

Between scientists and public: reframing public participation in science through bioethics

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Abstract

Discourses and techniques about the relationship between science and the public have remarkably developed in the past four decades. Science communication has become an important issue for the scientific governance. Public confidence in science, decision-making and support to democracy have changed the predominance of a top-down communication model, from scientists to public, to a more participative one – the Public Engagement with Science (PES). The Institute of Bioethics at Portuguese Catholic University, in Oporto, is doing research in the role of science in society issues and the aim of this paper is to discuss the relevance of Bioethics to improve PES. The bioethical issues seem to draw people's attention to certain scientific facts, confronting them with the consequences of science and improving their skills in deliberating on scientific issues. Moreover, ethics influences the way one understands public engagement, 'scientific citizenship' or 'science governance'. The role of ethics is not to re-edit the old fashionable deficit perspective which usually focuses on the impact of science and technology from the perspective of non-experts. Ethics is a theoretical and practical reference for changing the science-making in the near future, and it makes

us consider the public as playing a more important role than that of mere spectators with lack of scientific knowledge or with emotional concerns. The ethical reflection could redefine the non-experts place in the context of science, involving people with science, making them not simply aware of scientific issues but also involved in the process of decision-making. On the other hand, bioethics can also contribute to the participation of scientists in the ethical reflection that takes place outside the labs, broadening their role as *citizen scientists*.

Keywords: Public Engagement with Science; bioethics; science communication; public participation.

Introduction

Discourses and techniques about the relationship between science and the public have remarkably developed in the past four decades. In fact, due to the role of science in nation-states today, one can say that science communication has become a strategic matter of governance (The Royal Society, 1985; Irwin, 2001; EC, 2005; Jasanoff, 2005; Felt & Wynne, 2007).

By the end of 20th century, the scenario of science communication had already changed: the earlier predominance of a top-down communication model gave place to a more participative perspective – the Public Engagement with Science. There are various reasons for this change, such as public confidence in science; decision-making and support to democracy; better governance; and the need of involvement in scientific issues by the citizens. However, PES does not seem to have accomplished effective changes comparing to earlier perspectives. Some researchers have even argued that many participative initiatives would be re-editions of the old top-down ones (Wilsdon, Wynne & Stilgoe, 2005; Wynne, 2007; Trench, 2008; Stirling, 2008).

The aim of this paper is to discuss the importance of ethics for the improvement of public engagement with science. Both science understanding and the involvement of non-experts with scientific issues will be analysed as the result of the ethical reflection on science and technology.

Ethics is not simply addressed as a cause-and-effect reasoning vis-à-vis a given scientific issue or fact. On the contrary, ethics is *a priori* element of analysis by which scientific processes, aims and results can be understood and questioned. For the non-experts, this represents a different approach to introduce science as a field for debate and personal involvement, moving through and beyond the private rules of science – its values, codes, methods and languages. For the experts, it means the possibility to connect their work, processes and scientific concerns to citizen's concerns and questions on scientific matters.

From deficit to engagement?

Since 1980s, the lack of information and basic knowledge on scientific issues has seemingly contributed to a growing feeling of distrust and unsupportive attitudes towards science and scientists. At least this was the main argument used by the deficit or deficiency model. From this perspective, communication, especially through the media – printed or electronic, written or audiovisual –, has constituted the main strategy to make the non-specialists aware of science issues, thus making them more confident about “expert systems” and “expert knowledge” (Giddens, 1991). It was claimed that the gap between science and society would be supposedly filled.

This model adopted a one-way, top-down communication process, in which scientists [...] filled the knowledge vacuum in the scientifically illiterate general public as they saw fit. There was a flow of knowledge, from the “pure” source of science in the laboratory to a (somewhat tainted) bowdlerised variety that was fit for public consumption and was usually disseminated through the mass media.

The scientific community was most definitely in control of this flow. (Miller, 2001, p. 116-117)

After 25 years of research under the deficit perspective with low or stable results in regular surveys aimed at measuring the scientific literacy of populations (Gregory and Miller, 1998; Weigold, 2001; Lewenstein, 2003; Miller, 2001; Miller, 2004), the deficiency model has been severely criticized. The critics have also pointed out that the scientific knowledge was never questioned, neither its aims and processes nor its results. This criticism and other reasons such as

public confidence in science, decision-making and support for democracy (Wynne, 2005; Trench, 2008), have changed the ancient top-down communication model, from scientists to public, to a more participative one. In Europe, people's participation has become an attractive alternative to which governments have resorted to improve the citizens' confidence in science and their support to policies based on science and technology.

