

## The Balance Between Expertise and Authority in Citizen Engagement About New Biotechnology

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### **Abstract**

Academic-researcher-led public engagement and consultation on new biotechnology provides information about new biotechnology to the public, and solicits their attitudes, beliefs and understanding about the technology. A burden associated with the democratic ideals of transparency and accountability encourages researchers to provide accurate information to the public. Less recognized is their role as actual, or perceived, authorities to provide new knowledge and to make policy or regulatory decisions. This paper focuses on the first of these two – the conflation between expertise on the subject of the engagement and the authority to represent that subject in an engagement process. While expertise, or at least accuracy in portraying expert knowledge, is consistent with transparency and accountability, it is argued here that authority in the representation of expert knowledge may be inconsistent with the intent of public engagement and consultation.

### **Introduction**

Controversy over genetically modified food has highlighted the public's need for improved communication regarding new agricultural biotechnology (Ruse and Castle 2002; Frewer, Howard, and Shepherd 1995). National citizen engagement exercises that assess citizen attitudes toward potential genetically modified foods are now an almost routine feature of new biotechnology introductions. The general intent of these exercises is to test the waters to evaluate, in advance of introducing a new technology, the potential public receptiveness. Knowledge about the level of acceptability is then often used as a means to develop appropriate communication strategies and to determine whether existing regulations adequately capture public concerns about the new technology. Engagement of the public on new biotechnology requires that a knowledge gap be overcome, since people can hardly be expected to give their views about a new technology if they have never heard of it. In the course of an engagement

exercise, there is a two-way flow of information to members of the public about the new technology, and from them to the individual(s) running the meeting, often an academic researcher, working in conjunction with government and industry.

The need for information delivery, however, raises serious methodological and substantive complexities about the dual role of the academic researcher as disinterested accumulator of information from the public versus their role as a transmitter of information to the public. To begin with, there is the problem about whom researchers may be perceived to represent, even if they claim disinterestedness, when they are providing information about biotechnology. Engagement about biotechnology takes place in an environment characterized by polarized and entrenched views. Researchers may believe that they are providing their knowledge and expertise as publicly-minded educators, but at the same time their credibility, and the success of their research, is dependent upon their ability to avoid being regarded as an authority over expert matters, one who has some kind of normative claim to this authority that would induce ordinary citizens to privilege their views. Can this balance be achieved?

This paper evaluates the possibility of balancing the transmission of information, data collection, and the potential for the perception of authority in conducting citizen engagement exercises using information communication technologies. It begins with considerations about why engagement exercises are undertaken, what they strive for, and the core features of public engagement. It then turns to a discussion about a novel methodology using new information communications technologies that was deployed to assess consumers' base-line acceptance, rejection, concerns, and need for information about new food biotechnology. Provision of information about the new biotechnology to the public is a necessary component of this study, and is greatly facilitated by the use of information communication technologies, but the study results leave open the possibility that the responses to new biotechnology might be conditioned by the fact that it is academic researchers who are providing the information. This raises an ineluctable problem about the balance between the objective of providing information as a disinterested, trustworthy expert to the public, and the potential for the information to be construed by members of the public as having come from an authority whose provision of information becomes construed as having weight above and beyond the content of the messages given to the public. Disinterested academic participation may be an impossibility, but this need not undermine the objectives of public engagement. In fact, the contrary is true:

trusted (if potentially authoritative) sources information are required to stimulate and sustain public involvement about the direction of science and technology development and its regulation in an open and democratic manner. There may be a need, however, to ultimately balance the epistemic demands of engagement and consultation against the need to responsibly monitor the creep of unanticipated authority.

### **Public Engagement and Consultation**

Public engagement and consultation are responses to the problem of public disengagement from democratic processes, especially as it appears in low voter turnouts in democratic states (Putnam 2000). The problem of disengagement focuses on the fact that public association is problematic in democratic systems when the voluntary withdrawal from the institutions of democracies has system-wide, which is to say, other-affecting, consequences. This is quite unlike failing to show up to one's bridge club. Consequently, within the Organisation for Economic Cooperation and Development, as well as within civil society, recent interest in citizen participation in democratic institutions has grown. Included in this response is a drive toward having public input in specific decision making process faced by government, such as the development of policies and regulations for a wide variety of decision making processes, including those with respect to new biotechnology development and adoption.

