Politics, Science and the Public

The Public Understanding of Science

Different from the views of science and technology with which this book began, scientific and engineering research influence each other, they are shaped by professional cultures and interplays of interests [1]. The humanization of science and technology reduce the suthority of technology. we cannot simpley say that scientific knowledge reflects nature, or it arrives from nature. Science journalisms are more interested on the importance of a technique, not processes to find them. Doubts, questions, caveats, and qualifications, as important parts of the scientific research are downplayed, sometimes to the dismay of scientists. The description of the genius and logic behind a new discovery is too idealized. Science produces genuine knowledge, which are too complicated to be widely understood.

The effectiveness of popularizations:

- The culture of science discourages scientists.
- Popularizations affect scientific research because scientists read them, and may even be a large portion of the "popular" audience.
- There is a connection between real and popular science, though scientists treat these as completely distinct.
- Popularizations may also affect the shape of scientific research, when they affect public.

For example, planetary scientists promoted the idea that possible impacts of large asteroids posed a significant threat to Earth, then their work was developed by the writer to be science fiction novels and films. The novels and films in return permote the research of nuclear weapons research and the militarization of space.

How to treat popularization?

- If boundaries between scientific research and popularization are well established and strong, then novel findings and ideas are easily dealt with, either by being incorporated into the discipline or rejected[1].
- Scientific rules about popularization are often applied in a self-serving way.

- Popularization can be used to discredit non-scientists' use of science, reserving the use for scientists. If there are no popularization of science, then science would be a much more less authoritative.
- Even though simplifications and distortions exists in popular science, scientists realize that simplification and distortion is acceptable.
- Popularization is a way of spread knowledge into new domains.

Along with the science popularization is the "deficit model" of the public understanding of science. The scientifically illiterate are less likely to support spending on science and more likely to support measures that constrain research. Public understanding of science often refers to studies of attempts to apply scientific knowledge or methods to problems in the public sphere. Scientific knowledge is invariably tied to the local circumstances of its production. Opposition to science is not the result of misunderstandings but of inadequate scientific work. Because the view that science trumps all other knowledge traditions, ignoring claims to knowledge that come out of non-science traditions, they tend to see that opposition as misinformed or even irrational.

Expertise and Public Participation

Scientific and technical knowledge are seen as apolitical, which means that they are not subject to democratic contestation and oversight[1]. Governments do justify actions on the basis of scientific and technical knowledge in liberal democracies. There are conflicts between expertise and democracy. One solution is to turn it into an empirical question about the distribution of expertise. Sheila Jasanoff describes "civic epistemologies" in Germany to solve this problem[2].

Political Economies of Knowledge

Knowledge economy usually refers to an economy based on highly developed technical knowledge and refers to economies of knowledge, structures in which knowledge is regard as a major good, exchanged in one way or another. In the twentieth and twenty-first centuries, actors treat technical knowledge as a resource, and attempt to own or control it using mechanisms of intellectual property law. However, as seen in earlier chapters, science and technology do not contain many feature of free knowledge markets, or at least free markets are not in all ways desirable.

Reference:

[1] Sismondo, Sergio. *An introduction to science and technology studies*. Vol. 1. Chichester: Wiley-Blackwell, 2010.

[2] Jasanoff, Sheila. *Designs on nature: Science and democracy in Europe and the United States*. Princeton University Press, 2011.