

## TOUR D'HORIZON OF LITERATURE 2017

In order to give an overview of key literature in the area of inter- and transdisciplinarity, td-net invites every year experts in the field to list recent key publications (see list of contributors). In this document, we present literature published in 2017 with short annotations written by the experts that recommended the publications.

We would like to thank the contributors for their inputs and are looking forward to another productive year for inter- and transdisciplinary research.

All previous “Tour d’Horizon of Literature” issues can be found on [our website](#).

*This document is interactive: several references are hyperlinked with the matching website.*

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## Framings of inter- and transdisciplinarity

Dieleman, H., B. Nicolescu, and A. Ertas, eds (2017): *Transdisciplinary and Interdisciplinary Education and Research*. Texas, USA: The Academy of Transdisciplinary Learning & Advanced Studies (ATLAS).

This book presents a wide variety of contributions, coming from authors located in the United States, various European countries, Mexico and New Zealand. In terms of the content, the chapters may at first glance look to have little in common, as they touch upon a wide range of topics such as the United States Petroleum Industry, interdisciplinarity in the academic environmental sector in Mexico, photosynthesis, the philosophy of transdisciplinarity, sustainability as art, scientific collaboration, aesthetic experience, the Indian sacred book Atharva-Veda, decision-making processes and more. Nevertheless, there is common ground in all of them. The message in almost all chapters is that transdisciplinary methodology unifies all fields of knowledge. (BNi)

Ferran, B. and E. Fisher, eds. (2017): *The experimental generation*. *Interdisciplinary Science Reviews*, 42(1-2).

In a double-issue of ISR Ferran and Fisher have assembled material from many of the leading lights in a period of experimentation by artists, engineers and scientists working across the disciplines. The basic orientation is historical, but this is a period when these experimentalists manifested interdisciplinarity brilliantly. (WMC)

König, A. and J. Ravetz, eds (2017): *Sustainability Science. Key Issues*. London: Routledge.

This book equips readers with a better understanding of how one might actively design, engage in, and guide collaborative processes for transforming human-environment-technology interactions, and provides guidance on how to create and/or engage in similar initiatives or courses in their own context. The book is suitable for students, researchers, or professionals interested in engaging in learning, teaching or engaging in the practice of transformative science for sustainability. (JRa)

Lloyd, G.E.R. (2017): *Where Now for the Interdisciplinary and Cross-Cultural Study of the Unity and Diversity of the Human Mind?* *KNOW: A Journal on the Formation of Knowledge*, 1(1), p. 31-43.

This I regard as without doubt the most important publication on interdisciplinary research to date. It puts the question of such research into the context of major work in the cross-cultural study of the human. (WMC)

Stokols, D. (2017): *Social Ecology in the Digital Age. Solving Complex Problems in a Globalized World*. Academic Press.

A comprehensive overview of social ecological theory, research, and practice. Presents strategies for educating the next generation of social ecologists emphasizing transdisciplinary, team-based, translational, and transcultural approaches. (FDa)

Daniel Stokols is well known for his contributions on transdisciplinary team science. In this book, he provides a broad overview of social ecological theory, research and practice in order to address societal challenges in the 21st century. (RLa)

## Epistemology and science studies

Keestra, M., ed (2017): *Special Section: Interdisciplinary collaboration: Multi-Level Perspectives on Interdisciplinary Cognition and Team Collaboration: Challenges and Opportunities*. *Issues in Interdisciplinary Studies*, 35, p. 113-220.

After an introduction, the three following articles approach interdisciplinary team collaboration according to different levels of analysis (MKe):

Keestra, M. (2017): *Metacognition and Reflection by Interdisciplinary Experts: Insights from Cognitive Science and Philosophy*. *Issues in Interdisciplinary Studies*, 35, p. 121-169.

In this article, Keestra argues that for successful interdisciplinary integration and collaboration, we need to include metacognitive knowledge and skills into the interdisciplinary toolbox. These help us to make explicit and reflect the expertise-dependent mental representations employed in our knowledge processes and collaboration and serve as a precondition for the philosophical reflection and communication on disciplinary assumptions. Aided by figures and metacognition prompts, the article offers both explanation and practical suggestions. (MKe)

Dieleman, H. (2017): *Transdisciplinary Hermeneutics: A Symbiosis of Science, Art, Philosophy, Reflective Practice, and Subjective Experience*. *Issues in Interdisciplinary Studies*, 35, p. 170-199.

