“Social Movements, Publics, and Scientists”

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Although most people participating in this country are from industrialized countries that have governments that sanction contested elections, free speech, and other political traditions associated with liberal democracy, there are also significant cultural differences. As a result, discussions by Europeans on deliberative and participatory processes for technology policymaking appear, at least to me, as somewhat foreign. Although there is variation depending on the issue, there is a tendency to underemphasize mobilized publics and social movements in favor of a deliberative, lay public. Certainly during the past year in the United States social movements have been very relevant for major national policy debates on health care, financial reform, and greenhouse gas reductions. In some cases, such as health-care reform, there have been grassroots movements in favor of a public option and a single-payer system and astroturf movements opposed to any extension of federal government funding. As a result, some of the argument that I will develop applies better to the United States, and certainly within STS (science and technology studies) scholarship the study of social movements has so far received more attention among American and to some degree other Anglophone scholars than among scholars in other countries. Whether the model of mobilized publics that I will articulate here or the model of a deliberative, lay-opinion public that appears in the European models of public participation makes more sense for Japan and Asia is something that I will leave to my JSSTS colleagues to determine.

Whatever cultural differences exist, there are broader and general implications at stake in taking social movements seriously in theories of science, social responsibility, and publics. So I want to present a group of related theoretical arguments and concepts that I have been working on, both individually and in a network of colleagues who do the political sociology of science. The resulting lecture is therefore mostly a theoretical presentation, and as such it is likely to be controversial, because we all have theoretical commitments.

Although theory can be controversial, it is valuable for social science research on at least four grounds. First, theory can be used to challenge taken-for-granted assumptions. In this case the primary example is the work in STS that challenges the idea of the lay public as scientifically naive or as having a deficit that needs to be remedied. But I also want to explore some of the assumptions that may be embedded in the critiques of the lay deficit model. Second, theory can help open up new research questions that might not have otherwise been visible to us. I will suggest a whole range of new research questions that a somewhat different approach to scientists and publics opens up. Third, theory suggests new ways of conceptualizing relations among the social science and humanities fields. In this case I will build on arguments that suggest the value of bringing STS theory closer to political sociology (Frickel and Moore 2006). Fourth, one way to judge the value or importance of new theoretical work is to assess its potential to contribute to policy issues. Here, I will suggest a range of new approaches to policy issues involving the problem of "public engagement."

Theories of Publics

With that background in mind, I turn to the primary theoretical frameworks in the social science side of STS involving the social responsibility of scientists. For STS scholars, the literature is well-known, but given the diversity of the audience, it is worth reviewing quickly and in a formulaic way. The first framework is generally known as deficit theory, and it is often held by scientists, government policymakers, and representatives of large corporations. Based largely on survey research, the deficit model shows that laypersons often have very low understandings of basic science and also of technical issues relevant to public policy. Likewise, the policy that is derived from this model of the public involves transmission, using educational and media channels. The goal is to educate the public on technology issues with the assumption that better knowledge will result in greater support.

Most STS researchers have contested the public deficit model. Irwin and Wynne, as well as anthropologists and sociologists in the medical, feminist, and environmental fields, have developed approaches that I will call here "lay knowledge theory" (Irwin 2001, 2008; Irwin and Wynne 1996; Wynne 1994-2008). Two fundamental ideas characterize this family of approaches. First, laypeople are often sophisticated in how they evaluate the credibility of experts. Their evaluation of expertise often takes into account social position, bias, and concern with fallibility in ways that is similar to the approaches of STS researchers to the social construction of knowledge and ignorance. Second, laypeople often possess other kinds of knowledge that are valuable for policy work, often rooted in particular local knowledges or occupational knowledges.

The policy approaches that follow from the STS critiques of the public deficit model are variable. Generally, there is support for approaches that involve interactions or engagement between the public and experts. Examples include consensus conferences or modes of organizing research and technology development that include public participation. Unlike the deficit model, the goal is to develop a less paternalistic and more democratic approach to technology policymaking by figuring out ways to include public perspectives in policymaking. However, the STS research that has emerged out of this approach has also generated some skepticism of the new mechanisms of public engagement. The skepticism has been growing, and it is on this tradition of skepticism that I wish to build.

Skepticism about deliberative and participatory approaches emerges from various acknowledged problems with deliberative and participatory approaches to technology policymaking. First, the primary institutional form that has received a great deal of attention, the consensus conference, produces reports that are often ignored. At its worst, the consensus conference can be expensive exercises in the education of a small number of people. Likewise, in participatory research, the engagement of the public is limited to people who are selected to participate in the research design and process, and the dissemination of the research results is limited to the participants and the scholarly community. Although deliberative and participatory experiments could be scaled up, the resources to do so are lacking. They become demonstration projects that may have positive effects on individual lives, as Kleinman and colleagues (2007) have shown, but they generally influence policy outcomes only under very special conditions. As Horst and Irwin (2010) argue, deliberative processes also work better in some countries than in others, and even at some points in the history of specific countries.

But a deeper problem that I wish to explore, and one that is sometimes recognized in studies of deliberative processes, is that mobilized publics tend to be excluded from participation. Representatives of nongovernmental organizations and social movements that advocate for a public interest may not be allowed to participate in deliberative events such as consensus conferences because they do not fit the image of a lay individual. Here I suggest moving sidewise from the debate between the deficit model and the lay knowledge model by suggesting a different approach to the public that tends to be shared by the deficit model and its critics. In other words, the public that understands or misunderstands in both approaches tends to be individualized. It can be accessed either by survey methods (a method that is more prominent in the deficit studies) or by ethnographic interviews (as tends to occur in the lay knowledge studies), but there is an underlying agreement that the knowledge associated with the public is lay knowledge. This characterization of the public as individualized and lay that warrants examination.

In deliberative events such as the consensus conference, social movements that claim to represent a public benefit can be classified as "stakeholders." In doing so, a series of displacements occurs. First, whereas the movements are concerned with sparking a debate on the public good, an evaluative project, the deliberative process shifts the task to finding the public as public opinion, an empirical project. Second, representations of public good are reduced to stakeholder views, so the idea that one view of the public good may be selected over others gets lost in the noise of multiple viewpoints. Third, stakeholder views are equalized in a pluralistic model of politics that lumps elite and social movement views together as stakeholders and that does not distinguish between social justice movements and astroturf movements generated by elites. Any kind of mobilized public opinion becomes simply a stakeholder view, and inquiry into the grounds upon which one might select one view as better representing public good are set aside. Fourth, a deliberative space is created in which experts can interact with lay individuals but stakeholders are forced outside the machinery that constructs the public. Claims to represent the public are undermined by a machinery that also claims to do so. Fifth, there is little analysis of the ways in which social power differentials get embedded in the kinds of expertise that are allowed inside the deliberative space as part of the education of laypersons that enables them to deliberate and form a public opinion.

This approach can be viewed as deliberative skepticism, but rather than view it as simply a negative view—an oppositional approach to deliberative processes—I wish to explore how it can provide some generative possibilities for thinking about publics.

Mobilized Publics

An alternative model of the public to the individual, lay opinion public that I have been developing is the "mobilized public" (Bourdieu 1993, Hess in press b). The model shifts attention from the construction and tracking of public opinion to the agonistic articulations of public good by mobilized publics, which are themselves characterized by power differentials. In other words, the political sociological question of power differentials in society is placed at the center of the analytical framework. This is not to say that a structural determinist argument is necessary but rather to say that a balance between agency-oriented frameworks and structuralist ones is taken as a starting point.

The concept of mobilized publics can in turn be parsed. For the present purposes, a single dichotomy will be used, but more complex divisions can be introduced depending on the empirical problem. Official publics are the mainstream of public opinion generated by large industrial corporations and their partners in the media and government. In contrast, counterpublics are articulations of public benefit developed by those located outside the mainstream of the political and economic fields. Some of their ideas may become embedded in specific policy outcomes, but the incorporation of their proposals usually is accompanied by its transformation. Ideas get picked up, broken down, redesigned, and refitted into the dominant agendas. Neither official publics nor counterpublics are monolithic, and they can be understood as existing in a continuum, but the underlying approach is to begin with articulations of public benefit by mobilized publics that have different positions of power in society.

The concept of a counterpublic is available in the literature (e.g., Fraser 1997), and it is important to be clear about two ways in which I am using the term in a different way. First, I am interested not in a subordinate social positions (such as women or excluded ethnic groups) but subordinate field positions (such as exclusion from the field of nanotechnology policy). In practice the two types of subordination overlap, but the analytical distinction is necessary for generalization. Second, I depart from much counterpublic theory, which has a discourse analysis methodology, by using an institutional or field methodology, which relates ideological or cultural

differences to social positions in fields. The methodological change is necessary in order to work with a concept of power that is not reduced to semiotic analysis.

