

Reading Notes: Social Construction of Technology

1. Summary

1.1. The Social Construction of Scientific and Technical Realities

Since late 1970s, social constructivism provided the important assumptions as the basic of the social construction: Both science and technology are active social concepts and not themselves natural. Peter Berger and Thomas Luckmann introduced the conception of "social construction" in *The Social Construction of Reality* (1966) to illustrate why the sociology of knowledge studies the social construction of reality[1]. The most interesting topic from Berger and Luckmann is social reality, people's actions and attitudes is the most important contributions to the institutions and structures. Social & Technology Study holds the perspective that the construction and a conception in the social world we need some precondition: firstly, knowledge of X encourages people action tendency; secondly, some common and transmission of knowledge of X exists.

"Knowledge, methods, epistemologies, disciplinary boundaries, and styles of work" are all key features belongs to scientists' and engineers' social research fields. It is important for a scientist or engineer who to account for taken-for-granted facts. Hence, almost every object in laboratory are manipulated. So the knowledge about things derived from these manipulated evidence in laboratories are distinctly non-natural.

Science and technology shape the construction of our environments with both intended and unintended way, because scientific facts and technological artifacts can have enormous effects on the material and social world and policy[1]. Logical positivism's central observation is that science constructs representations on top of data and they suppose that that scientists have already had bias about the logical frameworks within which they work, before they operated within those frameworks.

Generally, technological work simultaneously addresses multiple domains challenge and needs multiple types of resources. So, to help with the development of artifact, various constructions they are bound together in practice. Many contributions to Social & Technology Study have converged on the point that, technology and scientific work are heterogeneous[1] and heterogeneous construction work simultaneously in the shaping of the material and social world, to make them fit each other.

"Whether natural kinds are part of the non-human world or are only part of human classification" are an important philosophical question and there two different opinions hold by nominalists and realists. Nominalists believe that kinds are *human imposition* and realists believe that kinds are *real features of the world*[1]. *Neo-Kantian constructivism* believes that there is never direct access to the natures of things and human cannot understand the natures of things without representations. For example, even human's sense experiences are themselves reflection to things. In fact, there is large amount of contingency in our knowledge in the process of their development.

1.2. The Social Construction of Technology

Social Construction of Technology (SCOT) Model literally studies how actions and meanings turn into things in the interaction of social. The model holds that progress in science and technology is part of society. The SCOT model seeks to demonstrate the complexity of interactions between different social groups involved in technological innovation. SCOT was mainly influenced by three strands: the science-technology-society (STS) movement, the sociology of scientific knowledge (SSK) and the history of technology[3]. SSK is the study of science as a social activity, especially concerning "the social conditions and effects of science, and the social structure and process of scientific activity." Sociology of knowledge studies the impact of human knowledge, as well as mainstream views on society and the relationship between knowledge and the social environment in which knowledge is produced.

SCOT is a reaction against technological determinism. SCOT argues that technological development is not preordained and linear but contingent and multidirectional[2]. SCOT asserts that success of an artifact is precisely what needs to be explained rather than explain what are the best technology wins, the most efficient, the most rational. Than people believes "the meanings given by a relevant social group actually *constitute* the artefact" and technology has no essence, except the meanings that people give to them.

The technological frame is a connection between individual action and relevant social group. Technological frame's elements are:

- Problems
- Strategies to solve them Requirements to do so
- Theories
- Tacit knowledge
- Testing procedures Design methods
- User practices
- Exemplary artifacts.

2. Discussion

In my opinion, the world must have some regulations that dominates its behavior every. Human has a limited sensors to observe the universe. For instance, we cannot observe the smallest thing even with the help of microscope. The limitations prevent us from understanding the essence of the world. The conclusion that we drew from our viewpoint and the theories we developed from the observation of the world to define the parton of the nature are not the essence and will lose generality in a more macro perspective. But, it does not mean that it is meaningless or the world is not inscrutable. The world is truly function as our theory describes and we truly benefit from our persist understanding of the world.

3. In Class Notes

Social Construction:The scientific and technological construction of material and social environments.

Heterogeneous Construction: Science Technology build environment, Laboratory Equipment, Established Knowledge, Construct Network and so on .

Construction of Kind:

1. Nominalist

- Kinds are human impositions.
- Socially constructed by people.
- Only individual objects are real.

2. Realist

- Kinds are real features of the world.
- Kinds are external to people.

4. Reference:

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

[2] Matthewman, Steve. *Technology and social theory*. Macmillan International Higher Education, 2011.

[3] Bijker, Wiebe E. "How is technology made?—That is the question!." *Cambridge journal of economics* 34, no. 1 (2009): 63-76.

[4] Bijker, Wiebe E. *Of bicycles, bakelites, and bulbs: Toward a theory of sociotechnical change*. MIT press, 1997.