

From 'Deficit' to Democracy: Dialogue, Deliberation and Public Participation in the Biosciences

Pennington J*

Ministry for the Environment, Wellington, New Zealand

Abstract

In 2000 The New Zealand Government established a Royal Commission on Genetic Modification. The Commission consulted widely within New Zealand.

During the course of its deliberations on genetic modification, the Commission heard and received many objections and concerns concerning genetic modification based either on ethical, cultural and or spiritual grounds. The Commission noted that no existing regulatory body was equipped to address these kinds of issues and recommended the establishment of a Bioethics Council. The government accepted the Commission's recommendation and established Toi te Taiao: the Bioethics Council in 2002, with a mandate to inquire into all forms of biotechnology.

Governments are increasingly aware that new developments in biotechnologies and nanotechnology present complex and often difficult ethical and moral dilemmas. To ensure that citizens are fully informed of the potential for good, as well as the risks these new technologies pose new and innovative ways of encouraging public participation in decision-making are being developed.

The Bioethics Council has recently explored other means of engaging community involvement by conducting one- and two-day dialogues with a wide cross-section of the New Zealand public on the subject of human genes in other organisms. The Council is developing and experimenting with a range of dialogic methods, aimed at encouraging New Zealanders to explore and discuss the complex and difficult questions new biotechnologies present, and draw these conclusions into the policy arena.

Introduction

For sometime now there has been a growing momentum in the call for, and use of dialogic strategies that encourage public engagement in biotechnology, the biosciences and nanotechnology. This has been occurring at a time when we are witnessing increasing public concern and opposition to developments in new and emerging technologies. Given the level of government funding and investment in research and development in the biosciences, the opposition to, and/or rejection of, developments in these areas poses problems for political legitimacy and even social integration.

By dialogic strategies I am referring to a variety of methodologies that can be loosely arranged under the rubric of 'collaboration, participation, consultation, communicative interaction and deliberation.' As Hunt et al. (2003, p. 7) suggest "The terms 'dialogue', 'communicative interaction', 'deliberation', and so forth, are used with different and not always convergent meanings in different literatures, and are sometimes used interchangeably." These terms need to be contrasted with consultation; another term frequently used interchangeably with the concept of dialogue. However, analytically and politically dialogue implies very different processes and needs to be clearly differentiated from consultation. I take consultation to signify where a group of stakeholders and/or the public in general are invited to comment on a preset problem framing and ancillary questions. Consultation usually maintains an 'us and them' distinction — and it is up to us what we do with the results of the consultation, to manage and control the process and use of the outcomes. In addition, consultation raises expectations through the inherent implication that responses will be taken into account. Contrast this with the conception of dialogue whose distinctive feature is that it involves all parties participating both in taking and in listening, rather than one party talking and (very often) the other ignoring what is said. This implies that all parties are open to developing and even changing their positions. It is neither top-down nor bottom-up, but starts from the premise that all stakeholders have an equal right to a voice, and that each voice has a right to be heard.

The demand for different ways for the meaningful public participation as to how, why and on what understandings public policies are determined in relation to the biosciences have emerged out of such wide raging societal debates as the use of nuclear power, GM (genetically modified) foods and agriculture, BSE, and the foot and mouth endemic, to name just a few. These crises have undermined public confidence and trust in and science and the public, private and scientific authorities which stand behind them. Scientific accounts of risk probability have typically been the means whereby governments and science institutions have sought to assuage public disquiet. Yet despite the best efforts of science and scientific institutions, the public has increasingly raised issues of risk as of major concern. Public refusal to necessarily accept a priori expert pronouncements and instead to and raise significant and meaningful questions of its own have typically been met by accusations of ignorance, misunderstanding and the impossibility of guaranteeing zero risk by those in authority. In ignoring and/or dismissing their concerns, the public have responded to crises in science and breakdowns in technology with diminishing levels of trust and faith in expert cultures.