A scientific counterpublic is formed when groups of scientists advocate for a different research agenda in their field and they make the politics of agenda construction public by taking the issue outside the research field, such as by bringing the issue to the attention of funders, policymakers, movements, and the media. For example, they may advocate for an increased need for environmental, health, and safety research in nanotechnology (Hess 2010a). The scientific counterpublic emerges in response to the dominant networks of a research field. In this sense, networks are important to the analysis, but they are situated inside social fields.

Counterpublics can in turn be parsed into different types. In the incipient form, networks of scientists, often in subordinate positions in their research fields, serve as public-interest advocates. In the full-blown form, there are links with counterpublics in other social fields, such as coalitions with social movement organizations. There is a growing body of research in the political sociology of science and technology that charts the role of such experts and the problems that they encounter (e.g., Allen 2003, Brown 2007, Frickel 2004a, 2004b; Martin 2007, 2010; Moore 2008). This approach to scientists also implies rethinking our categories of social movements, such as by thinking about industrial opposition movements and alternative industrial movements, which have specific patterns in terms of how they are incorporated and transformed into policy (Hess 2007a, 2010a). Furthermore, the relations between scientists and movements are often subject to negotiation and ambivalence, as Yearley (1992) and Clarke (1998) have shown.

By viewing research fields as composed of stratified relations of cooperation and conflict among networks, the assumption that a deliberative space can be depoliticized by excluding stakeholders and allowing lay individuals to interact with experts is thrown into question. Because the field of expertise is itself differentiated, the homologies in the field position of the experts with positions in the political and economic fields can introduce political valences into an ostensibly politically neutral role of experts as tutors for the lay public (Bourdieu 1981). To the extent that experts from the subordinate networks are excluded along with social movement stakeholders, then the deliberative space becomes tilted toward the views of official publics.

General Implications

The study of mobilized publics has broader implications for theory in the STS field that go beyond the study of publics and public participation. One implication is that the idea of the social construction of scientific knowledge undergoes a shift from the study of network formation and the negotiation of empirical controversies (heterogeneous and social constructivism) and the study of cultural meanings of scientific knowledge and material artifacts (cultural constructivism) to the study of the construction of research agendas for research fields. We might think of this additional topic as the problem of macroconstructivism or political constructivism.

The shift in attention also leads to new research questions, such as, "What knowledge is targeted to be done and what knowledge is left undone?" There is an attendant need to expand the idea of the sociology of scientific knowledge to a sociology of scientific ignorance. Just as physicists increasingly have turned attention to what is known as "dark matter," so the study of mobilized publics and scientists suggests the need to pay attention to the construction of non-knowledge.

There is already an emerging field involving the study of what is not known, and I want to draw attention especially to two lines of research. One is the study of the shortcomings of risk assessment, or the attempt to quantify non-knowledge and, in effect, to convert it into knowable risks. The literature is showing how risk assessment, although valuable for policymaking, also entails turning away from deeper problems of ignorance, which only become knowable after a surprise occurs (e.g., Hoffmann-Riem and Wynne 2002). In turn, awareness of ignorance can open the door to the need for greater public participation, because both lay individuals and counterpublics often draw attention to the potential for nasty surprises to occur down the road. A second line of research involves the mapping of typologies, of which the most complete and integrated to date is that of Gross (2010). For him ignorance is the term for the broad field, of which nescience (a complete lack of knowledge that is the condition for a surprise) is the term for the unknown unknowns. In addition, non-knowledge and negative knowledge are two forms of specified ignorance that can be closely related.

We have looked at a small area of the study of ignorance known as "undone science" (Frickel et al. 2010). This type of ignorance refers to the identification by social movements and scientific counterpublics of areas of scientific research that are systematically underfunded or excluded from consideration. I developed the concept from my studies of complementary and

alternative medicine (CAM) therapies for cancer, some of which have credible biochemical rationales and some clinical supporting evidence but are systematically are underfunded or even suppressed. From the perspective of advocates of CAM cancer therapies, millions of lives could be saved by a funding initiative to support this area of undone science. For official publics such as the cancer establishment, the area of research is negative knowledge, that is, knowledge not worth pursuing, but for the counterpublics of patient advocacy groups, CAM researchers, and CAM clinicians, it is an area of non-knowledge.

Undone science can get done, but it tends to get done in subordinate positions of a research field, where funding is limited and reproduction of a network (getting students into positions that can produce students) is difficult. However, as I have shown in my studies of CAM cancer research and environmental organizations, some of the larger organizations have enough funds to hire their own scientists to do research. The resulting "civil society research" can include peer-reviewed work, but often it involves surveys and other reviews that are intended for a broader audience. In either case, it can address issues of undone science and draw attention to the need for shifts in funding agendas (Hess 2009).