Starting from a critical exposition of Basarab Nicolescu's account of critical interdisciplinarity, the article elaborates on culture-sensitive transdisciplinary knowledge production, which builds not only upon science but also requires the competencies of mindfulness and of transdisciplinary dialogue of knowledges. (MKe)

The article focuses on the concept of transdisciplinary hermeneutics, as a form of contextualizing science in the framework of cultural ideas, complementing cognitive knowing with embodied and enacted knowing. The specific approaches of "mindfulness" and of "transdisciplinary dialogue of knowledges" are also defended in this article. (SKa)

Lash-Marshall, W. G., et al. (2017): *Facilitating Collaboration across Disciplinary and Sectoral Boundaries: Applications of a Four-Step Strategic Intervention*. *Issues in Interdisciplinary Studies*, 35, p. 200-220.

Addressing finally also the institutional and organizational level and based upon an analysis of a set of interventions applied to several interdisciplinary teams, the authors analyze the positive effects of the following four steps: 1) pairing team leaders with external facilitators; 2) identifying barriers to fruitful collaboration; 3) writing strategic operating agreements; and 4) developing collaborative visualizations of the research process. (MKe)

Klein, J.T. and H.J. Falk-Krzesinski (2017): *Interdisciplinary and collaborative work: Framing promotion and tenure practices and policies*. *Research Policy*, 46(6), p. 1055-1061.

This Research Note is the first synthesis of findings from literature and models for practices and policies that recognize interdisciplinary and collaborative work in the promotion and tenure (P&T) process, brought together in a table of recommendations. (FDa)

Krohn, W., A. Grunwald, and M. Ukowitz (2017): *Transdisziplinäre Forschung revisited: Erkenntnisinteresse, Forschungsgegenstände, Wissensform und Methodologie*. *GAIA - Ecological Perspectives for Science and Society*, 26(4), p. 341-347.

The authors claim that reflection of transdisciplinary research suffers from a deficit in theory. They provide an analysis of the specific epistemic structure of transdisciplinary research. This structure can be used to critically review the so far often process-focused way of theorizing transdisciplinary research (in German). (CPo)

The ongoing growth of the field of transdisciplinary research primarily takes place in transformative practice when specific challenges and problems arise. Usually there is little space for conceptual and theoretical reflection. This paper offers a comprehensive frame of reference for the epistemological structure of transdisciplinary research. The discussion focuses on research objects, contextualization, generalization and methodology. This paper adds to the debate on the epistemological structure of transdisciplinary research. (AJo)

Lawrence, R.J. and F.W. Gatzweiler (2017): *Wanted: a Transdisciplinary Knowledge Domain for Urban Health*. *Journal of Urban Health*, 94(4), p. 592-596.

This article challenges the deluge of data faced by researchers today and the need to make sense of it before improved understanding of complex urban issues can be addressed. (RLa)

Szostak, R. (2017): *Stability, Instability, and Interdisciplinarity*. *Issues in Interdisciplinary Studies*, 35, p. 65-87.

Disciplines generally posit systems of stability among the phenomena they study. Linkages among the phenomena studied by different disciplines often disrupt these systems of stability. The article explores the implications for both interdisciplinary and disciplinary practices, and the symbiotic relationship between these. (RSz)

van den Akker, C. (2018): *What are patterns in the humanities?* *Interdisciplinary Science Reviews*, 43(1), p. 74-86. (published online in 2017)

This article concerns computationally assisted pattern detection across the disciplines of the humanities and so converges on what the disciplines share. Thus it considers their inherent but often hidden interdisciplinarity. (WMC)

Wine, O., et al. (2017): *Key Components of Collaborative Research in the Context of Environmental Health: A Scoping Review*. *Journal of Research Practice*, 13(2), Article R2.

This is a scoping review of the literature on environmental health, focusing on the collaborative research processes discussed in this field. The review identifies key components, facilitators, challenges, and best practices that impact collaborative research in environmental health. These are presented under seven broad themes, namely: (a) allocating time and resources, (b) addressing disciplinary and sectoral issues, (c) building relationships, (d) ensuring representation, (e) embedding participation in the research, (f) supporting ongoing collaboration, and (g) developing knowledge translation and exchange. (DDa)

## Tools and methods

Pohl, C., P. Krütli, and M. Stauffacher (2017): *Ten Reflective Steps for Rendering Research Societally Relevant*. *GAIA - Ecological Perspectives for Science and Society*, 26(1), p. 43-51.

The authors suggest a ten steps procedure to critically reflect on how to improve the societal relevance of a research project, which is a central aim of transdisciplinary research. (CPo)

While the goal of transdisciplinary research is to be relevant to society, specific instructions for accomplishing this remain implicit. We propose to improve this situation by means of a 10-step approach aimed at stimulating explicit reflections around ways to render research more societally relevant. (AJo)

## Evaluation

Schuck-Zöller, S., J. Cortekar, and D. Jacob (2017): *Evaluating co-creation of knowledge: from quality criteria and indicators to methods*. *Advances in Science and Research*, 14, p. 305-312.

