

Actualités de la recherche

“Philosophy of interdisciplinarity”

Workshop report (Atlanta, September 28-29, 2009)

Herbert Gerstberger

Professor of Science Education, University of Education, Kirchplatz 2, D-88250 Weingarten, Germany

Le Philosophy of Interdisciplinarity Network est un réseau en cours de constitution qui regroupe notamment des chercheurs américains (Georgia Institute of Technology, Atlanta) et allemands (Université de sciences appliquées, Darmstadt). Son but est de développer une philosophie de l'interdisciplinarité, dans la tradition de la philosophie des sciences, mais en coopération interdisciplinaire, afin de mener une réflexion sur les nombreux problèmes conceptuels et pratiques de la recherche interdisciplinaire. Sa première activité a été d'organiser en septembre 2009 à Atlanta un atelier sur la philosophie de l'interdisciplinarité dont il est fait ici un compte rendu.

La Rédaction

The primary purpose of this workshop, held at the Georgia Institute of Technology in Atlanta (USA), was to reflect on interdisciplinarity – for the first time – from a philosophical point of view. Organized by Michael H.G. Hoffmann¹, Jan C. Schmidt², and Alan Porter³, the workshop gathered scholars and students⁴ from a variety of disciplines. The goal was to address the following key questions concerning current debates on interdisciplinarity:

- concepts and terms – e.g. interdisciplinarity (ID), transdisciplinarity, etc.;
- specifically philosophical aspects of ID;
- standards and evaluation of interdisciplinary research;
- conflicts between disciplinary and interdisciplinary values, standards, approaches;
- representation and framing of knowledge;

Corresponding author: gerstberger@ph-weingarten.de

¹ Philosopher, Philosophy of Science and Technology Program, School of Public Policy, Georgia Institute of Technology, Atlanta, USA (<http://philosophy.gatech.edu>).

² Philosopher, Unit of Social, Cultural, and Technology Studies, University of Applied Sciences, Darmstadt, Germany.

³ Co-director of the Technology Policy and Assessment Center at Georgia Institute of Technology, Atlanta, USA.

⁴ Participants came from several universities in the USA, the UK and Germany.

- languages and meta-languages in the confrontation between disciplinary and interdisciplinary research;
- the need and quest for a philosophy of ID.

Sixteen contributions offered a spectrum of reflections on conceptual and methodological fundamentals as well as very concrete examples of interdisciplinary research (IDR) and ways of describing and evaluating scientific cooperation. The schedule focused on short presentations and much time for discussions, an approach that turned out to be very fruitful.

Starting with the presentation by Prof. Robert Frodeman⁵, one of the *leitmotifs* of the workshop was a critical examination of the role philosophy might play with regard to interdisciplinarity. Does it make sense to claim a meta-cognitive point of view with the pretense of some sort of superiority, or should philosophy itself be developed into a new kind of “field philosophy” that focuses on concrete problems and interdisciplinary collaboration on a par with other disciplines? Does ID really need an additional point of view? In other words, should philosophy be conducted as *l'art pour l'art* with self-defined, meta-scientific subject areas, or can it be a discipline that interacts with other disciplines, being

⁵ Philosopher, University of North Texas, Denton, USA. Together with Julie Thompson Klein and Carl Mitcham, he is editor of the forthcoming *Oxford Handbook of Interdisciplinarity*, Oxford, Oxford University Press. Cf. <http://csid.unt.edu>.

pulled by interdisciplinary practices but also capable to actively push those practices?

The spectrum of philosophical resources associated with ID was further displayed in the contributions of Britt Holbrook⁶, J.C. Schmidt, and M.H.G. Hoffmann. Whereas Schmidt and Holbrook offered critical distinctions of the term “interdisciplinarity” – according to ontological, epistemological, methodological, and problem-oriented dimensions –, Hoffmann developed a semiotic approach based on Charles Peirce’s concept of “sign.” While Peirce conceptualized signs as mediators between an “object” and an “interpretant” in a triadic structure, Hoffmann argued for the necessity of a fourth element – “collateral knowledge” – as a crucial precondition for understanding a sign’s meaning and thus for communication. This is important especially in interdisciplinary collaboration where tacit assumptions might differ considerably. So, as a remedy for mutual misunderstanding, one might try to make the relevant collateral knowledge as explicit as possible. Hoffmann then applied this idea in the elaboration of several kinds of interpretants. This aspect of his contribution resonated later in the talks of Thomas Wilmer⁷ and Herbert Gerstberger⁸. Another way of consciously bridging gaps between disciplines and of taking advantage from diversity was exhibited by Robert Rosenberger⁹ who described the “transplantation” of concepts from philosophy of science (Thomas Samuel Kuhn) to cognitive psychology (Susan Carey).

