Dr. Gert Balling
Mail: gba@adm.dtu.dk
Personal Homepage: http://www.gertballing.dk/index.english.html
Science Café Homepage: www.vcaf.dk

Getting the Public Involved

Paper presented at the workshop: Enhancing Cognition: Ethics, Regulation and European Policy – University of Oxford.

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I would like to thank the organizers for inviting me to be here today. My name is Gert Balling and I am coordinator of the National Network for Technology Transfer in Denmark. I have a cross disciplinary PhD from the IT-university of Denmark and UCLA USA and have more than 10 years of experience in disseminating scientific issues to the broader public through books, newspapers, radio, television, national campaigns and through science cafés.

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We have all become aware that modern technologies like IT and biotech affect our working life, health, environment, industry and our social relations. It does so locally and globally as well as challenges our ethical points of reference. Today, it is actually difficult to talk about science without also mentioning politics, industry and civil society.

Citizens today can be seen as stakeholders in science. Big Science requires that society invests Big Money in science and research. And therefore the citizens demand documentation of the investment being sound – that it is worth the money. But not only in relation to the economical perspective, but also in a broader welfare perspective (social well-being, quality of life and general education) – this demand is a demand for a higher degree of democratization.

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"How interested are the citizens in science and technology – in Denmark" (in %)[1]

1989	1997		2000
Very interested	16	19	24
Somewhat interested	35	38	51
A little interested	35	32	21
Not interested at all	13	10	4
Don't know	1	1	0

The rising number of "very interested" describes the increasing general interest in learning about science and technology.

The challenge here is to provide some qualified background knowledge in order for the public to be able to participate in discussions on a reasonable level. My claim is that the broader public does not have this knowledge at hand and that the knowledge they have is based on the wrong facts:

[1] Figure 5. Interest in research in percent. Source: Kaare Aagaard og Niels Mejlgaard:"God Praksis for Forskningskommunikation". Rapport fra Analyseinstitut for Forskning 2003/8. P. 34.

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Peter Weingart, a sociologist of science, organised a series of seminars at Bielefeld University in Germany in 2000-2002. He was interested in finding out how Hollywood depicts science. Weingart points out that television is the leading information source on science to the broader public. But while television viewers are exposed to science through a variety of programmes which is good; the leading sources are movies, television serials, and soap operas, which is bad. Thus, fiction becomes the predominant basis of knowledge of science – for a significant portion of the public.

According to Weingart and Australian researcher Roslynn Haynes, Hollywood creates a distorted image of science and scientists. Research is often depicted as an obscure activity done by some kind of madman and greedy scientist with foul intentions. Since it is not the ultimate purpose of science fiction to report accurate facts, it should not be a major issue unless the average citizen is actually ill-equipped to distinguish fiction from reality. That is my hypothesis – and my experience.

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Can we then count on the mass media to report science? According to Haynes, the unfortunate thing is that the mass media has adopted many of the diabolical descriptions of scientists created by such fictional characters as Dr. Frankenstein, Dr. Caligari, Dr. Jekyll, and Dr. Strangelove. Therefore we have journalistic concepts like “Frankenfoods”, that has become more or les synonymous with GMO. As the Science Editor of the Danish newspaper “Weekendavisen” puts it, science reporting is a difficult path to tread for dailies that do not typically deal with science and that are predisposed to edge their stories with sensation.

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Contrary to what the scientific community is inclined to believe, seeking and reaching scientific consensus – assessed by scientific methods – does not have much weight on how the public reaches decisions about new technologies. In fact, the reality is reverse: public opinions are moulded by perceptions, often skewed – that are not always rational. Furthermore, initial perceptions based on worst-case scenarios or on fictional characters are difficult to change, even if the initial allegations can be refuted on a scientific basis.

This means that fears and concerns of the public, whether they sound grounded or not, need to be addressed. Preferably in a bidirectional dialogue about science and technology and their products, including not only their benefits but also their limits, perils, and pitfalls. We need to develop a partnership that can respond to them, as Leshner stated in *Science* February 14, 2003.

