

# REVIEW ESSAY: INCREASING PUBLIC PARTICIPATION IN SCIENCE AND TECHNOLOGY POLICY

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The U.S. House Science Committee had the opportunity in 1998 fundamentally to alter the power structure in United States science policy. Instead of making any substantial improvements or moves toward greater public participation, however, the committee simply reaffirmed the technocratic system of the past sixty years (Sclove, 1998). This system, supported by the upper circles of the scientific community, gives moral responsibility to scientists and opposes any public participation in decision-making concerning science and technology policy on the grounds of scientific autonomy.

The scientific community has used boundary work –the creation of boundaries that segregates areas of knowledge as either science or not science– to maintain its autonomy and to establish technocratic control of science and technology. Currently, the scientific community supports a technocratic system of government in which technically trained experts rule by virtue of their specialized knowledge. This technocratic form of democracy focuses on the role of the expert to make political choices about science (Petersen, 1984). It is governmental decision-making designed to promote technical solutions to political problems. In a technocracy, technical knowledge serves as the basis of power (Fischer, 1990).

In many respects, the U.S. operates under a technocratic system, especially in terms of the creation of science policy. Currently, when the decision-makers do not possess the information required to make their decisions, they turn to experts with specific knowledge on technical issues. Many times the decision-makers use the expert knowledge as policy instead of viewing it as advice to aid the decision-making process. They use the scientific advice, which should be the means to making the decision, as the actual decision. Instead of making the decision, they give the power of choice to the technical experts.

Unlike participatory democracy, technocratic decision making limits participation to only those with specialized knowledge. Individuals are not equal, since the quality and usefulness of their knowledge differs. The nature of science as specialized knowledge fosters technocratic control. Technocrats treat the public as an emotional, irrational entity that requires the services of experts to function. Technocracy quarantines or localizes conflicts so that it can be resolved by the application of some mechanical rule or decision procedure, like cost-benefit taken to the extreme.

In order for a nation to be truly democratic, the institutions that make up that nation need to be participatory. A society cannot be truly open if the institutions that comprise that society are closed. For participation to be meaningful, it must enable citizens to understand the role they play in government and give the public some substantive influence on policy outcomes. Democracy assumes the need for free elections, universal suffrage and formal equality.

### 1

Richard E. Sclove, in *Democracy and Technology* (1995), provides the justification for working toward a more participatory process. He argues that people need to be able to make the important decisions concerning their lives, including those decisions surrounding the design and use of technology. Sclove provides a detailed picture of what a truly participatory society may look like. Such a society would embrace the process of making decisions over the end product of those decisions. For him, participation becomes the focal point for everything and not simply a euphemism for being a consumer. His goal is to create a participatory society where the "common person" has uncommon control of the important decisions concerning his or her life. He reintroduces the participatory ideas of the 1960s and early 1970s (Pateman, 1970) in a truly up-to-date 1990s manner. He calls for a world where experts no longer control.

What is even more impressive than the book is that it is obvious that this is the philosophy by which Sclove lives his life. His Loka Institute—a non-profit research and advocacy organization concerned with the social, political, and environmental repercussions of science and technology—focuses on ways for making science and technology more responsive to social needs. Wherever the topic of increasing par-

ticipation appears—at academic conferences, congressional hearings, foundations, or political experiments— you can usually find him. The desire to integrate participation with science and technology is his life.

Sclove's view is more than just a bringing together of Langdon Winner's (1986) critical philosophy of technology and Benjamin Barber's (1984) concept of strong democracy, it explains why he has almost single handedly taken on a crusade to awaken the somnambulists and reconnect people with technology. He calls for the return to an active communal life, where people take an active role in all dimensions of their lives. Anyone familiar with Sclove knows that for over a decade he has almost single-handedly waged a war to give people more participation in science and technological issues, while limiting the growing role of the expert in society. He calls for a world where experts no longer control.

This is no easy task to undertake. One must begin with a realization that technologies contain a political dimension and may even support dehumanizing ideologically distorted, or impoverished beliefs. Accepting the various positions of the critics of technology like Winner, Lewis Mumford, and Jacques Ellul is simply the starting point for action. The question that Sclove answers is now what do we do. For him, the only possible answer is the rebuilding of the social structures weakened by unrestrained modern technology and a conscious decision to take responsibility for the world in which we live. Sclove provides three key steps for building a more participatory society.

First, Sclove provides "the nuts and bolts of democracy," which not only describes a Barber-like strong democratic society but also shows the impact the currently lack of participation in technological decisions have on community. He provides numerous examples of where non-contemplative adoption of modern technology has alienated individuals as well as severed traditional communal bounds. In contrast, he uses the Amish as an example of a community that has made tough technological choices, but unlike most popular perceptions, has chosen some modern technologies that strengthen their community, while rejecting other technologies that would have hurt their community. He draws on Kant's *moral imperative* as a justification for removing technology as an end and realizing that it is only a means to greater human-centered social ends.

Second, Sclove provides a set of "design criteria for democratic technologies," which gives a series of questions that needs addressing.

He examines a person's entire life and not simply the government aspects of politics. He stresses the need to include community concerns, the workplace, and the perpetuation of social structures, as well as the normal issues of democratic politics in any endeavor to create a more participatory society. A good society for him would support decentralization, appropriate technology, and a sustainable future. For him, life and politics become one. Participation becomes a necessity of life just like the air we breathe. It is part of the social fabric.

Third, Sclove addresses how we can move "toward a democratic politics of technology." He strives to show how a truly democratic community can overcome the incentives of economics as usual. In a world dominated by "value-neutral" economics, he argues that a neo-Kantian morality may actually be preferable. The cheapest product may not always be the best. He argues that technology may even benefit by the inclusion of individuals other than technical experts in the design phase. He ends the book by providing a plan for society's metamorphosis.

