

4 | Are scientists irrational? Risk assessment in practical reason

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Introduction

The division between those with and without knowledge has become a primary social tension (Beck 1992). The issue is of particular importance in environmental and technology policy-making, generally heavily laden with technical questions. Elsewhere, I have argued that this is the critical question upon which the possibility of participatory democracy hinges in a world of technical and social complexities (Fischer 2000).

Can citizens actually participate? We know less about this than the discussions of citizen participation would suggest, as they are typically framed by outmoded understandings of both science and politics. From the conventional view, the issue looks doubtful. But from a post-empiricist understanding of science and politics, the question becomes more complex and, depending on how one understands participation, much less unthinkable (Fischer 2003b).

Modern-day debates about environmental and technology policy focus on risk. The empirical techniques of risk assessment and risk-benefit analysis have been introduced to bring intellectual rationality to bear on such deliberations. In particular, they are designed to counter what is seen as citizens' inability to decide rationally on such matters, as reflected in their worries about such issues as the siting of nuclear power plants or hazardous waste incinerators. With the blessing of economic and political leaders, the scientific community has fashioned sophisticated statistical decision techniques to compare risks in ways that provide a basis for informed policy decision-making (Covello 1993). Towards this end, the concept of 'acceptable risk' has been advanced to help people see the irrationality of their anxieties about flying in a plane after driving the car to the airport, statistically seen to be much more dangerous than flying. Or worrying about the effects of chemical fertilizers on the lawn while smoking a cigarette.

Risk assessment, however, has failed to do the job. Indeed, confronted with such assessments people seem only to have got more worried. While this has reconfirmed the conviction of many that ordinary citizens are irrational in matters pertaining to science and technology, it has also led others to examine more carefully why citizens respond the way they do.

Such research, generally called 'risk communication research', was initially supposed to find ways to convince citizens of the risk analysts' decisions. Unexpectedly, though, it has uncovered a substantial body of information to show that people merely respond to the risky situations in a different way (Kasperson and Stallen 1991). Instead of focusing on the technical information at hand, citizens process it from a sociocultural perspective. Whereas risk experts see citizens as incapable of digesting technical findings, and thus susceptible to irrational fears, others have argued that their reactions are simply based on another form of rationality. In this view, the problem rests on a limited understanding of the nature of risk, rationality and community decision-making processes (Fischer 2000; Wynne 1996).

Technical knowledge in a sociocultural context

What, then, is this other form of rationality? In their work on environmental risk assessment, Plough and Krimksy (1987) contrast the expert's technical rationality with the concept of 'cultural rationality'. 'Technical rationality', they explain, is a mindset that puts its faith in empirical evidence and the scientific method; it relies on expert judgements in making policy decisions. Emphasizing logical consistency and universality of findings, it focuses attention in public decision-making on quantifiable impacts. 'Cultural rationality', in contrast, is geared to, or at least gives equal weight to, personal and familiar experiences rather than depersonalized technical calculations. Focusing on the opinions of traditional social and peer groups, cultural rationality takes unanticipated consequences to be fully relevant to near-term decision-making, and trusts process over outcomes. Beyond statistical probabilities and risk-benefit ratios, public risk perception is understood through a distinctive form of rationality, one that is shaped by the circumstances under which the risk is identified and publicized, the standing or place of the individual in his or her community, and the social values of the community as a whole. Cultural rationality, in this respect, can be understood as the rationality of the social-life world. It is concerned with the impacts, intrusions or implications of a particular event or phenomenon on the social relations that constitute that world. Such concerns are the stuff upon which the environmental movement is built.

What does this tell us about the ordinary citizen's approach to risk? For the layperson, the concept of risk is understood as much in terms of qualitative, affective characteristics as it is in terms of quantitative relationships. Psychological research into the perception of risk shows citizens' understandings of risk to be made up of a rich, multi-faceted perspective that includes some twenty affective characteristics (Slovic 1992). According to this research, the more involuntary, unfamiliar, unfair or invisible the

risk, the more likely it is that citizens will oppose it (Kasperson and Stallen 1991).

Focusing on how ordinary laypersons cognitively process uncertain information, social psychological research demonstrates the ways in which citizens draw on past experiences in making assessments. Given the complexity of most policy issues, especially technological ones, citizens tend to fill knowledge gaps with information about social process, or what has been called the 'social process theory' of cognition (Hill 1992). Of particular importance, in this respect, are their own experiences and those of the social groups to which they belong.

Not all people, of course, have the same experiences. It is possible to think of a continuum across which people with different levels of experience can be distributed. Individuals such as public administrators or political activists will have considerable experience with particular issues or problems. They develop relatively abstract and well-integrated knowledge structures that actively guide their perceptions and expectations in future decisions. These 'schemas' inform such individuals or groups about how events are expected to unfold, as well as how particular people ought to act in given sets of circumstances (Conover 1984; Fiske and Taylor 1984). They also explain how substantive issues in a particular area of politics interrelate or how decision-making procedures are expected to operate. Members of the lay public spend much less time dealing with and thinking about policy issues and thus hold different schemas. Their ability to perceive and analyse the various dimensions of comparable issues, as a result, is necessarily far more limited, often giving the impression that they are uninformed. What the research shows, however, is that in such situations citizens mainly rely more heavily on procedural than on substantive schemas. Citizens turn to often well-developed, generalized procedural schemas that can be applied to a range of different situations, from political decision-making to committee work in the office.

The move to sociocultural rationality and its emphasis on process is most apparent in the case of uncertain data. Uncertainty opens the door for competing interests to emphasize different interpretations of the findings. 'Wicked' problems such as 'NIMBY' (Not In My Back Yard), moreover, generate normative as well as empirical uncertainty. The question of how to define a situation is as problematic as the question of what to do about it. Competing definitions emerge from multiple, often conflicting, perspectives. Normatively, politicians and activists advance in such cases counter-arguments about the nature or definition of the problem itself. Empirically, each side engages in the politics of expertise, employing the same or similar data to suit their own purposes.