In a recent paper (Castle and Culver 2006), we suggest that academics come to the problem of disengagement by providing researched accounts of the empirical trends and theoretical impact of disengagement, and by participating in measures to correct the problem. In the latter activity, academics work as consultants to government or industry, or carry out funded research. Researchers in this capacity function in different ways, ranging from action that simulates polling or, in other cases, market research, and sometimes their efforts have a more direct connection to policy making. Since researchers are recipients of funding, and governments act at a distance from the academic research community, their relationship is often characterized by reciprocal altruism which comes with few guarantees.

As we point out, there is a crucial difference between academics providing information and getting feedback from the public, and interactions with the public where the intent is not simply to take the public's temperature, but to explicitly gather information that will be used in the development and

implementation of policy. We argued that there is a crucial distinction between engagement and consultation, and this distinction can be used to understand the phenomenon of disengagement, as well as to understand the central differences between two different approaches to public participation in policy development.

Engagement of citizens by government or civil society or other groups is the 'push' of information to citizens, often involving the solicitation of views on issues related to the information provided. The chief objective in engagement exercises is to reliably convey information and to listen to views offered by citizens. Engagement is guided by the ideals of transparency and accountability, to which governments and participating academics are usually strongly committed. This commitment, however, should not be mistaken in the public's eye for being either willing or able to address perceived problems using public input. On the contrary, an effective engagement can involve the push of information to the public, thereby meeting an important epistemic requirement, without the views of the public being overtly connected to a decision step. Were there to be miscommunication about the limits of engagement, the public could be misled into thinking that academic researchers have greater authority to convey information relevant to decisions to the public, and to return citizens' views to forums where this information is acted upon.

Were citizens aware that their responses to the information that they receive are explicitly connected to a policy formulation and implementation process, they would be involved in a public consultation. Public consultation, like engagement, involves the 'push' of information to citizens as well as the 'pull' of preferences from citizens. In our view, (Castle and Culver 2006), for a consultation to have taken place it is by definition necessary that citizens know that some actual decision is to be taken and that is why they are being consulted. Consultation thus creates binding obligations for those who consult, meaning that they not only have transparency and accountability conditions to meet, but they also have a broader role as authorities in a democratic process to take information forward to decision making processes that are respectful of the impact the decisions will have on citizen autonomy.

The central difference between engagement and consultation is that the latter has the potential for being explicitly democracy-enhancing if greater citizen participation clearly leads to decisions that will affect citizens' lives. Engagement has a democracy-enhancing role, but it has a lesser impact because its results are not explicitly tied to decision-making. What each shares in common is that those

conducting engagement and consultation “push” information about new biotechnology, for example, and therefore bear responsibility for the accuracy and transparency of that information. In the case of consultation, this epistemic condition is met with a responsibility for democratic use of responses to new information, which is a shared obligation between researchers and government officials. Elected officials use this authority to make decisions, and academics are their proxies in the public domain. In the case of engagement, academics are only mistakenly viewed as proxies for decision-makers, and are not themselves decision-makers. A difficulty arises since citizens participating in public engagement exercises understandably wish to reach beyond the provision of information to see how and when it will be used. So as citizen’s expectations of academics can exceed their actual authority as decision makers, so too can engagement and consultations appear to be delivering not just transparent and accurate information, but information which has been legitimated by disinterested parties in the academy, and elected and hence authoritative decision-makers in government. To see how this problem can arise, it is worth briefly considering the details of a national public engagement exercise on agri-food biotechnology.

### **Engagement on Agri-Food Biotechnology**

Agri-food biotechnology is often controversial, and while crop biotechnology has not generated the public outcry seen in Europe, the obvious differences between crop and animal biotechnology suggest that public controversy could attend any attempt to introduce genetically modified animals into the food system. For this reason, a public engagement study was launched in 2002 to engage citizens before the technology was approved by regulators and on its way to commercialization (Castle, Finlay and Clark 2003, 2004; 2005). In this public engagement exercise, 1365 Canadian citizens comprising a stratified demographic sample were professionally recruited in eight city centers in groups of 30. This study initiated public consultation about two proposed transgenic animal products, salmon and pork, and begins the task of identifying issues of significance for the public relating to transgenic animals and their introduction to the marketplace. Citizen reactions were gauged as they progressively became better informed about each of two potential new product concepts. A combined open- and closed-ended methodology was used to identify consumer reactions on an unencumbered basis to animal concepts revealing progressively more details concerning the benefits and risks of the two technologies to consumers. Qualitative data were collected using booklets, in which citizens wrote answers

to open-ended questions, later transcribed to text. Quantitative data were collected using individual wireless handheld units and Resolver Ballot software.

