

PUBLIC CONTROVERSY OVER SCIENCE & TECHNOLOGY AND PCST

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Abstract

This article argues that, in contemporary societies, the public controversy over science and technology is one of the most important ways of communication between the public and scientists—a communication from the public to experts, in particular. By analyzing in-depth interviews of biology and biotechnology scientists in Korea, this paper attempts to examine how scientists view the public controversy over science and technology. The overall findings of this paper affirm Martin Bauer's assertion that the public controversy over and resistance to new technology may function as unofficial technology assessment. In the in-depth interviews, many scientists confessed that, due to the public controversy over and resistance to GMO, they became given a serious look over the potential adversarial effects of their research for the first time. The scientists involved in the controversial research, in particular those who belonged to industrial research laboratories, have tended to pay greater attention to the public controversy over their research, while those whose research was relatively distant from the public controversy have tended to be insensitive to it. Some scientists reported that they have even changed their research topic to avoid the public controversy. In the conclusion, the implications of the public controversy over science and technology for PCST and technology assessment will be discussed.

Keywords: public controversy, GMO, technology assessment, PCST

1. Introduction

Public communication of science and technology assumes a mutual exchange of opinions and information between the public (lay people) and scientists (experts). In practice, however, it is very difficult for lay people to have their voice heard. Mass media are often busy to deliver experts' opinions to lay people—columns in news papers and interviews in TV programs tend to solicit experts' opinions, not ordinary people's. Such an asymmetry in communication can be observed even in the public hearings originally devised to bring the public in the policy decision procedures—in most public hearings, experts tend to present their opinions and answer to lay people's questions. In practice, the role of lay people is often limited to passive listening and questioning in PCST.

Studies of public communication on science and technology have long pointed out that the one-way communication from experts to the public is one of the main reasons why a number of PCST efforts have failed to achieve better public understanding of and trust in science and technology[1]. Realizing the critical importance of the two-way communication in PCST, along with the political demand for participatory democracy, many societies have recently experimented

public participation methods expected to nurture the exchanges of opinions and information of science and technology between experts and lay people. Examples of such public participation techniques include public hearings, consensus conferences, citizen advisory committee, referenda, public opinion survey. The effectiveness of these techniques, however, warrants further evaluation.

In this article, I wish to focus on a more informal way of PCST—social controversies over a science or a technology which often lead to public resistance against a specific application of science and technology. Using the controversy over GMO in Korea as an example, I will examine how it has effects on scientists working on GM plants and argue that social controversy over a technology is indeed an important channel through which scientists are led to pay attention to public opinions of their work.

2. Controversies over Science & Technology as PCST

Recent years, most societies have witnessed public controversies over nuclear energy, genetically modified food, micro waves from mobile phones and so forth. While most advocates of new technology have tended to view the public controversies and resistances as irrational responses of the ignorant mass and technophobia, some scholars have attended to a positive aspect of them from the perspective of functionalism. Bauer has insisted:

“Resistance affects socio-technical activities like acute pain affects individual processes: it is a signal that something is going wrong; it allocates attention and enhances self-awareness; it evaluates ongoing activity; and it alters this activity in various ways to secure a sustainable future[2].”

I believe that Bauer and his colleagues’ notion of public resistance as an informal technology assessment brings a valuable insight to PCST too. Unfortunately, however, they have not given enough attention to the implication of social controversy over a technology on PCST—the effects of public resistance against or public controversy over the technology on developers of the technology, namely scientists. Bauer and his colleagues have paid their attention to reactions of governments, international agencies, corporate management challenged by the public resistance, media effects, and regulatory effects generated by the controversy. Yet, how scientists and engineers—the major developers of the technology—were affected by the controversy has received little attention. In order to fill in this hole, therefore, the remaining of this paper will focus on the effects of GM controversy over Korean biotechnology researchers.

3. Public Controversies over GMO in Korea

In this section, I will discuss briefly the history of the GMO controversy in Korea, focusing on the responses of NGOs to GM crops and food. NGOs in Korea began to give their voice on biotechnology as late as 1997 when scientists in the U.K. announced that they succeeded in cloning a sheep. The birth of Dolly raised ethical concerns about biotechnology among NGOs in Korea that traditionally showed little interest in science and technology matters. In the same year, environmental NGOs and consumer NGOs in Korea with growing concerns about biotechnology organized a demonstration against cloning research in February and held an NGO conference for figuring out the path of development of biotechnology in July. In August 1998, the news that GM crops had been imported and sold to consumers in Korea alarmed many Korean. NGOs alarmed by the news felt that they had to respond to the GMO issue more systematically and actively. In October 1998, seven NGOs created a coalition named “Korean Association for Biosafety and Bioethics (KABB).” The KABB included diverse social movement groups focusing on environmental issues, consumers’ right, women’s right, democratization of science, and religious issues.

