

FINDING COMMON LANGUAGE

Nicholas Hillier¹, Dr Fiona Barbagallo²

¹The BA (British Association for the Advancement of Science), Wellcome Wolfson Building, 165 Queen's Gate, London SW75HE, UK

²Previously working at The BA (address as above)

ABSTRACT

Issues that involve science are increasingly high on the public agenda and there is a willingness to involve the public early in the debate. This early involvement will help scientists and decision makers to understand and respond to public views, and allow members of the public to appreciate that they can influence the progress of science and technology democratically.

But how early can members of the public become engaged in emerging science and technology? Can members of the public express 'informed' views and opinions before interacting with applications of science?

The BA and the Office of Science and Technology's Foresight Programme piloted an approach to address these questions using an area of research called Cognitive Systems.

The project provided opportunities for members of the public, scientists and science communicators to participate in structured deliberative discussions exploring the area of cognitive systems and allowing them to identify language, stories and frames of reference that would help stimulate mature public discussions about emerging scientific research.

INDEX TERMS

Discussing emerging technology, cognitive systems, early engagement, public, scientists, dialogue

INTRODUCTION

There is increasing recognition that early involvement of the public will help scientists and decision makers to understand and respond to public views, help people more generally to appreciate that they can influence the progress of science and technology democratically, and potentially prevent the polarisation of views that might hinder discussion of issues at a later and more critical stage.

This project—Finding Common Language—involved members of the public to help frame how a new area of research could be communicated outside the scientific arena.

The BA and the Office of Science and Technology's Foresight Programme piloted this project on a new area of research called cognitive systems. The area of cognitive systems is one of several emerging from the Foresight Programme which aims to crystal ball gaze new areas of science and technology and their implications for impacting on a future society.

The area of cognitive systems has been defined by the OST's cognitive systems group as artificial or natural systems that can sense, act, think, feel, communicate, learn and evolve.

The project objectives were to:

- learn how public engagement can be used in the early development stages of science
- get a snapshot of participants' thoughts and opinions
- explore the differences between fact and fiction
- explore and identify possible common language that can be used to stimulate mature public discussion.

'Finding Common Language' explored at what stages, in the process covering the generation of new

scientific ideas to their applications, the public should be involved in discussing the possibilities offered from any particular area of research.

This project identified language, stories and frames of reference that can be used to stimulate mature public discussions about research, and issues arising from research, on cognitive systems.

The projects key findings were:

- Members of the public can engage with science, and its applications, at a very early stage in its development without needing to understand the technical theories behind scientific developments.
- Both participating scientists and non-scientists focused on the same issues surrounding cognitive systems and had similar hopes, dreams and fears.
- The issues identified in this project are not specific to cognitive systems and may be applicable to other areas of scientific research. The results of the workshops provide valuable insight into public engagement for other areas of potentially controversial research.

THE SCIENCE COMMUNICATION PROCESS

Three workshops were organised with scientists, science communicators and members of the general public to identify common language and understand the process of developing it.

The first two workshops enabled scientists, science communicators and members of the public to become familiar with the cognitive systems project and potential applications arising from this type of research. The first workshop involved scientists and two science communicators. The second workshop was for members of the public and two different science communicators. Scenarios of the six areas, identified in the OST's report on cognitive systems, were presented to the workshop participants. The six areas were: business, health, well-being and performance, transport, art and entertainment, education, and military.

Each participant was familiar with four of the six areas by the end of their first workshop. In this workshop participants were asked to identify the benefits, risks and moral implications of the different areas they discussed. The purpose of this exercise was two-fold: to enable participants to become familiar with and discuss the material, thereby providing opportunities for different languages and stories to emerge; and to determine their thoughts and opinions on the applications of cognitive systems research, which provided valuable information on how to frame future communications.

The scientists, science communicators and members of the public were introduced to each other in a third and final workshop, occurring one week later, where the common language was identified.

The meetings:

1. Scientists

Ten participants were present: 8 scientists and 2 science communicators. The scientists included those with an interest in cognitive systems research such as neuroscientists and computer scientists, and those with no obvious connection to cognitive research such as an evolutionary botanist and theoretical physicist.

The first workshop was held on 5 May 2004 between 10-12 am, and lunch was served at the end of the workshop.

