

## SCIENTISTS AS CITIZENS: TALKING ISSUES VERSUS TALKING SCIENCE

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### Abstract

What happens when you invite an academic scientist and a regular member of the public to come and talk to each other on-to-one about environmental issues? This project attempted to explore, develop and pilot a new forum for deliberative interaction, the deliberative exchange. The deliberative exchange was designed as a facilitated one-to-one conversation, based around important scientific, ethical or policy issues, between two persons from very different backgrounds. The participating groups were made up of six academic scientists based at the University of Newcastle upon Tyne and six members of the public recruited from the local community in Newcastle upon Tyne.

The one-to-one exchange provided an unusual context to study communication between scientists and non-scientists. None of our non-scientists had previously had an opportunity to talk at any length to a scientist about science related issues. All of the scientists had some previous experience of public engagement but a detailed discussion with a single member of the public was quite a different proposition. In fact, due to the variety of topics involved, the scientists found themselves in some of the exchanges discussing issues on which they were not expert. The scientists thus had to reconsider the role they were playing within such exchanges.

The research presented here reports on the experience of the academic scientists during the six deliberative exchanges that participated in. The results reported are still very tentative and requiring further enquiry and analysis. Three of the six scientists, at least part of the time, took on the role of 'science communicator'. These scientists were willing and able to talk science and engage in science explanation across a range of issues involved in the project. In contrast, the other three scientists deliberately avoided talking science. They restricted themselves to discussing 'the issues' with the non-scientists. They didn't draw on their own research experience or engage in detailed science explanation. For the 'science communicators', science, or at least relevant environmental science, was not that special – it was more systematic than lay knowledge but they didn't consider it difficult to understand. The 'issues only' scientists, on the other hand, had a more esoteric conception of science, which may have discouraged them from trying to explain science to the non-scientists.

**Keywords:** Scientists; Members of the public; Science Communication; Deliberative Exchange

### 1. Introduction

Deliberative democracy has been a research agenda of increasing interest in an array of social science disciplines in recent years. In essence, deliberative democracy is concerned with the potential for deliberation between citizens to contribute to the political process, in particular for scientific, ethical or policy issues. A range of deliberative forums have been developed and used in recent years to facilitate this type of deliberation between citizens such as citizens juries (see [1], [2], [3]); consensus conferences (see [4], [5]); issues conventions [6] deliberative mapping [7] and deliberative pools [7], [8]. The research reported in this paper was collected during a pilot study conducted to explore the potential of a novel form of deliberative democracy - the Deliberative Exchange. It was conceived as a novel forum for mutual learning through communication between different stakeholders in deliberative debates. The deliberative exchange was designed as a facilitated one-to-one conversation, based around important scientific, ethical or policy issues, between two persons from very different backgrounds. The one-to-one exchange was designed to contribute to the study of new forms of deliberative institutions by providing the research team with the opportunity to explore and examine: 1) A novel deliberative forum in the context of the more established techniques mentioned above; 2) The potential of the exchange as a context in which features of the deliberative process and its effects could be studied and 3) the effects of participation on formal deliberation.

For the purpose of the pilot study, the 'Environment' was chosen as the overarching topic upon which the conversations would be based. The participating groups were made up of six academic scientists based at the University of Newcastle upon Tyne and six members of the public recruited from the local community in Newcastle upon Tyne. The pilot study had five key objectives to:

1. compare the conceptions of the environment held by the scientist-citizen and the citizens, including the way that scientific ideas were related to philosophical, ethical, political, social and economic ideas;
2. understand the obstacles to effective two-way communication between scientist-citizens and citizens; identify the strategies used to overcome these obstacles and consider the wider relevance of those strategies for the promotion of effective public participation in environmental governance;
3. assess the effects of a series of one-to-one deliberations about environmental issues on the environmental beliefs, attitudes and behaviours of scientist-citizens and citizens;
4. investigate the effects of a series of formal one-to-one deliberations on participants' deliberative behaviour, including the connection between formal and informal deliberation;
5. assess the merits and defects of the deliberative exchange as a new deliberative institution;

The preliminary research findings presented in this paper report on the communication styles adopted by the academic scientists who participated in the pilot study.

## 2. Methodology

The pilot study involved in total 12 participants. Six participants were academic scientists working at the University of Newcastle. The scientists were recruited using an e-mail to an existing university mailbox for academics with a research interest in the environment. The scientist cohort comprised of academics working in four different schools within the University (Agriculture, Food and Rural Development; Biology; Civil Engineering and Geosciences; Neurology, Neurobiology and Psychiatry). There was a spread of ages and positions within the institutional hierarchy (one research associate, two lecturers and three professors). The gender split was one female and five males. The other six participants were citizens of Newcastle living in one of three wards within the city (Elswick, Fenham and Fawdon). These participants were recruited through community groups and from a direct mailing to one hundred names randomly selected from the electoral register for the Elswick ward. The citizen group comprised of four females and two males, ranging in ages from 32-82yrs old.