Sclove's task is enormous. In a world of global markets, multinational Corporations, scientific and economic experts, nation-state interests, and the Internet, a call to decouple, and take control is unbelievably daunting. Our very culture demands our obedience to the various powers that be—whether from Madison Avenue, the National Academy of Sciences, Microsoft, or the national banking system. What Sclove calls for is the toppling of our society where experts control and a return to personal control. A world where we participate and not just accept what others tell us. A world where new does not necessarily mean good. A world in which every community is unique and not simply collections of ticky tacky boxes where people spend their time when not at work or commuting to work.

Sclove's one major flaw is that, although he provides a brilliant argument for the rebirth of local community and the empowerment of citizens on technological issues, he ends by creating a vast plan focused on national governments and the international dimensions of business. He makes a compelling case that people can make a difference on the local level. He shows that like the Amish, people can and should have a greater role in technological decision making. He paints a picture of a more convivial, possibly human-centered community. However, his next to last chapter strikes off towards tackling the global market place. Instead, he should have remained at

the local level, the level where participation matters and let the misguided internationalists carry on as they were.

Sclove also does what the majority of democratic theorists do in the end. Instead of leaving the option space open to what a participatory society would look like, he creates a structure for democracy. If participation is the key, then a structure cannot be imposed, but needs to flow out of community participation. The problem he faces is how to transform a passive, highly structured society into one that takes responsibility for itself. He provides one possible way of initiating such a social change. The problem is how to awaken the public to idea that such participation may be in their best interest.

None-the-less, *Democracy and Technology* provides the best argument to date for why humans need to retake control of technology from the experts. Few others have made such a concerted effort in or outside of STS. If you want an argument for allowing people to have a say in the technology, they accept, and in all aspects of their lives, this is the book for you. Technology should never be the end goal for society. It needs to be the means for achieving the more lofty and idealistic goals that our forefathers envisioned over 200 years ago.

## 2

The next question becomes how can we actually meet Sclove's participatory society. Allied with those who demand public accountability of science are scholars who argue for greater democratic control of the government's research agenda. No single source provides an adequate answer, though three authors –David Dickson, Patrick Hamlett, and Frank Fischer– examine increasing citizen participation in science and technology policy without technocratic underpinnings. By combining these three arguments, we find the possibility for creating the society that Sclove envisions. Individually they do not provide much help for actually refocusing the institution of science in a more participatory mode, though combined, they provide a number of useful insights. Each piece focuses the argument down into a more workable format.

David Dickson in *The New Politics of Science* (1988) after describing the post-world war two science experience in detail goes on in the last chapter to describes a "mosaic of initiatives and strategies" that moves science toward a more democratic form. He uses

a two dimensional matrix to think out possible strategies to create a more democratic science policy. The first dimension consists of ways to challenge the technocratic model of the corporate-military sectors along the research-development-innovation spectrum at the research, access and applications points. The second dimension consists of those groups capable of increasing democratic participation. Dickson identifies the women's movement, labor, the environmental movement, and the third world as the most likely groups. (He sees industry and the military as already dominating the process due in part to the scientific backlash of the late 1960s and early 1970s.) Unfortunately, he provides only a very general framework that requires more fleshing out.

Patrick W. Hamlett provides us with some more of the detail for creating a more participatory science and technology policy. In *Understanding Technological Politics* (1992), Hamlett argues that science and technology policy resembles all other forms of policy. He finds eight arenas—the corporate-managerial, executive, legislative, regulatory, judicial, popular mobilization, academic-professional, and labor arenas—are the decision-making sites of science and technology policy. Of these eight arenas, Hamlett seems to believe that actors in the corporate-managerial arena hold a privileged position. He agrees with Charles Lindblom (1977) that government decision-makers in market-oriented, democratic societies must share control with corporate decision-makers. He proposes a number of institutional reforms to counter-balance this privileged position of business, including increasing workers' control of industry and stockholder activism. Notwithstanding this limitation, his identification of the various arenas of science and technology policy would be a good starting place for increasing democratic participation. Hamlett's arenas offer a number of new groups for Dickson's matrix for increasing democratic participation. Adding Hamlett's eight arenas to Dickson's matrix, and recognizing that some of the arenas, like the social movement arena, can further subdivide into various social movements, increases the detail and hence the usefulness of Dickson's matrix.

The final level of detail can be found in Frank Fischer's *Technocracy and the Politics of Expertise* (1990). Near the end of the book, Fischer provides a descriptive and theoretical framework for an alternative methodology to technocratic expertise that focuses primarily on the actual research practice. Similar to Dickson, Fischer's framework comes partly from the new social movements in ecology,

feminism, progressive trade unions, neighborhood control movements, consumer cooperatives, and worker ownership. Fischer does provide the most concrete framework, though it focuses on only a very specific piece of the puzzle, the actual research practice. However, only a single component on one axis of Dickson's larger matrix, Fischer also provides a very well defined concrete framework for increasing democratic participation. Nevertheless, because of its limited scope, if implemented, it would not drastically change the current decision-making system. As one piece of the larger Dickson matrix, it is a strong piece that needs the addition of others to succeed.

The importance of these three strategies for us is that together they show the easiest way to increase participation in science would be through increasing the involvement of public interest groups in science. Dickson's strategy provides a number of general suggestions to pursue. Fischer's suggestion, taken as one piece of the larger Dickson matrix, enlarged by Hamlett's additional arenas, provides a possible, strong, concrete method for increasing democratic participation. However, it is only one piece that needs the addition of others to succeed. This provides a useful starting ground for increasing participation in scientific research but gives no specifics to pursue.

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