One of the few papers, that takes into view the whole evaluation "cascade" and scales down from very general evaluation dimensions via indicators to tangible assessment methods. The authors combine a comprehensive and interdisciplinary literature overview of indicators to evaluate co-creation of knowledge with reflections how to make them assessable. For two exemplary criteria a mixture of possible assessment methods is being proposed. (SSc)

Wall, T.U., A.M. Meadow, and A. Horganic (2017): *Developing Evaluation Indicators to Improve the Process of Coproducing Usable Climate Science*. *Weather, Climate, and Society*, 9(1), p. 95-107.

Very good overview on state-of-the-art evaluation discussion in literature leads to an evaluation framework containing 45 criteria or indicators. The article delivers a sound basis to further explore evaluation methods that lead to tangible results. (SSc)

## Reflections on inter- and transdisciplinary projects

Guimarães, H., et al. (2017): *Reflecting on Collaborative Research Into the Sustainability of Mediterranean Agriculture: A Case Study Using a Systematization of Experiences Approach*. Journal of Research Practice, 13(1), Article M1.

This article describes how an agricultural research institute went about reviewing the relationship between its members and external partners. The results highlight the current tension between the production of scientific knowledge according to institutional measurement criteria and the development of socially meaningful research. (DDa)

Rodrigues, L.M., et al. (2017): *Current Reflections on Collaborative and Engaged Research*. Journal of Research Practice, 13(1), Article V1.

The purpose of this article is to discuss strategies for sustainable research partnership between academia and community. It includes a case study to illustrate how community-engaged research can be a context for research education, leading to capacity building in both academia and community-service organizations. (DDa)

Schmidt, L. and M. Neuburger (2017): *Trapped between privileges and precariousness: Tracing transdisciplinary research in a postcolonial setting*. Futures, 93, p. 54-67.

In-depth study of a Germany-funded project with Angola, Botswana, and Namibia. The authors analyze which project partners from North and South influenced project setup, resource allocations, project discourses, project output and decision-making and steering. Their findings suggest we might not yet be as postcolonial as we would like to be. (CPo)

## Case studies

Kottusch, C. and A. Schaffartzik (2017): *Sustainable Palm Oil? Insights from Material Flow and Land Use Analysis in Brazil's Production Hotspot*. GAIA - Ecological Perspectives for Science and Society, 26(2), p. 129-135.

Near-ubiquitous in global consumption, palm oil is increasingly connoted with the detrimental environmental and social impacts of its production. Focusing on the production hotspot Pará, Brazil, our study questions the success of the Brazilian national program for sustainable palm oil production. (AJo)

## Art, creativity and design thinking

Darbellay, F., Z. Moody, and T. Lubart, eds (2017): *Creativity, Design Thinking and Interdisciplinarity*. Springer Singapore.

This book explores various relationships between creative design and interdisciplinarity: similarities between creative design and the interdisciplinary research process; the effects of interdisciplinary exploration on creative processes; the overlaps in teaching creativity and interdisciplinary skills; and many more. Both the creative and interdisciplinary process combine (similar) conscious and subconscious mental processes. (RSz)

This book, at the crossroads of creativity, design and interdisciplinary studies, offers an overview of these major trends in scientific research, society, culture and economics. It brings together different approaches and communities around a common reflection on interdisciplinary creative design thinking. (FDa)

Dombois, F., ed. (2017): *The Wind Tunnel Model – Transdisciplinary Encounters*. Scheidegger & Spiess.

Where does the wind go when it is not blowing? With *The Wind Tunnel Model*, artist Florian Dombois proposes new forms of interaction between art and science. Key to this project is Dombois's wind tunnel laboratory at Zurich University of the Arts. With an empty test platform, the laboratory is a compelling example of architecture that turns

its back to us, forming inside the invisible. *The Wind Tunnel Model* features essays by Dombois and his collaborators, reflecting on this innovative concept for transdisciplinary collaboration. (FDo)

Kagan, S. (2017): *Artful Sustainability: Queer-Convivialist Life-Art and the Artistic Turn in Sustainability Research*. *Transdisciplinary Journal of Engineering & Science*, 8, p. 151-168.

The author finds transdisciplinarity in artful ways of investigating sustainability, advocates for the transdisciplinary added-value of arts-based research for sustainability research, and proposes a queer approach denormalizing and de-naturalizing aesthetic experiences and thought & embodiment processes. The "artistic turn" discussed in the article aims to deepen the sensitivity to qualitative complexity in transdisciplinary research. (SKa)

## Contributors

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