Diminishing levels of public confidence and belief in the authority of science to meet the concerns of the public over environmental, scientific and technological 'breakdowns' have frequently been met by governments and scientists with surprise and bewilderment. The initial

response was to embark on a mission to inform. Attempts to gauge levels of public understanding of science date back to the early 1970s, when annual surveys carried out by the US National Science Foundation regularly uncovered gaps in people's knowledge of scientific facts. The 1985 Bodmer Report for the Royal Society placed public understanding of science (PUS) firmly on the UK agenda, and proclaimed "It is clearly a part of each scientist's professional responsibility to promote the public understanding of science." (Wilsdon and Willis 2004, p. 17). In other words PUS came to be interpreted as the transfer of knowledge from scientific experts to a largely ignorant public. However, evidence that a significant shift in attitude in the official position — at least in the UK — towards the public understanding of science can be seen in the House of Lords Select Committee on Science and Technology 2000:

"We have argued above that public confidence and policy based on science has been eroded in recent years. In consequence, there is a new humility on the part of science in the face of public attitudes, and a new assertiveness on the part of the public. Today's public expects not merely to know what is going on, but to be consulted; science is beginning to see the wisdom of this, and to move out of the laboratory and in to the community to engage in dialogue aimed at mutual understanding" (House of Lords Select Committee 2000, p. 245).

In an article published in *Science* in 2002 British scientists stated that the "expression 'Public Understanding of Science' is out of date. It should be replaced by Public Engagement with Science and Technology. The new approach involves the engagement of the public through dialogue, in particular through open and equal discussion between scientists and non-experts that would enable non-experts to become the actual protagonists in the scientific decisions producing social effects.' Recently, Helen Haste in the foreword to a major report for the British Association for the Advancement of Science acknowledged:

"The changing approaches over the past two decades reflect a change in emphasis (from a top-down to a more distributed model of knowledge transfer) and also a greater appreciation that merely explaining or conveying information does not necessarily lead to greater understanding or public trust. It is also important to recognise that 'increasing trust' can be a version of the 'deficit model' if its goals are primarily palliative; the desirable outcome is not compliance but informed critical engagement" (Whitemarsh and Kean 2005, p. 8).

Neither should this reconceptualisation in the relationship between science and the public be seen solely as a British phenomenon; Denmark, Holland, Finland, Norway, Germany, Canada, New Zealand and Australia have implemented a variety of programmes and institutional structures that reflect a shift from 'deficit' to 'dialogue'.

For example, following the report by the Royal Commission on Genetic Modification in 2001 the New Zealand government established Toi te Taiao: the Bioethics Council to promote and participate in public dialogue on the cultural, ethical spiritual dimensions of biotechnology. The government also dramatically increased funding for social research into GM and biotechnology impacts research to the sum of NZ\$7–7.5 million a year. In 2003 The Foundation for Research, Science and Technology (the main provider of state funding for science and technology) contracted a number of research teams to produce information on the cultural, ethical and spiritual dimensions of new biotechnologies and in the same year the Ministry for Research, Science and Technology funded four research projects through its Science and Technology Dialogue Fund to support projects that were directed at experimenting with strategies designed to bring scientists and other stakeholders together to talk about issues relating to science and technology.

This shift in thinking which has accepted public participation in science and technology — at least to some degree — represents an important transition. First, it acknowledges that public concerns and questions over biotechnology are neither conceptually nor cognitively empty nor vacuous. Second, recent developments in the relationship between science, technology and society have begun to question the assumptions and predispositions of science and the institutions of science in the ways in which critically reflect on its processes and problem definitions. However, as Brian Wynne has reminded us public reasoning in relation to GMOs was initially:

“Left to comply with what scientists said about the risks — or if they deviated — to be defined as irrational and emotive. The idea that the public might have different, autonomous frames of meaning which rendered other things salient, was never imagined or entertained” (Wynne 2001, p. 58).

That public concerns over issues such as GMOs raised questions beyond those of scientific risk were regularly screened out:

“To define these other dimensions as ‘context’ and relegate then to media-propagated dimensions is to reproduce and impose an assumed definition of the sovereign *meaning* of the public issue as *science-centred* meaning, when public responses are saying it is not just a scientific issues, as it is *centrally* about the social relations involved – about accountability, control, direction, and representation of science as a creator of innovations and a culture of public policy; in short the undemocratic control of public meanings” (Wynne 2001, p. 64).

The deficit model was a deeply flawed understanding of the public’s attitude to science based on a set of faulty philosophical, psychological and socio-political assumptions.

