

Short bio of Jochen Jaeger:

Dr. Jochen Jaeger received his PhD from the Department of Environmental Sciences at the ETH Zurich (Swiss Federal Institute of Technology) in 2000. After a postdoctoral fellowship in Ottawa 2001-2003, he worked in Switzerland about landscape fragmentation and urban sprawl. Since 2007, he is an Associate Professor at Concordia University in Montreal and teaches in the Department of Geography, Planning and Environment. His research interests are in landscape ecology, road ecology, urban sprawl, ecological modelling, environmental indicators, environmental impact assessment, and concepts of trans-disciplinary research in order to better contribute to solving environmental problems and to bridge the gap between scientific research and policy-making. His research team received the IENE Project Award 2011 for their project “Landscape Fragmentation in Europe” from the Infra Eco Network Europe in September 2011. One of his recent research projects was about urban sprawl in 32 countries in Europe, in collaboration with the European Environment Agency. His ongoing research is about wildlife passages along roads, the role of uncertainties in environmental impact assessment, and the connectivity of natural areas in cities. He has a long-standing interest in trans-disciplinary research and has published several papers about this topic (together with Martin Scheringer).

He has a European passport (German).

Summary of a talk:

Transdisciplinary research: Why is it still so rare, and why should we care?

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Abstract: At first glance, transdisciplinarity seems to be supported by many scientific institutions. Transdisciplinary research is expected to overcome the barriers between the disciplines in order to solve real-world problems without being restricted to disciplinary perspectives. However, scientists who actually try to conduct transdisciplinary research experience considerable obstacles. What reservations to transdisciplinary research do many members of the scientific community have and what are their reasons? What changes in the scientific institutions are necessary to overcome the reservations and structural obstacles? In order to distinguish transdisciplinary research projects from inter- and multidisciplinary ones, we define five types of scientific problems. On this basis, we propose a definition of transdisciplinarity that has two parts: (a) Transdisciplinary research deals with scientific problems derived from “real-world problems” which do not fit into the system of scientific disciplines (e.g., environmental problems) (Fig. 1); (b)

transdisciplinary research is characterised by a four-stage process of problem solving: (1) transition from the real-world problem to a scientific comprehension of this problem and identification of main questions; (2) subdivision of the entire problem into sub-problems with well defined interrelations; (3) free choice of scientific methods adequate for each of the sub-problems, including transfer of methods from their original field of application to the new context (*trans-disciplinary* use of methods); (4) re-combination of the solutions obtained for the sub-problems to an answer to the entire problem.

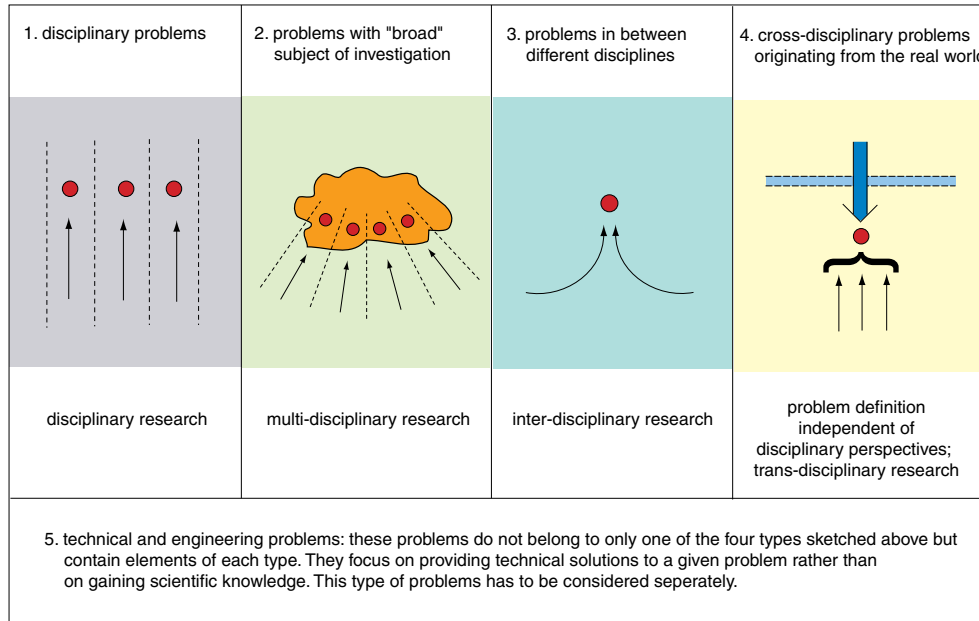


Figure 1: Definition of five types of scientific problems and distinction of transdisciplinary research from inter- and multidisciplinary research. —→ : discipline, ● : scientific problem, - - - - - : boundaries between disciplines, ■■■■ : boundary between scientific system and "real world". [1]