However, not only philosophical resources were used to gain a better understanding of ID and its problems. A. Porter examined several schemes and criteria that are currently used for evaluating interdisciplinary research (IDR), such as variety, balance, and disparity. Several other contributions analyzed various forms of rationality. Whereas A. Porter referred to substantial and procedural rationality (Herbert Alexander Simon), Paul Hirsch¹⁰ mentioned skeptical rationality in his reflection on conceptual work in cognitive science, in critical system theory, and in policy sciences. A more traditional distinction of kinds of rationality was used by H. Gerstberger in his report on attempts to reconcile STEM¹¹-education with the aesthetic (or performative) dimension of classroom communication.

The ethical dimension of ID was another philosophical concern that was central, more or less explicitly, in almost every contribution. It found an expression, for instance, in considerations on the dialectical relationship between knowledge production and values. This turned out to be a central topic in the final discussion.

Additionally, the possibly ambiguous role of metaphors in interdisciplinary talk attracted some attention. Hans Klein¹² analyzed “cyberspace” as a central metaphor in internet governance processes and others mentioned Steward Pickett’s thesis on the role of the metaphor in ecological models. Metaphors can reveal and conceal values at the same time. Besides cognitive linguistics (George Lakoff and Mark Turner), a philosophical investigation might be able to shed more light on those phenomena. However, the need for a thorough theoretical reflection on the interaction of values, problems, and metaphors remained a desideratum.

Another forward looking perspective was developed by Nancy Nersessian¹³ in her analysis of interdisciplinary collaboration in a biomedical research lab. Going beyond the well-known concepts of “boundary objects” (Susan L. Star and James R. Griesemer) and “trading zones” (Peter Galison), she argued for the need of “adaptive spaces” that are “driven by complex interdisciplinary problems,” and which “require that the individuals themselves achieve a measure of interdisciplinary synthesis in methods, concepts, models, materials – in how they think and how they act.”

Although I am focusing here primarily on the philosophical topics that were intensively discussed, it should be mentioned that there were other highly interesting contributions. Thomas Wilmer reported on a project that analyzes communication between legal and technical disciplines; Ismael Rafols¹⁴ presented a method to map interdisciplinary knowledge production; Kenneth Fuchsman¹⁵ talked about “Epistemological Dilemmas in Interdisciplinary Studies,” Bryan Norton¹⁶ about “Interdisciplinarity and Integration: The Interaction of Science and Values in Environmental Policy Development,” Paul Baer¹⁷ about the challenges of ID in climate change research, and

⁶ Philosopher, University of North Texas, Denton, USA.

⁷ Professor of Law, Director of the Institute for Information Law at the University of Applied Sciences, Darmstadt, Germany.

⁸ Professor of Science Education, University of Education, Weingarten, Germany.

⁹ Professor of Philosophy of Science, Georgia Institute of Technology, Atlanta, USA.

¹⁰ Professor in Public Administration, Maxwell School, Syracuse University, Syracuse, USA. Among others, Hirsch’s professional domain is Ecological Economy.

¹¹ STEM: Science, Technology, Engineering and Mathematics.

¹² Professor of Public Policy, Georgia Institute of Technology, Atlanta, USA.

¹³ Professor of Cognitive Science, Georgia Institute of Technology, Atlanta, USA.

¹⁴ Research Fellow, Science and Technology Policy Research Unit, University of Sussex, Brighton, England.

¹⁵ Assistant Extension Professor, Continuing Studies BGS, University of Connecticut, USA.

¹⁶ Professor of Philosophy, Georgia Institute of Technology, Atlanta, USA.

¹⁷ Assistant Professor, School of Public Policy, Georgia Institute of Technology, Atlanta, USA.

James White¹⁸ reported on a interdisciplinary project in the area of globalization studies¹⁹.