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You will find different initiatives based on direct interaction between scientists and citizens. For example in situations where citizens and scientists meet and discuss scientific subjects. This kind of communication creates confidence and enriches citizens as well as scientists. These initiatives produce a democratic possibility for active citizens to be engaged in technologies and how the implementation of these will change who we are, our behaviour and our society over time.

Themes that typically could be addressed:

> <u>Reproduction technologies</u>
> What technologies are we talking about? Do reproduction technologies place the human body as a technological object that works more or less perfectly? Do reproduction technologies question what a normal human being is? Will artificial reproduction be chosen by many because of selection and manipulation possibilities – and does that raise a question of equality and justice? Should we be able to choose when and what kind of children we want – and who is to decide if and when these technologies are available to us? Etc.

Enhancement technologies
Better looks, better mental abilities and more physical strength through cosmetic surgery, smart drugs, chip implants and genetic manipulations – how do these opportunities differ from the use of lipstick and hard training? Which kind of enhancements are better than others in an ethical perspective and should we worry? Etc.

Imaginations on Technology
Is it possible to understand the human being without technology or do we have a post-human situation where the human being can no longer be seen as autonomous? Does the focus on the technological risk debate overshadow the political power games? Can fiction and art convincingly emphasize existential thematics, like in transgenetic art?

Cloning
What is cloning? Will different kinds of cloning require different kinds of ethics? Is it ethical to produce transgenetic animals as living medicine factories? As models for human deceases? For reproductive cloning purposes? Or as material (stem cells) for therapeutic cloning?

Three examples on dialogical dissemination of science and technology:

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Example 1, "Future Body" 2000-2003

In 1998, I wanted to create a format for science communication on the human/machine issue that should reach a larger audience than normal science communication does.

The platform for the whole project was a 2 million dollar millennium exhibition at Copenhagen Experimentarium called "Future Body". An exhibition designed for kids and teenagers – but also attended by elder segments. My project was a small part of this colossus based on newspapers articles, chat rooms, internet sites and a book.

I wanted leading scientists in Denmark to be available for laymen to answer their questions. First of all, the scientists should write short provocative articles in one of the biggest national newspapers throughout year 2000 - with a new article every fortnight (except during vacation time). All articles should make the reader reflect on the topic and invite him or her to discuss the article with the scientist the day after in a chat room. A chat that, because of the anonymity of the internet, was always very lively and therefore controlled by a moderator that could dismiss participants if necessary. For people who wanted to prepare themselves better for this discussion, there was a link to a much longer and more academic version of the article on the internet.

The project reached three different target groups:

1) People going to the exhibition where they got a brochure with a link to the articles and the chat room on the internet.

2) People who read the daily newspaper and would learn about the exhibition, read the provocative article and get links to more knowledge or simply the possibility of direct discussions with the scientist the next day during the lunch break.

3) And people used to chat and surfing the internet (often teenagers from 15-19) would also find their way to the chat room through the overall website and internet adds and participate in the discussion.

As soon as the exhibition ended in 2001 and was sent on tour in Europe, the Danish website closed down. Together with a publisher I picked out nine of the long articles from the internet and re-edited them into the format of a book. This resulted in the anthology "Homo Sapiens 2.0" which became very popular. Because of the

heavy use of well-known and estimated researchers (and the by now well-known project), it received a lot of attention in the written press as well as in additional radio and TV spots.

The shorter articles from the newspaper were then collected into a separate newspaper edition of the collected articles called “Future Body”. With financial support from a newspaper (free print) and the Ethical Council of Denmark (free distribution), 30,000 special editions of the newspaper were printed. It was distributed for free to all high schools in Denmark. On top of that, the Ministry of Science applied a service where anyone could phone in and order any number of the special edition.

All in all, it was just one group of articles, but used and reused in many different formats and medias it created a very broad impact for the campaign, and it made it possible for high school teachers to have current research as teaching material.