Accordingly, transdisciplinarity should be understood as a methodological framework for scientific research. This framework can be specified by transparent criteria. This definition helps distinguish transdisciplinarity from vague and misleading interpretations: Transdisciplinarity does not mean 'communicating the results of scientific research to the general public', which is an important, but different task. Transdisciplinarity is not a management strategy for research managers, but provides a methodology of original, cross-disciplinary, and problem-oriented research. Teamwork and applied results are neither specific nor necessary for transdisciplinary research. Finally, we draw several conclusions concerning research practice and higher education policy. Transdisciplinary research has a strong potential of contributing to the solution of complex and urgent problems that do not match with the established system of scientific disciplines. Therefore, these tasks originating from the 'real world' have to be recognized as a particular type of scientific problems and should be distinguished from other types of scientific research tasks. However, this requires some structural changes in the scientific institutions. Transdisciplinary research cannot be done as a side-job to demanding

disciplinary research. It requires appropriate resources and has to be provided with an independent research assignment.

Short bio of co-author: Dr. Martin Scheringer is a professor of environmental chemistry at Masaryk University in Brno, Czech Republic and senior scientist at ETH Zurich, Switzerland. He has worked in the fields of environmental and human exposure assessment, hazard assessment and risk assessment of chemical substances for more than 25 years. He is a co-founder and the chair of the International Panel on Chemical Pollution (IPCP).

Related publications:

JAEGER, J., and M. SCHERINGER (1998): Transdisciplinary research: problem-orientation and unconstrained choice of appropriate methods (*in German*; Transdisziplinarität: Problem-orientierung ohne Methodenzwang). – *GAIA* 7(1): 10–25. (according to the *GAIA* Editorial Office, this paper is among the 10 most often cited papers of *GAIA*)

JAEGER, J., and M. SCHERINGER (1999): What is transdisciplinarity? – Some critical remarks on the "management perspective" (*in German*; Wofür steht Transdisziplinarität? – Kritische Anmerkungen zur „Managementperspektive“). – *GAIA* 8(1): 5–7.

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SCHERINGER, M., JAEGER, J., and M. ESFELD (2000): Transdisciplinarity and holism – how are different disciplines connected in environmental research? – In: HÄBERLI, R., SCHOLZ, R.W., BILL, A., and M. WELTI (Eds.): *Transdisciplinarity: Joint Problem-solving among science, technology and society*. Proceedings of the international transdisciplinarity 2000 conference; Workbook I. Haffmans Sachbuch Verlag, Zürich: 35–37.

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Spannungsverhältnis zwischen Forschungstraditionen und umweltpolitischen Leitbildern. Teil II: Zum Leitbild "Reflexive Umweltforschung". – *GAIA* 10(3): 203-212.

JAEGER, J., SCHERINGER, M. (guest editors) (2006-2008): Environmental Research. (*in German*; Umweltforschung). Special issue of *GAIA*, vols. 15 to 17.

a. JAEGER, J., SCHERINGER, M. (2006): Introduction: Why does environmental research not contribute more substantially to environmental problem solving? Seed text and overview for the special issue on Environmental Research. (*in German*; Einführung: Warum trägt die Umweltforschung nicht stärker zur Lösung von Umweltproblemen bei? Ausgangstext und Einleitung zum Themenschwerpunkt Umweltforschung). – *GAIA* 15(1): 20-23.

b. JAEGER, J., SCHERINGER, M. (2006): Environmental Research: what for? Overview on the special issue on environmental research, part 2. (*in German*; Wozu Umweltforschung? Einleitungstext zum Themenschwerpunkt Umweltforschung, Teil 2). – *GAIA* 15(2): 111.

c. SCHERINGER, M., JAEGER, J. (2008): Is environmental research in a crisis? Conclusion and outlook. (*in German*; Umweltforschung in der Krise? Fazit und Ausblick). – *GAIA* 17(1): 31-35.

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