Public responses to scientific and technological issues consistently pose questions that extend beyond — but also include — conventional scientific understanding of risk and point to the very political nature of the scientific and technological enterprise. We should not be surprised at such an outcome. In a world increasingly reliant on the development of and research into new and emerging technologies, and as we move towards knowledge societies that rely on innovation to drive economic growth, science and technology are likely to become increasingly contested sites of public debate. As Sheila Jasanoff notes, “such far reaching alterations in the nature and distribution of resources and the roles of science, industry and the state could hardly occur without wrenching political conflicts” (Quoted in Wilsdon and Willis 2004, p. 15). As Grove-White et al. point out:

“There is a need for a shift from the understanding of technologies and their associated products as ‘tool’s, to an understanding of them as ‘social processes’. By this is meant that,....different technologies when actuated in the real world, embody different sets of social relations, each with distinctive socially transformative implications in their contexts of application...Conventional practice – implicit in most regulatory cultures - is to treat technologies as if they were simply machines, bearing with them potential physical impacts (pollution, land use, aesthetic use, etc.) but devoid of implications for social identity and relationships meriting advanced reflection and analysis” (Grove-White et al. 2000, p. 38).

Scientific and technological developments and innovations are internally related to questions of distributive justice and democracy and identity; that is, who stands to benefit from technologies that have the potential for radical transformation of human social identity in unforeseen ways and how such decisions are to be made.

It is because scientific and technological innovations raise such far reaching questions that what form(s) and in what forums decision-making on such issues take place will be increasingly contested. Democratic forms of governance are likely to be put under severe pressure unless they fulfil the conditions for normative legitimacy; that is even in situations where people fail to agree or subscribe to decisions made on their behalf that they are sufficiently committed to at least the processes of decision-making that they can live with the results.

As a result of an institutionalised response to public concern, which tended to dismiss the public’s framing of issues as due to ignorance, the desire for certainty or emotive — the deficit model — the legitimacy of such institutions in the public’s eye has weakened. This, to some extent helps explain why governments and science have ‘reappraised’ their relationship to the public and its concerns and why dialogue is increasingly favoured over deficit models of framing public responses to new and merging technologies. James Wilsdon and Rebecca Willis describe the move from deficit to dialogue in taxonomic terms:

“Phase 1 ‘The initial response of scientists to growing levels of public detachment and mistrust was to embark on a mission to inform.’ Phase two marked by ‘the new language of ‘science and society’ and a fresh impetus towards dialogue and engagement.’ To these two stages they add a third phase which they suggest has ‘entered the lexicon of public engagement. Scientists and science policy-makers are increasingly recognising the limitations of existing approaches, and there has been a surge of interest in moving engagement upstream” (Wilsdon and Willis 2004, p. 15).

By upstream, Wilsdon and Willis mean public engagement at the design phase of technologies, where the public can explore “what human purposes are driving science and innovation in the first place.”

Regardless of what part of the ‘stream’ public engagement takes place there appears to be general agreement that *dialogue* between expert and lay cultures; in which non-experts are agents rather than spectators in scientific decisions producing social effects has normative value and that such value is grounded epistemically, morally and politically.

We can, I think, locate the emergence of dialogue as a concept in discussions concerning public participation in new and emerging technologies as corresponding to the rise in theories of deliberative democracy in political philosophy (Wilsdon and Willis 2004, p. 18). Gutman and Thompson provide a representative definition of deliberative democracy. “Most fundamentally deliberative democracy affirms decisions made by citizens and their representatives. Both are expected to justify the laws they would impose on one another” (Gutman and Thompson 2004, p. 3). Or as Daniel Weinstock states: “deliberatists maintain that deliberation should require that citizens formulate *reasons* which might plausibly justify their policy-preferences in the eyes of their fellow citizens, and that through the give-and-take of reasons which deliberation involves, they both *refine* and *improve* their understanding of what is at issue in a policy debate, and *narrow* the differences which separate them from their fellow citizens” (Weinstock 1999, p. 4). Gutman and Thompson also stress the “moral basis for reason-giving [which] is common to many conceptions of democracy. Persons should be treated not merely as objects of legislation, as passive subjects to be ruled, but as autonomous agents who take part in the governance of their society...The reasons are meant both to produce a justifiable decision and to express the value of mutual respect” (Gutman and Thompson 2004, p. 4). The deliberatist objective is to define what constitutes a more valid set of conditions a normative account of democracy must satisfy. Deliberative democracy rejects what is known as *realist* or aggregative model of democracy. Democratic realists hold that democracy is simply “that institutional arrangement for arriving at political decisions in which individuals acquire the power to decide by means of a competitive struggle for the people’s vote” (Schumpeter 1962, p. 123). Those with the most number of votes wins — majoritarianism. The electoral process is modelled on the analogy of the market. Like