The first official initiative of the European Commission for promoting public participation was the 5th Framework Programme – Raising Public Awareness of Science and Technology, in the late 1990s. In 2001, there was also the White Paper on European Governance with a large section on science and citizenship, highlighting the importance of participation in governance. The same year, following the Lisbon Agenda Declaration, the European Commission officially started the Science and Society Action Plan “[...] aimed at developing stronger relations between science and the broader society by supporting measures such as public consultation, public debates, and public involvement concerning the development and assessment of science and specific technologies” (Felt and Wynne, 2007, p. 56).

Despite different interpretations about these official initiatives – from an inevitable participatory process to the restoring of public credibility in science – the common thought was the need to change classical conceptions and strategies of work, exclusively based on deficit perspective, to a sort of stakeholder or public participation. Otherwise, many public engagement projects apparently do not address the debate on issues such as:

[...] the ways participation is enacted, [...] the motivations behind it (solution for what problems, solution for whom), [...] the actors who are supposed to be participating (construction of the different “publics”), how these moments of participation and encounter are conceptualised (the very meaning of encounter and participation), when they are supposed to intervene (at what moment in the R&D process) and many more (*op. cit.*).

Last decade, though the engagement perspective has been widely fostered – by scientists, communicators, politicians and funding programmes – there are few science communication

projects improving genuine public dialogue and participation. In fact there is a discrepancy between the need for public engagement as stated in EC reports, projects and the EU expectations, and the actual situation regarding this public participation.

Actually, the one-way communication perspective, from scientists to non-experts, is still the most popular worldwide and the public acceptance and support of science and technology remain the main goal of this perspective (Trench, 2008). Even among the so-called participative projects the problem still persists and the supposedly shift from deficit to engagement can be considered as apparent (Wilsdon, Wynne & Stilgoe, 2005; Stirling, 2008). Wynne goes further and states that most of engagement initiatives are recreations of the deficit perspective. “The dialogue banner may be used to refer to refinement rather than replacement of a dissemination model. The talking-back part of ‘two-way communication’ in such situations may be, above all, a means to retune the talking-to” (*apud* Trench, *op. cit.*, p. 128). This author also states that even where dialogue between science and society is allowed it remains restricted to the risk issues or “scientific issues”, and science is assumed as a public authority (Wynne, 2007).

Public engagement and democracy

The English word *engagement* is derived from the French verb «engager», which can also be in the reflexive form «s’engager», meaning «to engage oneself in/with something». Its similarity to a commitment or promise of marriage is not by chance. The engagement, particularly the “public engagement”, refers to a personal investment – energy, time, affection, interest, work, effort, concern, money etc. – into something that can also be collective. It should be highlighted the fact that this term has been used together with the issue of governance in public participation since the end of 20th century.

The public engagement perspective has led to new kinds of devices of democratic systems to enable and improve governance when people seem to be more and more absent of political debates, even of the elections. It has thus been possible to assess public feelings and concerns about many

issues directly related to the governance, by public engagement techniques – consensus conferences, citizen juries, deliberative technology assessments etc. – or opinion polls, such as Eurobarometer surveys.

In the relationship between governance and public engagement it is possible to mention two dominant rationales behind the participative initiatives (Stirling, 2009). First, what seems to be important is the legitimacy of governance and therefore the public acceptance, trust and support to policies: public engagement meaning instruments for building better decisions. This view may be similar to the old-fashioned deficiency model with different methods, by keeping some of the aims of the former. For this reason, as mentioned before, some criticism has been made to this trend.

Despite this first instrumental basis there is a second one that places public engagement as a process to enhance democracy and citizenship. So, public engagement does not necessarily mean agreement concerning certain issues. In the context of science this process can lead to a genuine participation of non-experts, to such an extent that they can even influence the trajectories of scientific and technological development (Wilsdon and Willis, 2004; Stilgoe, 2009). On the other hand the experts can also be engaged as citizens (Wilsdom, Wynne & Stilgoe, 2005). The counterpart of this second view could be the changing of the role of non-expert public and science-making.

Wilsdom, Wynne and Stilgoe (2005) support the engagement perspective as processes of continuous involvement “throughout the complex and varied stages of innovation” (*op. cit.*, p. 22). Regarding such involvement, they formulate it in terms of “public value of science”, considering the public value as a way of measuring the benefits – both economic and non-economic – by the public.

Our argument has been that, yes, science does matter. But it matters for more than narrow, economic reasons. We need to talk, and occasionally to argue, about why this is so. And we need to infuse the cultures and practices of science with this richer and more open set of social possibilities (*op. cit.*, p. 60).