The data collection phase involved each participant participating in a total of 8 sessions. This began with an initial semi structure individual interview in which each participant was asked questions about their background, expectations and previous experiences of scientists/science communication as well as questions about their environmental beliefs and behaviour. Next, each participant took part in six facilitated one-to-one conversations or 'exchanges' over a period of six months. Each exchange lasted for about an hour and was with a different member of the other group each time. The following six topics were selected to form the basis of each round of the exchanges: genetic modification; climate change; energy; biodiversity and animals; and land use and the countryside. The conversations were not narrowly confined to the scientific aspects of each topic but included such themes as individual action and behaviour, governmental intervention, justice, equality and ethics.

The facilitator's role was to promote and encourage conversation among the participants. The facilitator had a schedule of questions and a selection of materials, such as short newspaper articles, maps, pictures and quotations, with which to help prompt deep discussion between participants where required. The exchanges varied between two extremes: participant controlled (unstructured by the facilitator) and facilitator controlled (participants acted more like respondents in a semi structured interview). In most circumstances, the facilitator's prompts provided a loose framework for discussion between the participants. The exchanges lasted on average between 30-90 minutes.

Participants were paid a total of £80 (high street vouchers) for participating in the study. For each exchange, participants were told the topic at the time the exchange was being arranged. The extent of preparation was therefore left to the participants. All the exchanges were conducted at the University, after all participants confirmed that this location was relaxed and convenient for all. At the end of each exchange, the participants were requested to fill in a short questionnaire which asked them to reflect in their own time on the exchange, in particular the good and bad points and how it could have been improved.

After the participants had completed their six exchanges, a final round of individual semi-structured interviews were conducted. The interview schedule re-visited topics from the first interview concerning environmental beliefs, values and behaviour. In addition, we asked participants for their reflections on the whole experience, their perceptions of the people they had met and their views on public-science relations. This proved a more fruitful method of evaluating the exchange from the participant's perspective than written questionnaires. In total 24 interviews and 33 exchanges were conducted in the ten month period between December 2003 and September 2004. All the interviews and exchanges were fully transcribed for the analytical purposes. The data collection phase was closed by inviting all the participants to an end of project workshop, during which some preliminary results were fed back and an explanation about how the material would be analysed was given. This event also gave the participants an opportunity to socialise and give the research team more feedback on the experiences they had had over the course of the project.

### 3. Findings

Overall, the one-to-one exchange provided an unusual context in which to study both the different communication styles within and between the scientist-citizen and citizen group. In general our citizens had not previously had the opportunity to talk at any length to an academic scientist about science-related issues. All of our scientists, on the other hand, had some previous experience of public engagement, though the proposition of having a detailed discussion with a single individual about scientific issues was quite different. While the six scientists were all working in the environmental field, the variation in the topics chosen as anchors for the conversations in the six exchanges resulted in them being asked, in some instances, to talk about subjects on which they were often not experts on. This resulted in the scientists becoming more aware of their role within the exchange and in fact the need in some case to reconstruct a role for themselves away from the stereotypical expert role that they were more familiar and in some case more comfortable with. The analysis identified that the scientists appeared to take on one of two roles in the exchanges: 1) The Science Communicator; 2) The 'Issues Only' Scientist.

#### 3.1. The Science Communicator

Three of the six scientists, at least part of the time, took on the role of 'science communicator'. Within the exchanges, independent of the topic and their level of expertise associated with it, they were consistently willing to 'talk science' and engage in science explanation across the wide range of issues raised. An example of this was in the case of global warming where these scientists were prepared to discuss alternative hypothesis concerning the likely causes and consequences of global warming. These scientists drew extensively on their own research and teaching experience to supplement and complement their broad knowledge of environmental science and policy. The view of these scientists was that science – or, at least, relevant environmental science – was not that special or complicated. While they accepted as scientists their knowledge was likely to be more systematic than lay knowledge they did not accept that it was too difficult for the lay public to gather, understand and appreciate knowledge related to environmental issues of concern to both themselves as individuals and to society as a whole. The following quote from one of the 'Science Communicators' illustrates this point with respect to climate change:

*"...These are things which are, in the common world, and which you don't need to express with special knowledge...it is the fact that you have knowledge and you have it in an organized fashion (scientists/experts). But that doesn't stop other people having knowledge or at least a part of the knowledge...it may not be as well organized ...but they have a great deal of it. Its easy to obtain it, it isn't like talking about statistics..."*

#### 3.2. The 'Issues Only' Scientists

The other three scientists, in contrast, deliberately avoided talking science. They restricted themselves to discussing 'the issues', associated with and surrounding the science of the topics under discussion, with the citizens. They were not comfortable and very unwilling to be drawn on their own research experience or to engage in detailed science explanation. Unlike the 'science communicators', the 'issue only' scientists had much more esoteric conceptions of science. It is likely that these esoteric conceptions contributed to their reluctance to talk science with the citizens. For them, science could not be understood purely by being part of the 'common world', as illustrated by the following quote:

*"I mean I deliberately tried when I was doing this not to come over as a professor...As I said yesterday I don't want to give a lecture on ...biological diversity...I was always aware of sort of not going into the science. I thought people understood the issues ...we didn't really explore whether or not they actually understood the science underpinning those issues...I think that would have been a totally different sort of exercise to actually find out whether or not they really understood about nuclear energy"*

The approach adopted by the 'issues only' scientists may reflect their lack of confidence in their own knowledge. There was evidence that two of the three 'issues only' scientists were especially critical of their own levels of knowledge about the various topics and issues discussed in the exchanges. In explanation, they offered the following three reasons for adopting such an approach to interacting and communicating with the citizens involved in the exchanges:

1. They didn't want to set themselves up as an academic expert
2. They wanted to avoid technical language that their exchange partner would find alienating and impenetrable
3. They wanted their exchange partner to see them as an equal, no as dominant or patronising

Interestingly, the three 'science communicators' endorsed (2) and (3) above. They, however, didn't associate being seen as an 'expert' in the context of the exchange with the same negative connotation as the 'issue only' scientists and felt much more confident in talking about science without being patronizing or using impenetrable language.

### 3.3 Response of citizens to the different communication styles

Overall the citizens responded quite positively to all of the scientists irrespective of their communication style. None felt that the scientists had either patronized them or been too technical. Indeed, the citizens indicated how much they had enjoyed the experience of the exchanges and what they learnt during and from them. Interestingly, the citizens didn't distinguish learning about science from learning about the issues associated with the science and/or the topics discussed. Of the six scientists, two were single out for special praise (one from each group of scientists). These scientists made the most effort across the board to find and develop common interests with their exchange partners. While they both had considerable experience in public engagement activities, it appears that their efforts to identify with their exchange partners was what set them apart from the other scientists. In their attempts to identify with their exchange partners, these scientists were willing and able to draw effectively on their own lives outside science including their experiences as fathers; husbands; working class men; concerned citizens; confused 'green' consumers. This helped them to make a connection, build a rapport and promote conversation with their exchange partner.

## 4. Conclusion

This pilot study proved to be a very interesting and thought provoking exercise. As a novel deliberative technique, the deliberative exchange has the potential to be developed into a useful technique for social researchers and policy makers interested in dialogue between disparate groups. In particular, it could be used to examine the moral, ethical, political, social and cultural dimensions to communication between these disparate individuals. Overall, from a science communication perspective, the one-to-one exchange was found to provide a context in which mutual trust can be promoted quite quickly and scientists have the opportunity to encourage 2-way communication by being 'people' as well as 'scientists'. It allowed for deeper reflection and exploration of the role the scientist in the communication process and the different styles and approaches that can be adopted. The technique facilitates the exploration of, and breaking down of stereotypes and barriers between the scientific community and the general public that have impeded past science communication activities. The combination of a willingness and ability to talk science (over the topics) with a willingness and ability to draw effectively on common roles and experiences appears to be the likely optimum science communication approach to connect effectively with members of the public.

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## 6. References

- [1] Branes, M. (1999) "Building a deliberative democracy: An evolution of two citizens' juries". *Institute of Public Policy Research, London*.
- [2] Coote, A. & Lenaghan, J. (1997). "Citizens' juries: Theory into practice". *Institute of Public Policy Research, London*.
- [3] Ward, H., Norval, A., Landman, T. & Pretty, J. (2003). "Open citizens' juries and the politics of sustainability". *Political Studies*, 51, pp. 282-299
- [4] Joss, S. & Durant, J. (eds) (1995). *Public participation in science: the role of consensus conferences in Europe*. Science Museum, London.
- [5] Einsiedel, E.F. & Eastlick, D.L. (2000). "Consensus conferences as deliberative democracy: a communication perspective". *Science Communication*, 21, pp. 323-343
- [6] McCombs, M. & Reynolds, A. (eds) (1999). *The poll with a human face – The national issues convention experiment in political communication*. Lawrence Erlbaum Associates, Mahwah, New Jersey.
- [7] Davies, G., Burgess, J., Eames, M., Mayer, S., Staley, K., Stirling, A. & Williamson, S. (2003). "Deliberative Mapping: Appraising options for addressing the 'Kidney Gap'. *Report to the Wellcome Trust available from <http://www.deliberative-mapping.org>*
- [8] Fishkin, J.S., Luskin, R.C., & Jowell, R. (2000). "Deliberative polling and public consultation". *Parliamentary Affairs*, 53, pp. 657-666
- [9] Luskin, R.S., Fishkin, J.S. & R. Jowell (2002). "Considered opinions: deliberative polling in Britain". *British Journal of Political Science*, 32, pp. 455-487