producers, politicians and parties formulate their positions and devise their strategies in response to the demands of voters who, like consumers, express their preferences by choosing among competing products. Deliberativists reject this preference model, not because they reject preferences per se but because they see aggregationists as taking expressed preferences as the privileged or primary material for democratic decision-making. "Preferences as such do not need to be justified, and aggregative conceptions pay little or no attention to the reasons that citizens or their representatives give or fail to give" (Gutman and Thompson 2004, p. 15).

Many of those working in the field of public engagement in science and technology share the theoretical and conceptual positions favoured by deliberative theorists. In fact a number of them borrow heavily from deliberative theories. For example Jane Hunt, Dave Littlewood and Bill Thompson in a report to the European Community's RISCUM II program; which seeks to develop ways to enhance transparency and public participation in radioactive waste management express this relationship thus: "The distinction between competitive dialogue and communicative dialogue maps onto the distinction between rational choice theories and theories of deliberative democracy and more generally onto the endemic distinction in political philosophy between politics as competition between autonomous individuals or politics as the collaborative project of a collectivity" (Hunt et al. 2003, p. 10) The view that public engagement in dialogue leads to better democratic outcomes; that it is morally more justifiable and leads to better policy decisions is reflected in much of the current work concerned with science and society. In a recent report to the British Association for the Advancement of Science Helen Haste remarks: 'We see three broad categories of purpose for dialogue:

- Increasing democracy by promoting open and transparent decision-making
- Greater trust and confidence in the regulation of science and the decisions taken
- That better decisions will have been taken" (Whitmarsh and Kean 2005, p. 9).

Grove-White et al., commenting on what they see as the inadequacies of consumer discourse, backs onto Gutman and Thompson's analysis of aggregative models of democracy:

"A corollary of the 'Consumer-Choice-Information model of public engagement is its grounding in what political scientists terms assumptions of naïve individualism....Such assumptions imply that individuals form 'attitudes' in discrete isolation from other similarly self-contained individuals.... In reality people's attitudes and values emerge and are sustained in relationship with others" (Grove-White et al. 2000, p. 33).

For some, the dialogic mode of interaction, communication and understanding brings to the surface a range of human potentialities and capacities. "Dialogue is a form of group interaction involving mutuality of listening, and mutuality of participation in the occupation of

roles such as elaborator, questioner, doubter, problematiser, dissenter, assenter, and so on – where mutuality of participation is taken, in principle, to entail the exchangeability of roles”(Hunt et al. 2003, p. 8). In other words, participants to dialogue are constituted as agents; agents whose identities are not fixed but shift depending on the roles they perform. The ability to adopt different subject positions signifies the existence of another very important capacity: because dialogic situations are interactive participation entails a learning environment, but learning which is very different from the static or ‘top-down’ linear model, which the deficit model assumes. Participants in a dialogue process must be able to move from speaker to listener and in the process learn from the other’s perspective. For Hunt et al. dialogic practices are, “from the perspective of learning theory.... inherently communal processes which benefit from a recognition of their collaborative and dialogic character. The development of understanding is *not* something one person brings and transmits, but something that is collectively produced in dialogue” (Hunt et al. 2003, p. 49). And:

“Participatory dialogue-based activities can be construed as part of a process of social learning involving the full range of social actors including institutions. Such broad social learning implies the bringing together of different forms of knowledge and different value systems in the service of a collaborative enterprise...Writing of extended epistemologies Reason is designating a situation in which different knowledge resources collaborate towards the development of greater communal understanding” (Hunt et al. 2003, p. 50).