Engagement with ethics

Bauman (1997, p. 63) asserts that most democratic political systems have moved from the “parliamentary or party rule” model towards the “opinion poll rule” model, aimed at measuring the relative popularity of controversial issues and predicting possible electoral gains and losses. However, democracy is “a necessary condition for free public discussion of issues – and particularly of the issue of social justice and the ethical quality of public affairs”.

The science/society “affairs” did not escape the “opinion poll rule” model. In the EU the Eurobarometer surveys have provided the main arguments for the deployment of science and society programs in the last years. As mentioned above, the public engagement with science can simply fit the “opinion poll rule” model or enlarge the possibilities of free public discussion about science, which seems to be the most challenging task.

According to Wilsdom et al (2004) public engagement has contributed to the development of the so-called “hardware”, i.e. what is already considered in engagement initiatives, like methodologies, for example – focus groups, citizens juries, consensus conferences etc. The “software” – “the codes, values and norms that govern the scientific practice, but which are far harder to access and change”, is what still has to be invested and prevails “not only within science, but also around it, in funding and policy worlds” (op. cit., p. 19). Thus the software is assumed as the part of public engagement that allows public to question the science culture itself and the way that scientific knowledge is invested, which necessarily comprise the ethical dimension.

In fact, if there’s a point to which different social actors could converge, from scientists to non-experts, including policy makers and stakeholders, is the ethical concern. It’s not a rhetorical way of thinking about the impact of science and technology from the perspective of non-experts, but a theoretical and practical reference for changing the science-making in the near future and considering the public as playing a more important role than that of spectators with lack of scientific knowledge (Wynne, 2001).

In a sense, one can say that everyone is (and feels) an “expert” on moral or ethical issues. As far as science is concerned this means that the common citizen, the non-expert, gets interested in the ethics of science, thus becoming involved in the discussion of the ethical consequences of technologies. Nevertheless, for this purpose, he/she must have a certain, albeit temporary, knowledge of the scientific procedure involved in the situation he/she would like to judge from an ethical point of view. For this reason, it is not a coincidence that “bioethics became a powerful instrument for framing policy choices around biotechnology”. Moreover, various social actors could benefit from “the advantages of participating in the development of discourse, thereby challenging the state’s [...] monopolistic control of the formal analysis of values” (Jasanoff, 2005, p. 188).

Ethics changes the way we conceive engagement, the scientific citizenship and the science governance, particularly by applying the concept of deliberation. Through ethics the participation of experts and non-experts in discussions on matters of science deliberation supposedly excludes possible disputes for setting up a hypothetical most valuable discourse. However, one must consider that, when ethics is addressed in engagement scenarios, some communication barriers can be built. In certain citizens-scientists meetings (Felt et al, 2009), whenever scientific knowledge is assumed as superior to value positions, the quality of ethical discussions can be undermined. Against such problems some basic science-centered assumptions must be challenged as well as these issues could be honestly discussed in these meetings.

In what concerns the scientific process, the ethical reflection could redefine the non-experts role, involving citizens with science by improving their awareness of scientific issues and by motivating them to make decisions. For the non-experts, this represents a different approach to introducing science as a field for debate and personal involvement, moving through and beyond the *esoterism* of science – its values, codes, methods and languages.

Moreover, the ethical approach can also make scientists participate in the public debate stretching the boundaries of their work outside the labs, broadening their role as citizens scientists.

For the experts, it also means the possibility to connect their work, processes and scientific concerns to citizen's concerns and questions on scientific matters.

Conclusion

Science Communication through ethical issues cuts both ways in what concerns the balance between the world of facts and the world of values. In fact, the focus on the ethical dimension of scientific research broadens the scope of progress by providing the opportunity to erode the frontiers between those who know/are powerful and those who stand below due to lack of knowledge/power. Then, albeit the different views of deficit and engagement models, there are issues from both perspectives that must be considered when ethical questions are addressed in the relationship between science and society.

First, there is the need to understand the science processes, aims and constraints by the non-expert public, in general only "involved" when new technologies become available as social commodities. The understanding of science is a typical prerogative of the deficit model. Therefore, the involvement in science issues also includes the possibility to reason about it.

Second, it should be questioned if everything that can be possible is definitely desirable. The science fiction shows us countless possibilities of futures, from the best to the worst ones, all of them accredited to science-making and affecting all existing lives. Which could be the role of the ordinary citizen in the building of these possible science-based scenarios? This questioning has also favorable consequences to ethics, inasmuch as the gap between public ethics and the ethics of the singular individual could be bridged by including the citizens in the debate on science. Adding to this, the frontier between deontology and teleology that is stronger and stronger these days can be overcome by bringing to the ethical deliberation on scientific matters the principles of dignity, integrity, vulnerability, solicitude and respect for the person. This would undermine the dominance of procedural reason and consensus as the foundations of the norms ruling human societies, which

underestimates the values and the content of the norms, replacing them with inter-subjective agreements.