Information interventions were chosen which provided consumers with levels perceived understandable, while not overly-taxing in terms of information load. Experts involved in the development of the technologies were consulted regarding product descriptions and known risks and benefits to be included in the information sets. The first information set described the technology, while the second included benefit and risk information. Next, consumer researchers were consulted regarding the palatability of the information manipulations for consumers. Revisions were made where advised. The two sets of information interventions were pilot-tested. Follow-up questioning with citizens sought to determine whether they felt adequate information had been provided concerning the technology for them to be able to assess purchase intent. Additional specifics about transgenic salmon and pork requested by consumers were unavailable, given the state of knowledge and research about each technology.

In order to disguise that the intent of the questionnaire was to probe attitudes towards two GM products, warm-up questions asked subjects to rate some farming industries on a familiarity scale. In a paper-and-pencil format, they were asked to indicate any issues that they thought of for each of the following industries: pig farming, cattle farming, fish farming and poultry farming. This task served as an orientation to the open-ended questions that subjects would experience regarding transgenic animals.

Citizens were initially asked to 'describe everything that comes to mind when you hear the term transgenic pig.' Citizens indicated their free association responses in an individual booklet. The next set of questions asked citizens to rate transgenic pigs on four, seven-point attitudinal scales anchored by 'bad ...good,' 'not interesting ...interesting,' 'not important ...important,' and 'not acceptable ...acceptable.' To each of these enquiries, subjects indicated their response using the wireless hand-held units, with corresponding numbers from 1 to 7 indicating levels on the scale. Next, subjects indicated the likelihood that they would purchase transgenic pig or products made from it. A seven-point scale was used, anchored by 'not likely' and 'very likely.'

Following this initial set of responses to the term 'transgenic pig,' citizens were provided with additional information. They were again asked to use their booklets to indicate everything that came to mind when they thought about the

concept. They were then cued to respond using their hand-held units to the same four attitudinal and purchase intent questions. A second information intervention revealed more information about the benefits and risks of the product to determine any changes to citizens' attitudes and purchase intent as a function of more knowledge. Citizens were prompted with the same free association, four attitudinal and purchase intent questions after this new information was presented. Finally, citizens were next asked to indicate in their booklets what they thought the benefits and risks would be of the product concept. The same procedure was then repeated for transgenic salmon.

This study initiated public consultation about two proposed transgenic animal products, salmon and pork, and began the task of identifying issues of significance for the public relating to transgenic animals and their introduction to the marketplace. Consumer reactions were gauged as citizens progressively became better informed about each of two potential new product concepts. A combined open and closed-ended methodology was used to identify consumer reactions on an unencumbered basis to animal concepts, revealing progressively more details concerning the benefits and risks of the two technologies to consumers.

Reactions were different for the two agri-food biotechnologies. With salmon, consumers were able to focus relatively single-mindedly on the genetic modification that had taken place. When they first learned about the process of modification, ratings dipped significantly and negative beliefs concerning the process were reported. Potential environmental risks with transgenic salmon are currently uncertain. Consequently, at the second information intervention, citizens were able to focus cognitive activity on the potential of a lower price for transgenic salmon. These positive beliefs produced a lift in attitudes back to the baseline level.

Overall, it appears consumers felt most positively informed about transgenic salmon at the final information intervention. Once subjects learned a little about the concept (modified to increase growth hormone; reach maturity faster), attitudes toward the technology dropped and were associated with anticipations of bad taste. Once the second information described how the fish are produced, attitudes increased, particularly for those who began to associate rapid growth with lower consumer costs. Ultimately, a trade-off between cost and taste began to emerge, with more men than women willing to try the product, even though fewer of them admitted to being regular household food purchasers.

With transgenic pork, however, the reason for the modification required a detailed explanation about the elimination of the need for a feeding supplement and the resultant environmental benefit. An immediate lift in ratings for pork resulted and was maintained across the two information interventions. Providing information also increased favourable attitudes toward transgenic pork, especially after the first information intervention where citizens learned that the transgenic pig is environmentally beneficial. Positive attitudes toward the transgenic pig increased slightly as the benefits and risks were described, but were not large jumps, probably because the effect of a price reduction was captured in the first information intervention. The vast majority of citizens had a favourable attitude toward the technology so long as it would be less expensive, but of comparable quality.