Knowledge is not something lying to hand, out there so to speak, it is constructed in dialogic encounters and succeeds when it involves a variety of epistemological points of view. Equally learning is an interactive process, such that individuals are “amenable to changing their minds and their preferences as a result of the reflection induced by deliberation” (Dryzek 2000, p. 31).

The idea that the dialogue process provides a new model for more democratically informed science and is suggested by Brain Wynn in a recent collection of essays dedicated to such issues:

“Reflecting these tidal shifts (from a deficit model to a dialogic one), a huge flowering of practical and analytical work aimed at such public engagement, dialogue and mutual understanding between science and public has erupted since the late 1990’s.....This shift embodies the potential for new, constructive models and practices of citizenship, human subjects and, correspondingly, of knowledge and ‘epistemic agency’ as a key, novel dimension of citizenship” (Leech et al. 2005, p. 66).

One way in which those working in science and technology studies (particularly those who draw upon the sociology of scientific knowledge) have sought to democratise science and technology to through dialogue is by bringing a critical lens to issues of ‘framing’ or problem

definition. As Leach et al. explain “Thus, science has been recognized as needing to accept its own cultural boundaries, frames and blinkers that obscure and patronize the intellectual and moral substance of other ways of knowing” (Leech et al. 2005, p. 7). And as a number of commentators have pointed out the institutions of scientific knowledge have failed to recognise other kinds of knowledge framed with other practical cultural assumptions, meanings and life-worlds:

“Publics, whether rural farmers in Africa or users of Health services in the UK, have been acknowledged as having not just other bodies of knowledge, but also *other ways of knowing* — different systems of meaning, saliency and value — that need to be taken into account.

In dividing scientific matters and ethical concerns so absolutely, scientific knowledge, commitments and assumptions are protected from critical public examination including the critical self-reflection on the part of those institutions dominating the policy agenda. To this culture this idea is unimaginable that those ethical concerns might be *interwoven* with knowledge issues, and might be intellectually substantive and amenable to rational debate even if not deterministically-resolvable” (Wynne 2001, p. 56).

Much recent work in science and technology studies has highlighted the contribution indigenous and ‘local’ forms of knowledge make in understanding the complex environments in which humans interact with the social and natural worlds. Unfortunately, too often in the past as many Indigenous peoples and others have found to their cost, their knowledge has often been dismissed as vacuous, emotional and irrational. Today we are perhaps beginning to see a newly-discovered sense of appreciation by science, policy-makers and governmental organisations for the salience of public knowledge “In both developing and developed society contexts, therefore, it has been accepted, at least in principle, that science can gain democratic legitimacy only if it recognises its own need to understand itself in relation to these other cultures, and to learn to respectfully to negotiate with and accommodate to them” (Leech et al. 2005, p. 9).

The call for a broader politicised democratisation of science has important implications for how one understands citizenship. Mainstream approaches to ‘citizen involvement’ with science and technology have been based on implicit models of the citizen grounded in versions of liberal theory. In these citizens are either expected to engage passively with expert scientific institutions. This contrast with a model of the citizen as autonomous creators and bearer of knowledges located in particular practices, subjectivities and identities, who engage in more active ways with the politicised institutions of science. Such citizens do not act solely as individuals, as in liberal theory, but through emergent, and sometimes global,

social solidarities that may unite people around particular issues and visions, whether these are fluid and shifting with circumstances, or more lasting.

In a recent article Andy Stirling discusses the social appraisal of technologies and science in terms of strategies for '*closing down*' or '*opening up*' policy to wider discourses.

"If the social appraisal is about '*closing down*' the process of technology choice, then the aim is instrumentally to assist policy-making by providing a means to weak or strong justification....the role of the social appraisal lies in cutting through the messy, intractable and conflict-prone diversity of interests and perspectives to develop a clear, authoritative, prescriptive recommendation to inform decisions... Yet only in this way — so the argument goes — can we achieve the effective management of policy making, enable an efficient and proportionate allocation of resources and, through mitigating unnecessary conflict, foster a satisfactory level of social and political cohesion."(Leech et al. 2005, p. 228).