Finally, by the nature of ethical reflection and its practical dimension, the engagement scenario should conceive ethics as a basis for the public participation in science, by allowing both citizens and specialists to envisage science as a shared universe. Ethics aims to know what human kind should *be*, what their *targets* are, as well as the *end* of their nature. It focuses on the path and on its destination, thus searching for answers to the current ethical concern, namely what should and should not be done so that Man survives as Man. In order to find the answers for this question, there are another two questions to reflect upon: what defines human nature? And what is necessary to guarantee human existence on Earth? These are the questions that the public engagement with science through ethics will necessarily imply, and it is precisely because of these questions that citizens at large should be involved in the ethical discourse, not as merely actors in a strange plot, but as subjects of a narrative that is co-written by them.

References

Bauman, Z. (1997) *Postmodernity and its Discontents*. Cambridge: Polity Press.

European Commission (2005) *Special Eurobarometer 224: Europeans, Science and Technology*, Retrieved June 18, 2008, http://ec.europa.eu/public_opinion/archives/ebs/ebs_224_report_en.pdf.

Felt, U. & Wynne, B. (2007) *Taking European Knowledge Society Seriously*, report of the expert group on science and governance to the Science, Economy and Society Directorate, Directorate-General for research, European Commission. Belgium: European Commission.

Felt, U, Fochler, M., Müller, A. & Starssnig, M. (2009) Unruly ethics: on the difficulties of a bottom-up approach to ethics in the field of genomics. *Public Understanding of Science* 18 (3): 354-371.

Giddens, A. (1991) *The consequences of modernity*. Stanford: Stanford University Press.

- Gregory, J. & Miller, S. (1998) *Science in public: communication, culture and credibility*.
Cambridge: Perseus Books.
- Irwin, A. (2001), Constructing the Scientific Citizen: Science and Democracy in the Biosciences,
Public Understanding of Science 10(1): 1-18.
- Jasanoff, S. (2005), *Designs on Nature: Science and Democracy in Europe and the United States*,
Princeton NJ: Princeton University Press.
- Lewenstein, B. V. (2003) *Models of public communication of science and technology*. Retrieved
September 1, 2008,
<http://communityrisks.cornell.edu/BackgroundMaterials/Lewenstein2003.pdf>.
- Miah, A. (2005) "Genetics, cyberspace and bioethics: why not a public engagement with ethics?".
Public Understand of Science, 14, 409-421.
- Miller, S. (2001) Public understanding of science at the crossroads. *Public Understanding of
Science*, 10 115-120.
- Miller, J. D. (2004) Public understanding of and attitudes toward scientific research: what we know
and what we need to know. *Public Understanding of Science*, 13, 273–294.
- Stilgoe, J. (2009) *Citizen scientists*, London: Demos.
- Stirling, A. (2009) Engaging Futures: 'opening up' choices on science and technology, in Stilgoe, J.,
The road ahead: public dialogue on science and technology, UK Department of Innovation,
Universities and Skills, London, 2009.
- The Royal Society (1985) *The public understanding of science*. London: The Royal Society.
- Trench, B. (2008) Towards an Analytical Framework of Science Communication Models. In D.
Cheng et al. (Eds.) *Communicating science in social contexts: new models, new practices* (pp.
119-135). Netherlands: Springer.
- Weigold, M. F. (2001) Communicating science: a review of the literature. *Science Communication*,
23, 164-193.

- Wilsdon, J. and Willis, R. (2004) *See-through science: why public engagement needs to move upstream*. London: Demos.
- Wilsdon, J., Wynne, B. & Stilgoe, J. (2005) *The public value of science: or how to ensure that science really matters*, London: Demos.
- Wynne, B. (2001) Creating public alienation: expert cultures of risk and ethics on GMOs. *Science as Culture* 10, 445-481.
- Wynne, B. (2005) Risk as globalizing 'democratic' discourse? Framing subjects and citizens. In Leach, M.; Scoones, I. and Wynne, B. (Eds.) *Science and citizens: Globalization and the challenge of engagement* (pp.66-82). London; New York: Zed Books.
- Wynne, B. (2007). Public participation in science and technology: performing and obscuring a political–conceptual category mistake. *East Asian Science, Technology and Society: an International Journal*, 1, 99–110.