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Philosophy of Science and Technology in Interdisciplinary Collaboration

Report on the International Workshop on the "Philosophy of Interdisciplinarity"

Atlanta, USA, September 28–29, 2009

by Herbert Gerstberger, Pädagogische Hoch-schule Weingarten

Since the early 1970s, "interdisciplinarity" has become a popular label for innumerable research programs. Interdisciplinarity is driven by expect-ed benefits from solving problems collaborative-ly across the boundaries of traditional disciplines and, from a different perspective, by ethical and societal problems at the intersection of science, technology and society. These problems led to the establishment of technology assessment, glo-bal change studies and sustainability research. There is a broad practice of interdisciplinary ac-tivities all over the globe. There are, however, also many conceptual and practical problems with interdisciplinary research. The purpose of the workshop was to reflect a philosophy of interdisciplinarity in the traditions of philosophy of science and philosophy of technology, but in interdisciplinary collaboration.

This workshop was organized by the philos-ophers Michael Hoffmann[1] and Jan C. Schmidt[2], and Alan Porter who co-directs the department of Technology Policy & Assessment at Georgia Tech. It gathered scholars and students[3] of dif-ferent disciplines grouped around key questions concerning current debates on interdisciplinarity. These questions were given in advance by the or-ganizers and addressed the following issues:

- concepts and terms – e.g. interdisciplinarity, transdisciplinarity,
- specifically philosophical aspects of interdis-ciplinarity,
- standards and evaluation of interdisciplinarity research,
- conflicts between disciplinary and interdisci-plinarity values, standards, approaches,
- representation and framing of knowledge,
- languages and metalanguages in the confron-tation of disciplinary and interdisciplinarity,
- the need and quest for a philosophy of inter-disciplinarity.

The questions were answered according to the specific backgrounds of the speakers. The 16 contributions offered a spectrum of reflections on conceptual and methodological fundamentals as well as very concrete examples of interdiscipli-nary research and also of ways of describing and evaluating scientific cooperation. The schedule provided a pattern of short presentations and lots of time for discussions, an approach that turned out to be very fruitful.

From the beginning – the session was started by Bob Frodeman[4] – a strong commitment to seri-ous reflection of values and justification character-ized the workshop climate. Philosophy appeared neither as "l'art pour l'art" nor as some meta-sci-ence but rather as a kind of discipline that interacts with other disciplines, being pulled by interdisci-plinary practices but also capable to actively push those practices. The spectrum of philosophical resources associated with interdisciplinarity was further displayed in the contributions of Britt Hol-brook[5], Jan C. Schmidt and Michael Hoffmann. Whereas Schmidt and Holbrook drew critical dis-tinctions of the term interdisciplinarity – accord-ing to ontology, epistemology, methodology and problem-orientation or according to philosophical schools and paradigmata – Hoffmann's semiotic approach lived on a meta-level of another type. His distinction of several kinds of interpretants (a further development of C.S. Peirce's concept of the sign) met its approval in the talks of Tho-

mas Wilmer[6] and Herbert Gerstberger[7] later on. His concept of collateral knowledge described an essential phenomenon of IDR structures which is more hidden and unconscious than the mechanism of transfer as explained by Robert Rosenberger[8].

A philosophical approach to conceptual distinction appeared in the more specific contributions. Alan Porter quoted several schemes and criteria, currently used in the evaluation of interdisciplinary research, and the distinction of substantial and procedural rationality (H. Simon) was complemented in Paul Hirsch's[9] talk with skeptical rationality. In contrast, the more traditional approach of categories of reason(ing) was used by Herbert Gerstberger in his report on attempts to reconciliate STEM[10]-education with the aesthetic.

As another central philosophical concern in almost every contribution the ethical dimension was more or less explicit. The dialectical relationship between knowledge production and values was one of several recurrent themes of the workshop and a central question in the final discussion. Especially when values are at the same time revealed and concealed in metaphors, a philosophical analysis might promise help. In this sense, Hans Klein[11] questioned the "cyberspace", and several contributors referred to Steward Pickett's thesis on the role of the metaphor in ecological models. However, the need for a thorough theoretical consideration of the interaction of values, problems and metaphors was not met in this workshop.

In the final discussion the following items explicated the general question "What can a philosophy of interdisciplinarity mean?".

- What is a "problem" that can only be tackled in interdisciplinary collaboration? How to characterize and identify those problems?
- What kind of models can we develop to describe interdisciplinary research?
- Can, or should, interdisciplinarity be defined a priori or is it possible to generate a sufficient understanding of interdisciplinarity based on a variety of personal experiences?
- Is there a tension between theory and practice of interdisciplinarity, and if so, how to deal with it?
- What are the normative issues involved in interdisciplinary research and in interdisciplinarity research?

- How to mediate between conflicting values, background assumptions, and styles of thinking and doing things in interdisciplinary collaboration?
- How to evaluate the quality of interdisciplinary research?

Thus the workshop not only started from a set of questions but also ended with another set. But that's not to say "The curtain shut and every question open". This workshop can be reflected upon as a self-referential enterprise in that interdisciplinarity was tackled in an interdisciplinarity setting. Here, the role of philosophy was not represented by professional philosophers only, and the other way round, specific interdisciplinary research projects were looked at successfully from a general point of view.

In order to envisage a next meeting in 2010, it was attempted summarize the suggestions and findings of the whole workshop in an adequate title. Finally this discussion resulted in the alternative coinings "Philosophy of interdisciplinarity" or "Philosophy as interdisciplinarity". A combination of these seemed to be reasonable, too: "Philosophy of/as Interdisciplinarity".

Notes

1) http://philosophy.gatech.edu/pin.php
2) University of Applied Sciences, Darmstadt, Germany
3) The participants came from several universities in the U.S., a British and two German ones.
4) Philosopher, University of North Texas, co-editor of a new Handbook of Interdisciplinarity, cf. http://csid.unt.edu/
5) Philosopher, University of North Texas
6) Wilmer heads the Institute of Informatics Law at the University of Applied Sciences Darmstadt.
7) Professor of Science Education, University of Education Weingarten Germany
8) Professor of Philosophy of Science, Georgia Tech
9) Among others, Professor Hirsch's professional domain is Ecological Economy.
10) STEM: Science, Technology, Engineering and Mathematics
11) Professor of Public Policy, Georgia Tech

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