By 1999, total 17 NGOs joined into the KABB. Since then, NGOs in Korea have organized open forums on consumers' right in the face of the introduction of GM food, bio-safety and bioethics. These NGOs have made concerted efforts to bring a law for the product labeling, which requires labeling for GM food, in order to attract consumers' interest in and control over GM food. Under the pressure of NGOs, Korean government established guidelines for the safety test on GM food in 1999, and made the safety test mandatory in 2003. The labeling for GM crops has been enforced since 1999, and the labeling for GM food—food products processed by GM crops—has been enforced since 2000 in Korea.

As mentioned earlier, in addition to environmental NGOs and consumer NGOs, NGOs of diverse interests have joined in the controversy over GM crops and food products. Although their activities in practice appeared to focus on the labeling issue for the strategic reason, very diverse interests have driven NGOs to participate in the GMO controversy. Such diverse interests are well shown in the following principles announced when the KABB launched.

- (1) We are opposed to the promotion of biotechnology with no discretion;
- (2) We are opposed to indiscreet animal cloning and also human cloning for any reason;
- (3) We are opposed to import and distribution of GM food products, the safety of which was not warranted;
- (4) We ask government to impose legal sanctions on the release of genetically modifies organism;
- (5) We are opposed to the hasty use of gene therapy;
- (6) We are opposed to grant patents for a life form without discretion;
- (7) We ask to strengthen education for bio-safety and bioethics;
- (8) We ask to warrant citizen participations in every area of biotechnology[3].

The KABB principles demonstrate a wide range of issue associated with GM technology, and further suggest the range of public concerns over biotechnology. Indeed psychometric studies have shown that biotechnology tended to be judged as having relatively high catastrophic potential and as a very unknown risk[4],[5]. Such substantial concerns about and resistances against biotechnology among consumers and farmers have brought great interest in public perceptions of the technology among the agricultural and pharmaceutical companies, the government, and the scientific community. Unlike a technology is in the laboratory, a new technology introduced into the market in the form of goods increases greatly the number of stakeholders of the technology. The case is particularly true if the product is something at the table for everybody. If GMOs were not related to food products, the GMO controversy would be restricted within an environmental and ethical issue. But consumers as the end users of GM crops are to determine whether GM crops can succeed economically in more direct way, and thus prove to be the most critical constituents in the GMO controversy.

4. Methods

I made face-to-face in-depth interviews with 17 researchers in the biology and biotechnology fields from July, 2002 to April, 2003. The interviewees are restricted to professors and researchers with Ph. D who can organize and control their own research. 14 worked in university as a professor and 3 worked in a research institute associated with a private company.

5. Findings

Critics involved in the GMO controversy have long accused scientists of being stubborn and insensitive to the public controversy over science and technology. But, the results of the in-depth interviews suggest that the opposite might be the case. Although some of the respondents have just shrugged off the public's anxiety about and resistance to GMO as being resulted from their scientific ignorance and misled by anti-biotechnology groups, many scientists have shared the safety issue of GMO and, further, confessed that, due to the public controversy over and resistance against GMO, they became given a serious look over the potential adversarial effects of their research for the first time. This is, public controversy over and resistance to GMO appeared to be a momentum to make scientists become more reflexive on their work. Such a reflexive response was found more often among scientists involved in GMO research. In particular, worrying consumers resistance, those who belonged to industrial research institutes, have tended to pay greater attention to the public controversy over their research. In contrast, scientists whose research was distant from the controversial GMO have tended to be insensitive to the public controversy and to underestimate the effects of the public controversy on scientific research.

Scientists might give attention to the public controversy over GMO mainly because they worried about the possible negative effects of such a controversy on their research funds. Even so, we should not underestimate the fact that the public controversy has offered an exceptional opportunity for scientists to pay attention to lay people's anxiety about GMO and reconsider social consequences of their research. That is, the public controversy over GMO has played a role as the communication channel flowed from lay people to experts.

Some might also argue that scientists' response would be merely an ideological rhetoric to pretend that they concerned about public anxiety. The results of the interview suggest, however, that scientists' concern about the public anxiety about and resistance to GMO is not merely rhetorical responses. Indeed, not a few respondents maintained that they have changed their research topics due to public controversies over GMO. For example, developing a way to control the height of plants through genetic modification, a plant biologist decided to apply the new technique to lawn instead of rice to avoid controversies expected when he applied the technique to plants for food. The public controversy over GMO has worked, therefore, as an indirect technology assessment as well as a way of communication between scientists and lay people. A researcher working in an industrial research laboratory confirmed it by confessing that the potential public resistance to the final product was a critical factor when the company considered a research topic.

6. Conclusion

Advocates of new technologies often view public controversy over and resistance to a new technology as a unproductive social conflict due to the public's scientific ignorance and irrational anxiety. This article supports, however, the functional view of public controversy over new technology. In the situation that PCST is often dominated by unidirectional communication from experts to the public, we should value the important role of the public controversy as a communication tool through which lay people's voice can be heard to experts and, furthermore, as a unofficial technology assessment. Then, the goal of PCST might be "informing the debates" to enhance two-way communications rather than "informing the public" to deliver experts' information and opinions to lay people[6].

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