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Example 2, “Cloning” 2003

In 2003, a clarification report on cloning was written for the Danish Government by leading scientists. This report was made for the political establishment but ought to set the agenda for a broad national debate on cloning. Do we want cloning, in what form and on what conditions? Cloning is indeed a very complex field and the report could support a broad national and rational knowledge-based discussion. There was actually only one problem: the ordinary citizen did not care about the report but stayed at home and watched the Hollywood version of cloning potentialities on television.

I was a part of a group that was trying to solve the problem, and we asked ourselves how to approach people who did not know they were interested in cloning on a deeper level.

Because of limited time and financial resources, we had to focus on one primary target group. We decided to make high school pupils the primary target for a campaign that automatically would draw other groups with them such as parents, teachers and local communities around the schools.

A role playing game on the topic of cloning was produced called ”Master of Creation”. The pupils would have to read some background material to play the role of politician, NGO, company representative, researcher, journalist etc. - all having different agendas. The students had to argue their way through the game and make alliances to get their ideas through. On the one hand it would help them find their own positions in the debate; on the other hand, it would teach them that participation in the debate is important in order to make a difference in the result, even though it is not easy.

Game masters travelled around the high schools and played the game with the school classes leaving lots of extra background material behind for further studies. In this way the game became a kind of an appetizer and actually created a lot of interest in reading articles on the subject.

Approximately one month after the visit, we would arrange a high profile science café in the local café near the high school. The science café would have famous scientists, priests, politicians, business men, philosophers in the expert panel as well as one/two representatives from the high school class. They had prepared themselves through playing the role game, discussing the background material with each other and their teachers and they would bring 10 questions for the experts on behalf of their class. The rest of the guests at the café would be ordinary citizens from the area (family, friends and interested citizens). Because of the use of the local high school and national science celebrities, it was relatively easy to get the press attention for the event as well as a full house (80-100 persons).

Finally, a court room was set up at one of the old beautiful universities of our capital Copenhagen. Cloning was going to trial by jury. Two lawyers (a prosecutor and a defender) each invited several witnesses (scientists, priests, politicians, business men, philosophers etc.) for or against cloning and each witness would be cross examined by both. The jury (representatives from the youth division of all political parties in Denmark) was not there to help the judge reach a verdict but would end the day with a political discussion based on what they had heard. In that way, we even got the attention of the politicians – the only group harder to reach than the broader public.

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Example 3, Café Scientifique

I will now focus on science cafés which I have been arranging since 2001. I will concentrate on the Danish Model which I initiated together with Emmanuelle Schuler. It exists beside the French and the English as the three different schools. In Denmark, there is one café in Copenhagen and one in Aarhus, the two biggest cities in Denmark. Last summer, we had six additional cafés around the country in connection with the yearly event called "24 hours of science" - this year we will have around 15 - 20.

In 2004, we received the Danish science journalists' Genius Award for excellent science dissemination, and in 2007 we were nominated by the EU Commission for the Descartes Award for the very same reason.

The British and French Science Cafés emphasise communication of factual science where a scientist is explaining his or her field followed by a discussion or a panel giving different views on the environment or medicine. Science Café Copenhagen distinguishes itself in that it choose to emphasise the societal element in an interactive and interdisciplinary discussion across the natural and social sciences, humanities, art, and culture – but always around a subject within the natural sciences.

A moderator gives a short introduction to the subject and format. Each expert gets 5-8 minutes to present themselves. Thereafter the word is free. The moderator will moderate the 1½ hour dialog securing that the agenda is set by the audience.

Examples:

- "Will We Have a Fight on Our Way to Mars? The Significance of Humans in a Manned Mission to Mars" with a space psychologist and to specialists in science fiction literature and film.
  Focus: Mental conditions for an isolated group under extreme circumstances.

- "The Mad Scientist – Science and Fiction in the Public Debate on Cloning" with a Futurist Researcher, a sociologist (specialist in what the public feels about technology) and a professor from the Royal Veterinary and Agricultural University.
  Focus: Why does biotech have such a bad press? Where did fiction come into the science debate?

- "Challenging the Human Body: Exceeding the Limits of the Body" with a biologist and specialist in enhancement technologies and an interdisciplinary Performance Artist and Dramatist specialised in perforating the human body.
  Focus: The body as a post modern reconfigurable concept.

Visit our website www.vcaf.dk for more examples.

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The objective of the Danish Science Café is to create a public forum for debate, to disseminate and mediate information on scientific issues, as well as to discuss their impact in a broader societal context. Having said so, we do not believe that such communication can be effectively carried out through didactic lectures to a wider clientele of, already, interested people. The underpinning concept of the Science Café is that knowledge dissemination and mediation should reach a broad public which involves reciprocal commitment. This is

achieved through genuine face to face dialogues between experts and laymen in an unprejudiced and civilised tone. Science Cafés are democratic by nature and are therefore accessible to everybody. Consequently, there is no admission fee.

The framework for these exchanges is non-partisan and interdisciplinary. Science Cafés events are held at a café which provides an informal and intimate venue, thus stimulating spontaneous dialogue between experts and the audience in a relaxed atmosphere. Expert panels are typically composed of representatives of the natural but also social sciences, humanities, art, and culture.

A successful Science Café discussion contributes to bridging science and society. On the one hand, the Science Café brings knowledge of science to average public. On the other hand, the Science Café contributes to making societal and cultural, and artistic issues more integrated into scientific practice.

Confrontation is not our main motivation – though panellists may of course disagree on some issues. For that reason, we do not primarily seek experts with radical and rigid views. We rather attempt to expose the audience to experts who can put forward a diversity of perspectives in an enthusiastic manner and who can have appreciation for the other experts on the panel. We have developed vast networks into many disciplines and are reasonably well-known because of our work and perhaps especially because of the awards – this makes it relatively easy to find proper raw material. Furthermore, we have developed certain methods that help experts relax, forget their paranoia and react non-confrontational and open minded to new people and ideas. We believe that this framework creates ideal conditions for a reflective and nuanced dialogue in an open-minded environment.

The Science Café “The Clones Are Coming” is a good illustration of how we try to get around a classical confrontational situation. There, the philosophical and scientific perspectives on cloning were juxtaposed. At some point, it turned out that the philosopher had less ethical reservations regarding certain applications of cloning than the scientist, which made a person from the audience exclaim: “excuse me, but haven’t you forgotten that *you* are the philosopher?” The remark triggered a good laugh, both on stage and among the audience. And an interesting more open-ended discussion followed.

We are often met with the question of whether we are trying to convert sceptics. The answer is no. On the one hand, scepticism can be healthy. It helps us focus on the merit and value of new processes and products. Questions arise, “What are they good for? At what cost? What are the potential implications and consequences on human health and the environment?” On the other hand, some of this scepticism might be triggered by misinformation or the mystification of science.

Direct face to face dialogue between the public and experts from various disciplines – scientists, humanists, artists, and others – can help dispel myths and rectify misconceptions. Science Cafés are a platform for such dialogues and open discussions to alternative scenarios different from those imagined by science fiction enthusiasts or by frightened sceptics.

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The Science café concept is a public good. Steal the concept and we will be happy, reformulate it in terms of your cultural preferences and we will be even happier. It is free of charge. We believe that the more cafés there are the better. They are cheap and can be set up anywhere in the world, and we know they already are. The book on the Danish model has sold in the Nordic countries and Europe, but also in countries like India, Brazil, New Zealand, Japan, the US and many more.

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Conclusion

My conclusion is going to be short. If you want to reach the broader public and engage them in public debates on new technologies and the implementation of these, you have to undertake untraditional methods. It is hard to make the public pay attention and it is difficult to make them engage. Like the Danish philosopher Kierkegaard said, “You have to meet people where they are”. But if you succeed, there will be a much better understanding of scientific political necessities, and it is definitely worth it. In Denmark, it is my experience that the broader public wants to engage in science communication if you take them seriously and really want to speak with them.

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Thank you for listening