

Everything I wish I had known about the philosophy of science...

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When I started my own PhD back in the 1980s, I already knew a lot about my actual subject (a contrastive linguistic analysis of the semantics and expression of definiteness in English and Finnish), but I was methodologically and philosophically naive. At our first meeting, the head of my department at Reading University, the distinguished linguist Frank Palmer, gave me a small piece of paper on which he had written his official supervisory advice. This is what it said:

- Be brief. A thesis of 60,000 words can be quite satisfactory. 100,000 words is usually too long.
- Do not deal at length with matters that are familiar.
- Keep the introductory sections short.
- Do not make extensive use of quotations. In particular, do not use quotations as authority for your views.
- Restrict references to those that are relevant.
- Restrict your discussion to the “facts”, i.e. do not include statements of an emotive kind and be careful not to assume what you have to prove.
- If you have a great deal of research material, do not include it in the thesis (but make sure it is available for inspection).
- If your thesis is on an interdisciplinary subject, be very careful to check the appropriateness and correctness of your material, theory etc., from the point of view of the other disciplines.

That was it. It was certainly good advice. But now, looking back, there was a gap: I was largely unaware of the philosophy of science, and thus not well informed about many things that I would now consider as fundamental for any doctoral researcher. Fortunately however, I was saved by Karl Popper.

I had come across a small book by Bryan Magee, called simply *Popper*, in the Fontana Modern Masters series (1973). It opened huge windows for me, and I quickly became completely hooked. I read a lot more about Popper and by him, and deliberately structured my thesis along Popperian lines, starting with a problem, with an initial hypothesis—the traditional analysis of English articles—which I firmly knocked down, and then proposed a better one to replace it, to be tested in its turn.

Later, I learned to be more critical of some of Popper's ideas, but he remained an inspiration to me, for instance in the way my ideas about ethics developed, in my understanding of the fundamental importance of criticism in any search of knowledge, in learning how to react to criticism without becoming insulted (not one of Popper's own best virtues, actually), and in appreciating a good argument.

With the wisdom of this hindsight, I wish I had known more about the philosophy of science much earlier in my academic life. I think this would have been of great significance to the quality of my later work. I also think that this kind of background knowledge underpins the kinds of general intellectual skills that any doctoral program should be training students in, skills that would not only be valuable for one's own personal development but also for one's eventual contribution to society, in whatever form.

So here is a brief checklist of ten topics that, I submit, should be part of the methodology syllabus of any doctoral program, including one in Translation Studies. As a module of a PhD program, these topics might work as workshop discussion themes, perhaps combined with specific assigned readings; or as lecture topics; or as subject areas for written assignments or summary reports or online searches. They often appear as chapter headings in philosophy textbooks. The list is a personal one, and amounts to no more than a few notes for discussion; please make your own additions and alterations!

- *Basics of the history of science.* This would include for instance Aristotle's ideas about causality; Galileo and the role of evidence; Newton's belief in natural laws; Darwin's unifying idea; Heisenberg's uncertainty principle; Kuhn and the sociological aspects of the evolution of research paradigms; the Science Wars of the late 20th century... and much more.
- *Ways of distinguishing science from pseudoscience.* This topic would cover at least Popper's falsifiability requirement, plus counterarguments about the impossibility of absolute falsifiability; the testability of claims / theories / hypotheses; the role of confirmation and evidence; fallibilism. It would underline the need for a critical attitude, always looking for counter-evidence (see the example of Darwin, who was always specifying what would count *against* his theory). (For discussion: is poor research like pseudoscience?)
- *The natural sciences vs. the social sciences vs. the humanities.* Included here would be an outline of the different approaches and aims of these major branches of knowledge; their different goals (prediction vs. intelligibility?); the nature of rationality; different kinds of knowledge, all reducing puzzlement... (Where might Translation Studies fit in?)
- *Forms of logical argument.* Argument by analogy; induction and its limits; deduction; abduction (Peirce). The classical syllogism; also the practical/pragmatic syllogism for the study of human action (roughly: A

desires an end-state P; A considers that he cannot cause P to exist unless he does X; therefore A does X). Basic logical fallacies (see many lists online). (Workshop exercise: hunt the fallacy...)

- *Categorization*. The centrality of this procedure to any research (conceptualization). The point of category formation (to allow generalization, etc.); types of categories (e.g. classical, fuzzy, prototypical, cluster); natural kinds (reflecting the “real” divisions of nature). The idea that all categorization is based on looking for similarities and differences, generalizations and tendencies; relating categories. The problem of non-like categories; borderlines between categories. (For discussion: What kind of category is “translation”?)
- *Notion of a hypothesis*. Empirical and interpretive hypotheses; hypothesis justification and testing. Why a hypothesis might be rejected (including faults in the test, dubious auxiliary assumptions, non-reliable measurements etc.). Degrees of confirmation of a hypothesis; probabilistic assessments of hypotheses (e.g. bold vs. cautious ones); the value of negative results.
- *Concepts of what a theory is*. Kinds of theory; axiomatic (e.g. Vermeer’s *Skopos* theory) vs. semantic theories (as sets of related or unified hypotheses). The idea that all observation is theory-bound. The use of metaphors in theory-construction and formulation. Models and hypotheses as theories.
- *Concepts of explanation*. Different types of explanation (e.g. causation, generalization, unification). The notion of a law, and why it is problematic. The complex relation between explanation and prediction.
- *Concept of a method*. Experimental methods, quantitative vs. qualitative ones. Also the hermeneutic method, plus the centrality of interpretation in any method. Triangulation.
- *An awareness of ideological issues*. Ideology has an effect on subject selection (social or theoretical relevance) and data selection, sampling decisions... even the choice of language for publication. The importance of self-reflection, awareness of one’s own position. How ideology affects assessments of significance, including what makes a good research question.

A few suggestions for further reading:

- Chalmers, Alan F. 1976/1999. *What is this thing called Science?* Indianapolis, IN.: Hackett.
- Klemke, E. D., E. D. R. Hollinger and D. W. Rudge (eds.) 1998. *Introductory Readings in the Philosophy of Science*. 3rd edition. Amherst, NY: Prometheus Books

- Rosenberg, Alexander 1988. *Philosophy of Social Science*. Oxford: Oxford University Press.
 - Rosenberg, Alexander 2005. *Philosophy of Science: A contemporary introduction*. London: Routledge. (Second edition.)
- and of course anything by or about Popper...