On the other hand, social appraisal that seeks to '*open up*': "Here, the emphasis lies in revealing to wider policy discourses any inherent openness, contingency and capacity for the exercise of social agency. The aim is then to examine the degree to which the results obtained in appraisal are sensitive to different framing conditions and assumptions." Stirling goes on to add "'Decisions' or other explicit social commitments will, of course, still need to be made" (Leech et al. 2005, p. 229) but "appraisal conducted in '*opening up*' mode might be seen as substantively more coherent and normatively more consistent with the prevailing institutions and procedures of representative democracy" (Leech et al. 2005, p. 229). Despite the fact that '*opening up*' "the results may be ambiguous or equivocal in terms of what constitutes the single 'best' way forward" (Leech et al. 2005, p. 229) because a contestation of frameworks has taken place, decisions and policy-making will be both better informed and have greater legitimacy.

Democratising or '*opening up*' science, technology and policy-making to enable citizens to play a more active and constitutive role is something to be applauded. The greater willingness by governments, science institutions and policy-makers to open science and technology to a dialogue with the public demonstrates that some of the lessons of the past have been learned. It remains an open question however to what degree this new enthusiasm for dialogue and deliberation signals a more democratic future.

References

Atherton E, Hicks T, Hunt J, Littleboy A, Thompson B & Yearsley R 2003, 'Dialogue Process', Riscom 11, Deliverable 4.11.

Dryzek J 2000, *Deliberative Democracy and Beyond*, Oxford University Press, Oxford.

- Du Plessis R, 2003, 'Democracy, participation and 'scientific citizenship: New Zealand initiatives', *Policy and Politics International Conference on 'Policy and Politics in a Globalising World'*, Bristol, 24-26 July.
- Farrelly C 2004, *An Introduction to Contemporary Political Theory*, Sage Publications, New York.
- Grove-White A, Kearnes M, Miller P, Macnaghten P, Wilsdon J & Wynne B 2004, 'Bio – to – Nano? Learning the Lessons, Interrogating the Comparison', A Working Paper by the Institute for Environment, Philosophy and Public Policy, Lancaster University and Demos.
- Grove-White R, Macnaghten P & Wynne B 2000, '*Wising Up*', A Research Report by the Centre for the Study of Environmental Change, Lancaster University.
- Gutman A & Thompson D 2004, *Why Deliberative Democracy?*, Princeton University Press, New Jersey.
- House of Lords Select Committee on Science and Technology 2000, *Science and Society 3rd Report*, London, HMSO.
- Hunt J, Littlewood D & Thompson B 2003, 'Developing Participatory Consultation – a review of learning from our experimental dialogue processes', Riscom 11 Deliberable 4.10.
- Hunt J, Day K & Kemp R 2001, 'Stakeholder Dialogue: Experience and Analysis', Riscom 11 Deliverable 4.1.
- Hunt J & Wynne B 2000, 'Forums for Dialogue: Developing Legitimate Authority through Communication and Consultation', Centre for the Study of Environmental Change, Lancaster University.
- Irwin A 2001, 'Constructing the Scientific Citizen: Science and Democracy in the Biosciences', *Public Understanding of Science*, vol. 10, pp. 1-18.
- Leach M, Scoones I & Wynne B (eds) 2005, *Science and Citizens: Globalization and the Challenge of Engagement*, Zed Books, London, New York.
- Royal Commission on Genetic Modification 2001, *Report of the Royal Commission on Genetic Modification – Report and Recommendations 2001*, Wellington.
- Schumpeter J 1962, *Capitalism, Socialism, and Democracy*, Harper and Row, New York.
- Weinstock D 1999, 'Democracy, Value and Truth: Saving Deliberation from Justification', <<http://www.philo.umontreal.ca/texts/Weinstock-Deliberation.pdf>>.
- Whitmarsh L & Kean S 2005, *Connecting Science*, A Report to the British Association for the Advancement of Science.
- Wilsdon J & Willis J 2004, *See-through Science*, Demos, London.

Wynne B 2003, *New Zealand Social Research on Impacts of Genetic Modification and Related Biotechnologies: an international strategic review*, Final Report for the Ministry of Research, Science and Technology.

Wynne B 2001, 'Expert Discourses of Risk and Ethics on Genetically Manipulated Organisms: the Weaving of Public Alienation', *Politeia*, Anno. XV11, no. 62.