More generally, the study of undone science and the broader concern with nescience can have policy implications. For official publics, technology policy is often guided by a sufficient evidence principle, which is associated with the laissez-faire regulatory politics of neoliberalism. In other words, because we do not know what the level of risks are for a new technology, such as nanotechnology, we should not block the technology but go ahead with it. In contrast, the emphasis on undone science and nescience can lead counterpublics to take the systematic lack of research as a basis for a more precautionary politics, which is associated with a higher regulatory barrier for safety and a slower pace for the introduction of new technologies into markets and the environment.

The link that counterpublics can forge between undone science and nescience on the one hand and precautionary approaches to regulation on the other hand entails a shift in the mode of public engagement with technology policymaking. Whereas deliberative approaches focus on processual issues that enable a lay opinion public to be constructed from focus groups and consensus conferences so that a public is consulted if not engaged, counterpublic approaches suggest a greater emphasis on the substantive issue of how to enable the public interest to be evaluated and served. This concern has some parallels with the third generation of

technology assessment, which according to Rip (2010) has a greater concern with substantive issues, as well as with work in public policy on levels and types of evaluation (e.g., Fischer 1995).

More broadly, a new set of research questions emerges that suggest a shift of attention to the problem of how to engage the public to the need for a better understanding of the conditions under which precautionary approaches are likely to flourish in the policy process. Because precautionary approaches to regulatory policies tend to be understood as involving a government intervention in industrial innovation, sometimes to slow it down or channel it in different directions, they tend to run into conflict with neoliberal ideologies, which have a stronger market orientation. As a result, the study of science, technology, and publics can be linked to the broader social science research problem of the study of neoliberalism.

To date, STS research on neoliberalism has two main directions. One approach explores neoliberalism as economic science, that is, as a controversy in the field of economics over Keynesianism and import-substituting industrialization (e.g., Babb 2001). A second approach studies how policies associated with neoliberal thought have affected the scientific field under the rubric of the commercialization of science, such as work on asymmetric convergence and academic capitalism (Vallas and Kleinman 2008, Slaughter and Rhodes 2004). Political sociologists of science and technology have also explored neoliberalism and science in the regulatory field (Moore et al. in press). I have also suggested that we see neoliberalism less as an overarching transition in governing regimes and more as a position in an ideological field, in which there are ongoing interactions with agents who operate from the assumptions of social liberalism (or social democracy, as it is known in Europe). The resulting interactions enable an ongoing dynamic of hybrid policies that enable both innovation and political compromise, and a methodology for exploring the ideological valences of public policies becomes possible (Hess in press b). But all of the approaches suggest new problems and new research opportunities at the frontiers of STS and political sociology, and they make possible new research questions involving the study of publics, ignorance, precaution, and neoliberalism.

Conclusions

In conclusion, when we pose the question, “What is the public that understands or misunderstands?” we may arrive at different views of the public. The study of mobilized publics can broaden the intellectual terrain on which issues such as the social responsibility of scientists

can be rethought. Scientists who wish to pursue issues of social responsibility may find that they are in conflict with the dominant agendas of their research field, and as a result their field position may shift as they become subjected to marginalization pressures that Martin (2007) has studied. However, in building alliances with organizations outside the scientific field, it is possible to bring about changes in the research field's agenda that can be better aligned with a broad public benefit.

When scientists look at issues of public responsibility, they need not conceptualize the responsibility as a relationship between an individual scientist and a mass, undifferentiated, lay public. Rather, the relationship between scientists and publics can also involve a partnership with a mobilized public that forms a scientific counterpublic. Although deliberative processes such as the consensus conference can, under some circumstances, provide a channel for increasing public participation in policymaking, STS research may have other contributions. The emphasis on undone science and nescience that emerges from the study of mobilized publics may lead to a substantive contribution to policy studies as well. We do not need a consensus conference to learn that more research is needed on the environmental, health, and safety implications of nanotechnology. We need instead to understand how counterpublics that advocate for more research into this type of undone science can be more effective. Elsewhere I have suggested some alternative mechanisms that might emerge out of this approach (Hess in press b). For example, instead of removing social movements from the process of constructing public opinion because they are stakeholders, the dissensus conference would bring stakeholders together for a debate that airs differences and identifies undone science. Other mechanisms might build greater attention to undone science into funding processes.

In conclusion, when one thinks of the social responsibility of scientists and social scientists, we need to attend to the alternative pathways in this field. One choice of the socially responsible scientist and social scientist is to serve as a doctor of deliberation, but the line of argument that I have outlined here also suggests that we may also serve as midwives of movements.

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