The workshop's final discussion focused on one central question: "What can a philosophy of interdisciplinarity exactly mean?" In order to define a "mission" for the future, a steering committee summarized the outcome of this discussion as the shared intention, to pursue and combine two different objectives: on the one hand, philosophical inquiry into problems regarding the practices and theories of interdisciplinary research in the style of traditional philosophy of science and, on the other, initiating a new practice of doing philosophy – and reflecting on it – that questions and overcomes traditional boundaries around the discipline by engaging in problems that can be tackled only in interdisciplinary collaboration. It is this second direction that suggests that future activities should continue to strive for interesting and integrating scientists from other fields, especially the social sciences. The combination of both these objectives was manifested in a new name under which future activities will be organized: "Philosophy of/as Interdisciplinarity." A new website at <http://pin-net.gatech.edu> will inform about these activities. On this web site, it is possible to subscribe to an e-mail list called "interdisciplinarity-net" (or send an e-mail to interdisciplinarity-net-request@lists.gatech.edu).

The general focus of future activities has been specified by the following topics and questions.

- Meaning and demarcation: what exactly is the meaning of "interdisciplinary research" in contrast to "disciplinary research"? How to demarcate interdisciplinary from disciplinary research, theories, and methodologies? Are there disciplinary differences regarding the representation of knowledge and the framing of problems, and how to deal with them if they exist?
- Concepts: are there significant differences between "interdisciplinarity," "transdisciplinarity," "cross-disciplinarity," "post-disciplinarity," and similar concepts? Is one of these concepts better suited than traditional "interdisciplinarity" with regard to specific purposes?
- Relevance of a philosophical approach: which problems and challenges of interdisciplinarity can be addressed specifically from a philosophical point of view, and what might be philosophical solutions to these problems? Is there a special role for philosophy in addressing and articulating these problems? Why philosophy?
- Kick-off, initial points and the "context of interest": what is a "problem" that can only be tackled in interdisciplinary collaboration? How to characterize

and identify those problems? Who has the power to define a problem, and how to deal with this power in case of conflicts?

- Models of interdisciplinarity and how to describe interdisciplinarity: what kind of models can we develop to describe interdisciplinary research? Linear, recursive, network or evolutionary models? Should philosophy of/as interdisciplinarity be pulled by interdisciplinary practices or should it push those practices? 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?
- Normativity and conflicts of values: what are the normative issues involved in disciplinary research and in interdisciplinarity research? How to mediate between conflicting values, background assumptions, and styles of thinking and doing things in interdisciplinary collaboration?
- Institutional development: advancing and critiquing disciplinary and interdisciplinary knowledge production and knowledge institutions (for example regarding criteria for tenure and promotion decisions).
- Methodological challenges I: how to deal with conflicts that are based on varying normative standards as they are developed in traditional scientific disciplines (conflicts that result, for example, from disagreements about what counts as a problem, what counts as a justification of a scientific claim, or what counts as an acceptable method)?
- Methodological challenges II: do we need an interdisciplinary "meta-language" to improve communication, or how to translate between disciplinary languages?
- Methodological challenges III: how does the ID practice organize, integrate, and synthesize knowledge? Is integration necessary, and if so, which kinds of integration can be distinguished?
- Quantitative approaches and methodological challenges of measuring ID: how to measure degrees of ID? What are relevant indicators? How do we justify a specific indicator system?
- Quality assessment: how can we secure the quality of ID research projects? How to evaluate the quality of ID? What could be a good indicator of successful ID?
- Requirements of a theory of ID: what are the basic requirements that a theory/concept of ID has to fulfill? Are these requirements somewhat universal or do they have to be context dependent? How could a theory of ID look like?

This way, the workshop did not only start with a set of questions but also ended with another, further developed one. But that's not to say "The curtain shut and every question open"²⁰.

¹⁸ Associate Director, International Programs in the Center for Advanced Communications Policy, Georgia Institute of Technology, Atlanta, USA.

¹⁹ All abstracts are available at <http://pin-net.gatech.edu>.

²⁰ The end of Bertolt Brecht's play *The Good Woman of Setzuan*.

The role of philosophy was not only reflected by professional philosophers, but also by scientists from specific interdisciplinary fields. At the same time, it became obvious that a specific philosophical look at interdisciplinarity and IDR projects can illuminate their role in larger contexts.

Further activities of the group will include a conference in Germany in 2011 and another one at the Center for the Study of Interdisciplinarity (University of North Texas, USA)²¹, probably in 2011. As said above, information about these activities, as well as the abstracts of the 2009 workshop, are available at <http://pin-net.gatech.edu>²².

²¹ Cf. <http://www.csid.unt.edu>.

²² This project collaborates with other initiatives in the field such as the Association for Integrative Studies (<http://www.units.muohio.edu/aisorg>), and the Instituut voor Interdisciplinaire Studies, University of Amsterdam (<http://www.iis.uva.nl/nieuws-iis/nieuws.cfm>).