broader historical and geographical contexts in which these emerge, and alternative sets of assumptions.

In his comments on the relationships between STS and policy worlds, Wynne laments that, "once started, the agony

continues" (2007: 501). We should re-member that Wynne has been working on these issues for more than twenty years. There may be much – hope-fully, highly productive – agony ahead for both social scientists, and policy and practitioner actors as efforts towards mutual understanding, shared expecta-tions and agreed objectives continue.

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