

The Social Construction of Technology in Development

PhD Course MERIT-UNU

2006/2007

Content Overview

This course will introduce recent approaches in constructivist technology studies, elaborate and investigate their relevance for development studies, and explore their background in the sociology and philosophy of science.

In the past two decades, sociological and historical studies have developed a constructivist analysis of technology in contrast to the standard image of technology that was largely 'technological determinist'. The resulting social shaping models stress that technology does not follow its own momentum or a rational goal-directed problem-solving path, but is instead shaped by social factors. Therefore, constructivist approaches to technology, such as the social construction of technology, start by defining 'relevant social groups', including technology users and consumers. Technical artefacts are described through the eyes of the members of these relevant social groups. The interactions within and among these groups can give different meanings to the same artefact. As a result of the involvement of these different groups, problems are defined differently and so are possible solutions, giving rise to different interpretations as to whether a problem has been solved or to the proper working of a technology. This interpretative flexibility demonstrates the necessity for a sociology of technology – it shows that neither an artefact's 'success' or 'failure', nor its technical 'working' or 'non-working', are intrinsic properties but are subject to social variables. Therefore, technology is not constructed merely by engineers, but also by marketing departments, managers, anti-technology action groups and users. Indeed, advocates of indigenous knowledge have argued that small farmers continuously experiment and are often more successful in improving agricultural techniques than are the large agricultural research institutions. It is therefore important to address issues in a wider cultural, political and economic milieu when formulating S&T policies.

Besides introducing constructivist work in technology studies, this course will be focused on issues of development. Science, technology and society (STS) studies investigate the development of science and technology in their interaction with society. One key result of these studies has been the re-valuation of indigenous knowledge. Scientific knowledge has been shown to be a specific knowledge system like many others. It does stand out for its specific characteristics, maintained through methodologies and checked by peer review, but these are social accomplishments, neither *a priori* given nor epistemologically different from 'other indigenous knowledge systems'. Science has enormous value and potential, but this value is context-specific. There are situations in which scientific knowledge is irrelevant, and other types of knowledge more appropriate. This re-evaluation of indigenous knowledge and improved understanding of the process of scientific and technological work are two cornerstones of an argument for a specific strategy to stimulate the use of research and technology for development.

It will be helpful — for the context of this course, but also more generally for researchers in their scholarly life — to understand some basic philosophy and sociology of science. Zooming in on the process of scientific and technological work, you will see that scientific research and technological development are heterogeneous activities that do not have the purity that some philosophies of science have assumed in the past. Scientific knowledge is constructed in laboratories, on the land of small farmers, in the offices of funding agencies, at international conferences, and in editorial offices. It is not a matter of asking clever questions of nature, who then shouts back a clear ‘yes’ or ‘no’. Thinking about research and science must go further than the illusion that a combination of methodology and laboratories will automatically produce new scientific knowledge. S&T policies must take into account a broad variety of aspects of scientific research – funding, technical infrastructure, social institutions, training and teaching styles, publication possibilities, national culture, and international scientific relations. Probably the most important result of STS research is *the very possibility* of a policy dialogue on the contents of an S&T policy agenda – within the standard images of science and technology, there is no point in consulting anyone other than scientists and engineers about the S&T agenda.

As a form of general preparation for the course, it would be worth while to read two *Golem* books (Collins and Pinch 1998b; Collins and Pinch 1998a).

Course set-up

This course will ask an active role of students. Rather than a series of lectures, the course will be built around discussions of literature read before each class meeting. Every student will be asked to hand-in summaries of the literature, and a series of questions and topics for discussion.

The course schedule below presents the intellectual agenda of the course and the key literature. The required readings for each session will be specified later.

Course schedule

Session 1 (16 October, 15:00-17:00):

Introduction: issues of technology and development

Required readings: (Box 2001), (Shrum and Shenhav 1995)

Additional readings: (Bijker forthcoming in 2006a)

Session 2 (18 October, 15:00-17:00):

The Social Construction of Technology (SCOT)

Required readings: (Bijker 1995a)

Additional readings: (Bijker 2001), (Bijker, Hughes, and Pinch 1987), (Callon 1986), (Bijker and Law 1992), (Bijker 1995b) (Oudshoorn and Pinch 2003),

Session 3 (20 October, 15:00-17:00):

The Sociology of Scientific Knowledge

Required readings: (Collins 1985), (Callon 1995), (Knorr-Cetina 1995)

Additional readings: (Latour and Woolgar 1979 (1986))

Session 4 (23 October, 15:00-17:00):

Doing technology studies research

Required readings: all introductory, methodological, and concluding chapters in the following books: (Pieters 2005), (Mourik 2004), (Hommels 2005), (Thompson 2005; Boczkowski 2004; Lécuyer 2006; Keating and Cambrosio 2003; Rosen 2002; Mort 2002), (Shah 2003)

Additional readings: (Seale 1998)

Session 5 (25 October, 13:00-15:00):

The Vulnerability of Technological Cultures

Required readings: (Bijker 2006a), (Shah 2004)

Additional readings: (Bijker 2006b)

Session 6 (27 October, 15:00-17:00):

Research and Technology for Development

Required readings: (Bijker forthcoming in 2006b), (Shah 2005), (Prasad 2005a), (Krishnan and Prasad 2006), (Prasad 2006)

Additional readings:

Session 7 (30 October, 09:00-11:00):

Indigenous Knowledge and Technology

Required readings: (Watson-Verran and Turnbull 1995), (Mueller-Rockstroh 2005), (Mueller-Rockstroh forthcoming in 2007)

Additional readings: (Pfaffenberger 1992), (Prasad 2005b)

Session 8 (31 October, 15:00-17:00):

Back to Development Issues

Required readings: (Box and Engelhard 2006)

Additional readings:

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