This study takes advantage of the opportunity to proactively engage the public and understand citizen attitudes prior to market introduction of a new technology. Citizens are not vigorously embracing either of these technologies, but their response is equal if not enhanced when disclosure occurs. Lambraki (2002) reported that trust in the regulatory process is currently high, but citizens nevertheless want to know if the foods they are buying are genetically modified. Citizens may not feel sufficiently confident to evaluate the significance of the modification, but with disclosure, at least consumers with more expertise can do so. The public ought to be able to obtain information they feel they need to make informed choices around the adoption of new technologies for their families, perhaps via labelling or broader information dissemination. This study shows that attitudes and purchase intents for new products are affected by information about the product's provenance and the implications of the production processes for people and the environment. Providing this information appears not to decrease opinions, if an appropriate level of information about the risks and benefits of the new technologies is provided. Government regulators and policy-makers can apply consumer insight from this study to avoid similar objections for pork and salmon voiced by citizens surrounding the introduction of genetically modified crops.

### **Discussion: Expertise and Authority**

The transgenic animal study described here is an example of a public engagement exercise in which new knowledge of consumer responses is generated by a study which proactively seeks to establish a base-line of data on consumer acceptance



of genetically modified animals for human consumption. While the members of the public were not led to believe that their responses would have any direct bearing on policy or regulation development and implementation, the insight gained from this study could be used in this way. Equally, from the researcher standpoint, the information could lead to more direct insight into consumer information needs for input into future communication testing. In fact, it has already formed the basis of public engagement work on genetically modified food labelling supported by the Canadian Networks of Centres of Excellence (NCE) for Advanced Food and Materials Network (AFMNet) and a study on organic standards and consumer preferences in a study supported by the NCE for Aquaculture (AquaNet).

Like many other public engagement exercises related to new biotechnology (Gaskell and Bauer 2001; Lambraki 2002), this study took as its starting point a view about the source of the controversy about genetically modified food. While not endorsing any variant of the deficit model of public consultation in which opposition to new technology is attributed to lay-ignorance about scientific matters, there is a sense in which controversies arise because of people's response to not having information. The symbolic affront of not being given information that could lead to autonomous decision-making is arguably the most significant ethical issue in genetically modified foods, one which communication experts suggest would have been easily avoided with better public relations (Einsiedel 2000; Einsiedel, Finlay and Arko 2000). The hypothesis is that proactive engagement might have some positive acceptance of new biotechnology, even if it does not lead to adoption and purchases in the marketplace. A second hypothesis is that it probably matters how the public is exposed to new biotechnology. Part of the resistance to genetically modified crops lies in the lack of obvious consumer benefits. Farmers and seed companies might benefit, but the consumer does not see a drop in price or an increase in quality. Consequently, had the initial release of agri-food biotechnology shown direct and significant benefits to consumers, in technologies they would predictably embrace, there might be less controversy about genetically modified foods. A third hypothesis is that when people have an opportunity to deliberate risks and benefits of new technology prior to be exposed to it, or compelled to make a decision about it, greater acceptance might result. A progressive release of information, and corresponding follow-up and analysis could make for greater acceptance, or perhaps in some instances less volatile rejection, of new biotechnology.

The proactive stance adopted in this study means that the “push” of information to the public that characterizes public engagement and consultation techniques is done prior to the technology’s market introduction. This approach is usefully contrasted with, for example, rolling polls about existing, controversial technology such as nuclear power. In the latter case, the opportunity for public input that would change or prohibit the new technology’s introduction is at best shortened and but may be altogether missing. Proactive engagement holds open the possibility that the public can respond to technology in ways which reflect their ethical view, and which can meaningfully incorporate aspects of how they would interact with, and respond to, the technology. The problem is that proactive public engagement may be difficult to dissociate from attempts to do market studies to gain perspective on how to best introduce new biotechnology. If researchers conducting engagement exercises were able to appear to the public as trustworthy and disinterested sources of information about new technology, matters might be different. They could approach the engagement with the public proactively, so that the results of the engagement could potentially feed into a decision-making process about whether to adopt or abandon a technology.

