UCLouvain

FIAL
Un éventail de formations, une multitude d'horizons

Philosophy of Science in Practice

LFILO2602 – Philosophy of Science
Session 11

The “Practice Turn”

Since the 1970s, in the philosophy of science (and also in “science studies,” which includes sociology of science, history of science and technology, etc.).

From the Ideal to the Real

> The maxim “pay attention to scientific practice” conveys a crucial methodological ideal: to recover detailed actions and reasoning – including uncertainties, conflicting interpretations, and so on – *as they operate in the situation*, in contrast to retrospective reconstructions of actions and results provided by scientists and traditional philosophy of science. (Soler et al. 2014, 12)

From the Abstract to the Concrete

> instrumental devices, experimental setups, protocols, and manipulations. Other material aspects that have been included in the picture are the particular 'formats' of scientific theories, models, and representations, such as images, diagrams, tables, and so forth. (Soler et al. 18)

From the Explicit to the Implicit

> manual skills, such as technical gestures (knowing how to take a blood sample from a mouse, for example), or intellectual ones, such as knowing how to perform certain complex computations in an efficient way, or seeing a new problem as similar to another already mastered one. (Soler et al. 18)

neither theoretical nor explicitly described

From the Normative to the Descriptive

> This shift aims to move from characterizations of science as *it should be* to characterizations of science as *it actually is*. It comes from a reaction to a strong tendency, within traditional philosophy of science, to take a *certain kind* of normative stance. (Soler et al. 15)

From the Individual to the Social

> ...a variety of new issues surrounding how knowledge is generated and transmitted, how knowledge is intertwined with issues of authority, expertise, trust, and divisions of labor, and how social structure is established and perpetuated to coordinate community deliberation and action. (Woody 2014, 124)

From Articles to Experiments

> Scientific publications such as textbooks or papers are, by nature, reconstructed versions of actual historical processes. Scientific publications do not aim to indicate the details of the path that led to the successful results they report, and they definitely are not the place to describe the doubts and dead-ends that scientists faced during the research. (Soler et al., 22)

Summary

- abstract, universal → concrete, particular
- unifying → pluralist
- a priori, normative → empirical, descriptive
- ideal agents → real agents
- knowledge as observation, propositions → knowledge as control, interaction
- individual epistemology → social epistemology
- science as representation → science as material practice

How do we do it?

> An epistemic activity is a more-or-less coherent set of mental or physical operations that are intended to contribute to the production or improvement of knowledge in a particular way, in accordance with some discernible rules. [...] The presence of an identifiable aim is what distinguishes activities from mere physical happenings involving human bodies, and the coherence of an activity is defined by how well the activity succeeds in achieving its aim. (Chang 2014, p. 72)

How do we do it?

Our activites are linked to create systems, which in turn exhibit a kind of *operational coherence* – no activity happens alone, and (almost) no goal is planned without others in mind.

That gives us targets for philosophical analysis.

What to do?

- analyze the history of science – adding analyses of activites to those of theories, paradigms, etc.
- analyze the production of knowledge in terms of activities:
  - creation of a concept: *standardization, measure, publication, management*
  - modeling: *construction of models*
  - confirmation: *the process of testing*
  - explanation: *demand for explanation and response*

What to do?

We can still *normatively evaluate* the practices of scientists. Are their activities consistent? When scientists critique each other, can we understand their critiques in these terms?

An example

Haslanger (2016), “Theorizing with a purpose: the many kinds of sex”

- Man/woman is a distinction **that we make** – a way to sort individuals into categories based on certain differences
- But there are **lots** of those differences: physical, genetic, hormonal, social, etc. Which are “correct” to distinguish “men” and “women”?
- This question can only be answered if we ask **why** we want to make the distinction, what the distinction is supposed **do** for us

An example

> Human sex differentiation occurs within a framework of social meaning. An infertility specialist and an intersexed teen have different purposes and interests that will lead them, reasonably, to different conclusions about what sex is. (Haslanger 2016, 134)

An example

> What matters is whether their conclusions about what sex is give good answers to their questions, where good answers involve tracking the parts of reality that do the needed descriptive, explanatory, normative work. (Haslanger 2016, 134)

General themes

- **pluralism** — there are many answers to the question of what sex categories are. Theories about it are only tools, and there are different tools for different tasks
- **anti-essentialism** — skepticism concerning the objectivity of the ontology of science, which is closely linked to human goals
- **pragmatism** — this work is connected to the idea that *coherence in practice* is the criterion for success in science, a classic pragmatist idea
- **feminist and critical theory** — the scientific image of the world is built, in important ways, by *choices* that serve *interests;* who makes those choices, and why?

How to make connections?

What's the (right) relationship between philosophy of science in practice and what we might call "traditional" philosophy of science?

Is this practice-turn just a way to replace one extreme with another?