2. Public

Eleven members of the public were recruited through a marketing research company and were paid £100 for attending the two workshops. They were recruited from a range of socio economic groups with a spread of ages between 20 and 45, employed in the following professions IT, solicitor's secretary, exhibitions organizer, nursery school owner, bank clerk, civil servant, nursery assistant, personnel manager, local government officer, police officer and actor. Two science communicators, different from those in workshop one, were present for the public workshop.

This workshop was held on 5 May 2004 between 6.30 pm and 9.00 pm. A light supper was provided before the workshop.

3. Scientists and the public

At this point all participants were familiar with four of the six areas of cognitive systems research, of which two overlapped; this provided a starting point for the two different groups to talk about what they had discussed in the previous week. By the end of the workshop each participant was familiar with 5 of the 6 areas.

Participants were asked to guess how a selection of famous people would describe cognitive systems. For example one group suggests that Posh Spice would say ‘cognitive systems is a boy band, isn’t it?’ Through out the workshop participants were asked to consider which words needed explaining, what the public would need or like to know about this issue and what might trip the government up when it comes to talk about cognitive systems.

This workshop was held on 12 May 2004 between 6.30 pm and 9.00 pm. A light supper was provided before the workshop.

EVALUATION AND DISCUSSION

The findings

The summary of the findings combines the comments and discussions from the three workshops, and the results of the written exercises in the final workshop. Comments have not been attributed to individuals as this was not the nature of the workshops.

The findings are reported thematically according the original purposes of the project:

- to learn how public engagement can be used in the early development stages of science
- to get a snapshot of participants’ thoughts and opinions
- to explore the differences between fact and fiction
- to explore and identify possible common language that can be used to stimulate mature public discussion.

1. Early communication

The independent facilitator of the third workshop could not tell who scientists were and who were not. This observation is very telling of the situation—members of the public were confident and articulate in describing their thoughts and opinions about cognitive systems, an area of research that is in its early development stages. In addition, the scientists were willing to listen to members of the public. All three meetings were lively and the small group work produced noisy and uninhibited discussions.

Public members were able to discuss cognitive systems in a sophisticated fashion, addressing the uses, risks and moral implications. The scientists were more articulate and persistent with their arguments than the public members; however, these arguments were not antagonistic towards non-scientists.

There were few vocabulary issues between scientists and public members in this forum, which focused on the social issues arising from science, as opposed to the science itself.

All participants were asked to reflect on what they had learned from scientists and non-scientists and over half of each group commented that non-scientists and scientists have very similar opinions, thoughts and ideas, and that they have the same fears and hopes.

Scientists and non-scientists are preoccupied by the same issues—the need for openness and that any communication about cognitive systems should include both positives and negatives from the beginning, thereby allowing people to make their own decisions.

Scientists and non-scientists were very interested to hear what each other did for a living during the breaks at the final workshop. There was little clustering, perhaps avoided by offering participants a glass of wine. During the farewell there were meaningful goodbyes.

This project supports the view that members of the public can engage with science, and its applications, at a very early stage in its development, without needing to understand the technical theories behind scientific developments. To allow a mature discussion to occur the communication must be framed correctly and address the 'upstream' issues, such as control, responsibilities, assumptions and visions of science.

2. A snapshot of participants' thoughts and opinions

Common themes were present in all three workshops. The participants were asked to identify the uses, risks and moral implications for each of the six areas. The common themes were:

- (a) control (who is in control and who is driving research)
- (b) dependence on technology
- (c) individual versus societal needs
- (d) equal access for all.

The format of the workshops allowed participants the opportunity to draw out these common themes from their discussions rather than focus on the individual details of the state of current cognitive systems research.

3. Fact and fiction

Generally public members were not very good at thinking about and discussing abstract technologies. It was difficult to sustain a mature discussion on a topic to which people could not relate to, especially 'the ambient web'. The scenarios that provoked the most discussions were those that described situations that were not that far from technology that we have today. For example, while discussing the future of transport, participants responded better to scenarios that built on current in car technology, such as that able to turn on headlights in certain levels of darkness or activate window wipers in response to rain falling on the window, than those that detailed technology that was too 'far fetched'.

In the final workshop participants were asked to summarise the scenarios they had heard about the previous week. Interestingly it was often the issues that arose from the scenario that were remembered, rather than the scenario itself.

There is evidence to suggest that more specific examples, that have an impact on themselves or families, will be needed if the purpose of future communication with the public is to get its feedback on cognitive systems. These examples will need to create images that people are able to connect with, as opposed to images that may disengage the public. These familiar images will provide stepping stones for the public to discuss and comment on technologies that are unfamiliar.

4. Finding common language

The term 'cognitive system' meant very little to the participants. Participants were asked for a definition of cognitive systems or how to describe it to someone. No clear definition was arrived at, nor was there consensus that one definition was actually needed to describe a large range of applications. Participants suggested that the language must be neutral and that examples are easier to relate to than one term or a couple of buzz words.

Phrases such as 'machines that think' gave participants the sense that humans were losing control. Participants suggested another way to describe the role of machines, which would be more suitable and less threatening. The description should indicate that humans have control and the machines have a certain or specific job to do. For example the idea that a machine could determine our own moods better than ourselves created unease with many of the participants.

Careful attention is needed when selecting words to describe application. Words that helped or did not help and those that made participants feel comfortable or uncomfortable were highlighted. Specific words that were mentioned are detailed in the table below.

word/phrases	feeling	reasons
cognitive system	negative	unclear, little meaning, 'need a better name, one that won't put people off'
cognition	negative	removes the idea of emotion being involved
system	negative	people uncomfortable with being called a 'system'
programming	negative	implied control
processing	?	better than programming
nurture	positive	emotion
learning	positive	positive only if machines have controlled learning
thinking	positive	this word was often used by participants
chip	okay	easy to understand, can relate to, familiar
artificial intelligence	okay	familiar, but had heard it all before

At the outset of this project, as the title suggests, the key purpose was to find a common language that could be used to stimulate mature discussion. However the workshops have provided a richer form of 'common language', one that provides ideas on how to 'frame' the communication and the issues of most interest to scientists and non-scientists.

CONCLUSION

Scientists were pre-selected for this event based on their involvement with science communication, in particular with the BA. These scientists were known to be interested in science in society issues and willing and able to communicate with members of the general public. The workshops were highly successful because the scientists and public members were able to interact.

It is difficult to extrapolate from the results of this workshop to predict how other scientists would interact with the public in discussing a new area of research. The scientists that participated in this project excelled in discussing issues with non-scientists and were very happy to talk outside their expertise area of research.

This project has been successful in identifying how members of the public can discuss issues surrounding a scientific area in the very early stages of development; members of the public did not struggle with the scientific nature of the exercise nor constantly ask for more information. The public members were not 'irrational' or negative towards the scientific development. In fact, participants commented that the scientists were the most critical of the technology, perhaps because they have a broader background to scientific issues and familiar with the process of science.

Both groups were surprised by how similar their reactions were to cognitive systems; their hopes, dreams and fears. In one sense 'Finding Common Language' was also a training session for scientists to interact with members of the public, listening to their thoughts and opinions. This project provided an interface between scientists and members of the public.

The issues that were identified in this project are not specific to cognitive systems, but are issues that apply to all scientific research. These upstream issues relate to control, responsibility, dependence on technology, visions and assumptions surrounding science. The results of this workshop are not only important for cognitive systems but other areas of potentially controversial research.

One scientist, at the end of the workshops, commented that they had never thought about scientific research in terms of uses and risks. The scientist found it enlightening that for every use, someone could potentially find a corresponding risk. The workshops have provided us all with food for thought.

This project provides evidence that early communication with members of the public is viable and

productive. It is recommended that any communication on cognitive systems is framed in a way that does not alienate non-scientists and addresses issues surrounding control, dependence on technology, societal needs and equality.

'Finding Common Language' was an experiment: a successful one. It provided an opportunity for scientists, non-scientists and science communicators to discuss, in an informal process, an area of research that is in its very early stages of development.

This type of experiment should continue and be expanded. Stakeholders, such as industry, interest groups and consumer groups would provide useful inputs. The more we can find out about how publics think about science the more it will assist us in engaging with members of the public and provide a platform for stimulating mature discussions. Having more scientists appreciate the social context of their research directions will assist with public engagement and public ease with science in the long term.

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