Information pushed to the public comes from a perspective, often representing the perspectives and interests of academic researchers that are at the front lines of public engagement. Academics may be able to get access to publics for longer and more intense public engagements than, say, pollsters, because they are generally highly trusted sources of information, and their moderate accountability to the public makes them all the more trusted (Frewer LJ, Howard C, Hedderley D, and R. Shepherd 1996). In addition, in the North American context, academics are frequently engaging the public on new technology developments, like novel genetically modified foods, that are of a kind with other technology developments. Contrasted with certain member states of the European Union, North American public engagement on biotechnology often meets with public enthusiasm, rather than resistance. This enthusiasm can be associated with prevailing positive attitudes about the role of science in society, and more specifically, the common attitude of technological optimism. While this attitude is not necessarily at the forefront of public views about agri-food biotechnology, mostly because fewer than 5% of North Americans farm and the rest tend to be urbanites disassociated from the land, it is in the case of medical biotechnology.

The difficulty for academics conducting public engagement exercises involving a receptive, interested and trusting public is that the information that they need to push to the public may be met with less than critical attitudes, and the responses

they receive back can be more positive than they would be were less trusted sources of information used, such as industry groups. The root of the problem is that the epistemic content, which one can imagine lying on one axis from true to false statements, intersects with a normative access about the trustworthiness and accountability of the information giver on the other. When encountering academics, the public can learn quickly about new biotechnology, and they can also come to more readily trust that information than from other sources. Yet this effect runs contrary to the explicit goals of most social research, namely to provide expert knowledge and gain knowledge about public beliefs, understanding and perceptions of new technology. The orthodoxy is that this epistemic activity should not be conflated with providing intended, or accidental, normative guidance to the public. The desired outcome is that the public's normative response to the epistemic inputs they are given will be a purely respondent variable to the information they are given, and so the research is concentrated on the potential for misleading with the epistemic inputs by providing partial, mis-, dis- or non-information.

Concentrating on the epistemic inputs that will ultimately be the basis of the information given to the public is no doubt important for giving the public true information, for ensuring researcher transparency and accountability, and for improving the usefulness of the information "pulled" from the public as potential inputs into decision-making. Unfortunately, less attention is generally paid to the potential for academic researchers to nuance the results of their research in light of their social position and trustworthiness. Trust in researchers is often taken at face value as a means of conditioning communication channels. Trusted researchers have access to the public, a higher level of public willingness to participate, and greater receptivity to new information. When the public considers the academic researchers as having authority over the information they are conveying, and privileged connectivity to government or industry decision making processes, researcher expertise to conduct the study is accompanied by a sense of researcher authority to "push" and "pull" information, to have authority over a specific kind of social process, and to have authority, even if limited, in antecedent or subsequent decisions.

On its own, this observation might not matter much, or might be easily categorized as the bias that any researcher brings (their mental schema, socio-economic status, subtle cues about their attitudes, etc.) to a public engagement exercise. The context in which public engagements are being conducted has, however, changed. Were there scientific facts that were beyond dispute, or if

there were new biotechnology whose risks were fully and reliably known, the effect of the interaction between researcher expertise and their authority might be the central methodological issue in conducting public engagement. This is not the scenario new biotechnology finds itself in, however.

Rather, it is increasingly the case that science and technology innovation inevitably generates social problems that require scientific inputs to solve them. These problems are becoming increasingly complex and often elusive (Ravetz 1972; Funtowicz and Ravetz 1993), yet policy and regulatory decisions must be made. Decision-making in the post-normal age involves scientific uncertainty and risk (Beck 1992), and the expertise of researchers capable of engaging and consulting with the public is playing a greater role in many jurisdictions in supporting roles to policy makers and regulators. The involvement of the public in the governance of biotechnology innovation is a relatively new, and certainly not widespread phenomenon, and it is regrettably borne from hard lessons learned from other situations in which technologies have failed, and so too has the communication of the risks drastically failed (Di Marchi and Ravetz 1999). As engagement and consultation of the public becomes more commonplace, and academics are drawn more frequently into their support role, the potential for becoming experts and authorities on biotechnology governance in their public face will increase. Jasanoff has recently called for the development of technologies of humility (Jasanoff 2003), but we may also need to watch carefully for hubris arising in public engagement and consultation if the authority of those involved with the public reaches beyond the mandate entrusted to academics working with the public.

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