Abstract

Invited Session: Philosophy of the Applied Sciences and Technology

How to bring philosophy back into science – *Epistemological constructivism* as a viable picture of science?

Mieke Boon

University of Twente, Enschede, THE NETHERLANDS

General philosophy of science is concerned with “what is science.” This question seems to be relevant for scientists, but the philosophy of science has almost disappeared from science education programs and hardly plays a role in current scientific research practices. At the same time, many philosophers of science believe that their *raison d’être* is not just academic.

In the first part of my paper, I will present some examples of epistemological issues in current scientific research practices to which the philosophy of science may contribute. Then, I will argue that the typical problems philosophers of science are concerned with, build on a ‘picture of science’ – i.e. philosophical views on ‘what is science’ – that may not always be productive for making these contributions. Hence, in order to become relevant for science, philosophers of science may need to reflect on their own presuppositions about science, so to speak. Furthermore, the philosophy of science should work towards a picture of science that meets criteria of productiveness for scientific practices. Scientific realism, anti-realism and social constructivism are often taken as candidate, yet competing philosophical views on ‘what is science’, whereas pragmatic approaches aim to get around these unsolvable debates. However, scientific realism and so forth, reflect in fact (incoherent) pictures of science that many scientists maintain when they think or talk *about* science; which at a more fundamental level hinders their ability to analyze and solve intricate epistemological issues. Therefore, instead of either taking this as a proof for the appropriateness of these views, or just ignoring them as pragmatist approaches tend to do, philosophers of science should critically reflect on their productiveness and propose viable alternatives.

In the second part, I will propose *epistemological constructivism* as a possible alternative. The core of this alternative is a ‘non-representational’ account of scientific knowledge,
which, instead of building on the notion of representation, explicates scientific knowledge in terms of (1) the irreducible material and technological side of the experimental sciences, (2) constructive epistemic activities such as scientific concept formation and modelling intricately related to the former, (3) regulative (rather than metaphysical) principles that direct these epistemic activities, and (4) a number of epistemic criteria that guide in the acceptance of knowledge. My conjecture is that this alternative suits better in explaining the successfulness of science, in particular when considering the contribution of science to technology and its abilities of problem-solving.

Literature:


