Recommended reading in inter- and transdisciplinarity: Introductory texts

td-net Delphi study 2013

Introduction
The rapid growth of published literature on inter- and transdisciplinary research and teaching makes it increasingly difficult to find the most relevant literature about a topic. The td-net therefore initiated a new project that aims at facilitating the search for relevant literature about different topics related to inter- and transdisciplinary research and teaching. At the start of the project we conducted a Delphi study where we asked experts “Which publications would you recommend as first readings to a (young) scientist that wants to become familiar with the key concepts and thinking in the field of inter- and transdisciplinarity?”. Through this study we generated the following list with recommended reading.

The method
The Delphi method is an iterative process through which expert opinions are refined through several rounds of feedbacks. The goal is to show consensus and dissent on a given question. An important aspect is that expert inputs are anonymous. This anonymity is to focus on the message rather than on the messenger to prevent opinion leaders from overtaking the discussion.

For further information consult e.g. pages 41 to 50 in McDonald D, Bammer G, Deane P 2009. Research Integration Using Dialogue Methods. Canberra: ANU E-Press (open access).

Number of rounds
This Delphi study consisted of three rounds:

– In the first round we asked the experts: “Which publications would you recommend as first readings to a (young) scientist that wants to become familiar with the key concepts and thinking in the field of inter- and transdisciplinarity?”. The experts were invited to mention up to 5 publications and to explain in 2 to 3 sentences why they recommend the publications. 10 experts answered the first round that lasted from June 4 to July 31 2013.

– For the second round we assigned the mentioned publications to four categories: A) collections of introductory texts; B) introductory monographs; C) introductory articles and D) introductory texts in the arts. Within each category the publications were listed in alphabetical order and were presented with the comments from the participating experts with no further editing. We then asked the experts to assess all listed publications within each category separately (0: not relevant; 1: somewhat relevant; 2: very relevant; -: I am not able to assess this publication). Experts were also asked to give a short rationale for each of their ratings. 10 experts participated in the second round that lasted from August 15 to October 31 2013.
For the third round we averaged the ratings and ranked the publications based on these values within each category. We dropped section D) (introductory texts in the arts) because there were not enough ratings. We coded and grouped the given rationales by qualitative contend analysis. For each publication we collected the pro and contra arguments and counted how often an argument was used. We then asked the experts to reassess the publications taking into account their personal ratings from the second round and the rationales of the other experts. 8 experts participated in the third round that lasted from January 24 to March 15 2014. As two experts from the second round did not participate in the third round their ratings of the second round were included in the final ranking.

Experts
The Delphi study was possible thanks to the input of the following 14 experts:

Gabriele Bammer  
ANU, Australia

Frédéric Darbellay  
IUKB, Switzerland

Florian Dombois  
ZHdK, Switzerland

Gerd Folkers  
Collegium Helveticum, Switzerland

Robert Frodeman  
University of North Texas, USA

Gertrude Hirsch-Hadorn  
ETH Zürich, Switzerland

Bernard Hubert  
INRA, France

Roderick Lawrence  
University of Geneva, Switzerland

Catherine Lyall  
University of Edinburgh, Scotland

Merritt Polk  
University of Gothenburg, Sweden

Patricia Rosenfield  
Rockefeller Archive Center, USA

Dan Stokols  
University of California, USA

Rick Szostak  
University of Alberta, Canada

Bianca Vienni  
Universidad de la República, Uruguay

Moderation
The td-net team initiated and moderated the processes by designing the rounds, compiling, summarizing and structuring expert inputs and ratings after each feedback round; and the td-net was responsible for editing the final outcome of the Delphi process.

About the compiled list
The publications are ranked according their ratings given by the experts within each category. For each publication an internet link and the averaged rating and the number of ratings given by the experts are shown. You also find the rationales given by the experts.

It should be kept in mind that we asked for publications in English and therefore approaches by Latin American and French speaking scholars are under-represented.

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Collections of introductory texts

This category contains seven edited books with introductory articles from different experts in the field of inter- and transdisciplinarity. The publications are ranked according the experts’ ratings. The averaged rating and the number of ratings given by the experts are shown in brackets. Also the experts’ rationales for rating, and in brackets the number of experts giving this rationale, are indicated. The bibliographic information links to the online publication.

**Handbook of Transdisciplinary Research**

**Recommended because...**
... it provides a wide panorama of good case studies of transdisciplinary research. (6)
... effort is made to summarize lessons learned. (2)
... it introduces to the broader history and rationale of inter- and transdisciplinary research and the core concepts. (2)
... it is a very interesting synthesis of the transdisciplinary approach, with concrete and pragmatic propositions. (1)
... it combines theoretical and methodological ideas. (1)

**Not recommended because...**
... it is not really designed as an introductory text. (1)
... only some parts are helpful. (1)

**The Oxford Handbook of Interdisciplinarity**

**Recommended because...**
... it constitutes a very interesting panorama of interdisciplinary approaches through various theoretical frameworks and research areas. (4)
... it is vital for interdisciplinary research groups as a guide to reflect and improve their settings and structures. (1)
... it involves multiple networks and organizations at the international level. (1)
... it offers a good overview of the state of interdisciplinary in education, research and university governance. (1)
... it presents case studies and theoretical discussions. (1)
... it provides an important complement to the earlier equally valuable „Handbook of Transdisciplinary Research“ (Hirsch et al 2008). (1)

**Not recommended because...**
... there is little practical guidance on how to perform interdisciplinary research. (2)
... the publication introduces students to a specific understanding of inter- and transdisciplinary research (in a specific field). (2)
... it is not really designed as an introductory text. (1)
... only some parts are helpful. (1)

**The Science of Team Science - Assessing the Vale of Transdisciplinary Research**

**Recommended because...**
... foundational compendium of articles that delineate dimensions of TD research. (2)

**Not recommended because...**
... the publication introduces students to a specific understanding of inter- and transdisciplinary research (in a specific field). (2)
... it is not really designed as an introductory text. (1)
... only some of the articles are helpful. (1)
### Collections of introductory texts

**Enhancing Communication & Collaboration in Interdisciplinary Research**  
**Recommended because...**  
... it provides detailed advice on how to communicate and/or collaborate. (5)  
... it provides advice on transdisciplinary education. (1)  
... the concrete issue of transdisciplinary doesn’t rely only on communication. (1)  
**Not recommended because...**  
... it is not really designed as an introductory text. (1)  
... only some parts are helpful. (1)

**Case Studies in Interdisciplinary Research**  
**Recommended because...**  
... it is a volume of case studies complementary to Repko’s 2011 book. (2)  
... its introductory and concluding chapters place the case studies in context and draw new lessons for interdisciplinary research (2)  
**Not recommended because...**  
... the publication introduces students to a specific understanding of inter- and transdisciplinary research (in a specific field). (2)  
... it is not really designed as an introductory text. (1)

**Interdisciplinary Research: Case Studies from Health and Social Science**  
**Recommended because...**  
... it draws detailed lessons from different case studies. (2)  
... it is an excellent compilation of ID case studies bridging health and social sciences. (1)  
**Not recommended because...**  
... the publication introduces students to a specific understanding of inter- and transdisciplinary research (in a specific field). (2)  
... it is not really designed as an introductory text. (1)

**Converging Disciplines. A Transdisciplinary Research Approach to Urban Health Problems**  
**Recommended because...**  
... it provides detailed advice grounded in the experience of research. (1)  
... a good compilation of chapters demonstrating TD analyses of urban health issues. (1)  
**Not recommended because...**  
... the publication introduces students to a specific understanding of inter- and transdisciplinary research (in a specific field). (2)  
... it is not really designed as an introductory text. (1)
Introductory monographs

This category contains eleven specialist books on inter- and transdisciplinarity usually by a single or a few authors. The publications are ranked according the experts’ ratings. The averaged rating and the number of ratings given by the experts are shown in brackets. Also the experts’ rationales for rating, and in brackets the number of experts giving this rationale, are indicated. The bibliographic information links to the online publication.

Introduction to Interdisciplinary Studies

**Recommended because...**
- ... it provides excellent material for introductory courses. (3)
- ... it is a very good synthesis with relevant pedagogical approach. (1)

**Not recommended because...**
- ... the publication introduces students to a specific understanding of inter- and transdisciplinary research (in a specific field). (1)

Principles for Designing Transdisciplinary Research

**Recommended because...**
- ... it is short, clear and easy to read. (3)
- ... it is an appropriate introduction to the different approaches and methods that can be used in TD research. (2)
- ... it supports young researchers to start their interdisciplinary groups. (1)

**Not recommended because...**
- ... Bergmann et al is close and should be read first. (1)
- ... the publication introduces students to a specific understanding of inter- and transdisciplinary research (in a specific field). (1)

Methods for Transdisciplinary Research. A Primer for Practice
Bergmann M, Jahn T, Knobloch T, Krohn W, Pohl C, Schramm E 2012. Frankfurt am Main: Campus Verlag. (Rating: 1.57/7)

**Recommended because...**
- ... it synthesizes a set of research strategies from research experience. (1)
- ... it is a good synthesis focused on transdisciplinarity. (1)
- ... it includes a set of relevant case studies within a common framework. (1)
- ... it is one of the very rare books on methods in this field. (1)
- ... it addresses the challenge of communication in interdisciplinary settings and the problem of different semantics is nicely addressed. (1)

**Not recommended because...**
- ... it should be complemented by Repko’s 2011 book. (structure...) (1)

Interdisciplinary Research Journeys: Practical Strategies for Capturing Creativity

**Recommended because...**
- ... it is a very useful and clear basic introduction. (2)
- ... it provides an immense amount of good advice to graduate students, supervisors, teachers, administrators, and journal editors and referees. (1)
- ... it is grounded both in the authors’ extensive experience and the wider literature. (1)
- ... it is clear and easy to read. (1)

**Not recommended because...**
- ... it is not really designed as an introductory text. (1)
- ... the publication introduces students to a specific understanding of inter- and transdisciplinary research (in a specific field). (1)
**Interdisciplinarity: History, Theory and Practice**


**Recommended because...**
- ... it is a classic reference work. (5)
- ... this book still provides a good guide to the broader issues in the literature. (1)
- ... it clarifies concepts and their contexts. (1)
- ... it is a foundational historical analysis of ID scholarship as it has evolved over several decades. (1)
- ... because it has a strong epistemological framework and an excellent bibliography. (1)

**Not recommended because...**
- ... more recent works provide more detailed advice on how to do interdisciplinarity. (3)
- ... it does not really emphasise the different kinds of interdisciplinarity, which it is useful to understand. (1)
- ... only some parts are helpful. (1)

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**Strengthening Interdisciplinary Research: What It Is, What It Does, How It Does It and How It Is Supported**


**Recommended because...**
- ... it is a very good synthesis. (1)

**Not recommended because...**
- ... only some parts are helpful. (1)
- ... it stresses the diversity in the literature more than its commonalities, too much for an introductory text. (1)
- ... the publication introduces students to a specific understanding of inter- and transdisciplinary research (in a specific field). (1)
- ... it is not really designed as an introductory text. (1)

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**Interdisciplinary Research: Process and Theory.**


**Recommended because...**
- ... it is the most detailed guide to interdisciplinary research around. (1)
- ... it outlines useful strategies for each stage in the research process outlined. (1)
- ... it is a good point of entry to other scientific literature on the topic. (1)
- ... it is clear and provides useful examples. (1)
- ... it is pedagogically very convincing. (1)
- ... it is clear and easy to read. (1)
- ... it is an excellent foundation treatment of ID research processes and theory. (1)
- ... it is very useful for interdisciplinarity, where one person aims to bring together different disciplinary ideas. (1)

**Not recommended because...**
- ... the publication introduces students to a specific understanding of inter- and transdisciplinary research (in a specific field). (1)
- ... too theoretical for young researchers. (1)
- ... it is not useful for team-based interdisciplinary research. (1)

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**Facilitating Interdisciplinary Research**


**Recommended because...**
- ... it is a classic reference work. (5)
- ... it is a good point of entry to other scientific literature on the topic. (1)
- ... it provides a lot of practical suggestions. (1)
- ... excellent collection of „obstacles“ for interdisciplinarity. (1)
- ... it lays out several fundamental assumptions about the nature of ID research and training. (1)

**Not recommended because...**
- ... it is perhaps more helpful for the advanced researchers. (1)
- ... it is actually not that useful practically but much more useful politically, given where it has come from. (1)
The New Production of Knowledge. The Dynamics of Science and Research in Contemporary Societies

**Recommended because...**
... it places the context for inter- and transdisciplinarity. (1)
... it is a milestone in the role of knowledge and science in our societies. (1)

**Not recommended because...**
... it is not really designed as an introductory text. (3)
... there is little practical guidance on how to perform interdisciplinary research. (1)
... it is more interesting for science studies. (1)
... it has been increasingly challenged for its categorization of research which does not address the diversity of contributions. (1)
... only some parts are helpful. (1)

Creating Interdisciplinarity. Interdisciplinary Research and Teaching among College and University Faculty
Lattuca L R 2001. Nashville: Vanderbilt University Press. (Rating: 1.00/6)

**Recommended because...**
... the book moves away from previous definitions and instead focuses on the processes, the contexts and the ways in which they affect interdisciplinary work. (1)
... it is a good discussion of ID research and teaching. (1)

**Not recommended because...**
... it is not really designed as an introductory text. (3)

The Honest Broker. Making Sense of Science in Policy and Politics
Pielke R A 2007. Cambridge: Cambridge University Press. (0.57/7)

**Recommended because...**
... it is very relevant in the domain of public policies and decision making, especially focusing on the role of the researchers into the processes. (1)
... it corrects misconceptions of the Science Policy Interface. (1)

**Not recommended because...**
... it is not really designed as an introductory text. (3)
... the publication introduces students to a specific understanding of inter- and transdisciplinary research (in a specific field). (1)
... only some parts are helpful. (1)
... it does not deal very well with real world complexities. (1)
Introductory articles (journal articles or book chapters)

This category contains nineteen articles in journals or books on inter- and transdisciplinarity by one or more authors. The publications are ranked according the experts' ratings. The averaged rating and the number of ratings given by the experts are shown in brackets. Also the experts' rationales for rating, and in brackets the number of experts giving this rationale, are indicated. The bibliographic information links to the online publication.

Researchers’ roles in knowledge co-production: experience from sustainability research in Kenya, Switzerland, Bolivia and Nepal

Recommended because...
- it is well written and accessible. (2)
- it is a great introduction to TD as well as interesting case studies from a variety of contexts. (2)
- it focuses on core questions & conceptions, which are applied to examples. (1)

Not recommended because...

What is progress in transdisciplinary research?

Recommended because...
- it is a good reference on transdisciplinary research. (1)
- it gives a relevant reflective point of view on what is actually done in the field of TD. (1)
- it is easily accessible and includes clarifying reflections. (1)
- it is an excellent conceptual discussion of criteria for gauging progress in TD research. (1)

Not recommended because...
- it is not really designed as an introductory text. (2)

A taxonomy of interdisciplinarity

Recommended because...
- it offers a highly nuanced discussion of different varieties of ID and TD scholarship. (3)
- it is a good point of entry to other scientific literature on the topic. (2)
- it is one of the master chapters of the Oxford Handbook. (1)

Not recommended because...
- it is not really designed as an introductory text. (2)

A four-phase model of transdisciplinary team-based research: goals, team processes, and strategies

Recommended because...
- it gives advice organized around key steps in the research process. (1)
- it offers a multi-phase conceptualization of TD action research, from formative through translational phases. (1)
- it illustrates the added value of team science and communities of practice, both more applied in North America than Europe. (1)

Not recommended because...
- the publication introduces students to a specific understanding of inter- and transdisciplinary research (in a specific field). (2)
- it is more useful for sciences studies. (1)
A short history of knowledge formations

**Recommended because...**
- it is a good choice if Gibbons et al. (1994) is included. (2)
- it is clear and concise. (1)
- it shows the limited scope of others in this handbook. (1)

**Not recommended because...**
- it is not really designed as an introductory text. (2)

Perspective: Troubled by interdisciplinarity?

**Recommended because...**
- this sort of advice is crucial. (1)
- the format is amazing. (1)
- it is very important to motivate young researchers to enter interdisciplinary settings. (1)

**Not recommended because...**
- it is a rather generalizing text. (1)
- the content is not very original. (1)

The circulation of knowledge as an interdisciplinary process: Travelling concepts, analogies and metaphors

**Recommended because...**
- it is a refreshing reflection on ITD. (1)
- it is a relevant presentation on how knowledge is produced and circulates. (1)
- it is a very good review and fostering the theoretical concepts of transdisciplinarity. (1)

**Not recommended because...**
- it has a strong focus on an approach borrowed from the arts which is interesting but not without the broader conceptual and methodological frameworks in mind. (1)

Toward a science of transdisciplinary action research
Stokols D 2006. Am J Community Psychol, V38, N1-2, pp 63-77. (Rating: 1.17/6)

**Recommended because...**
- because it provides an interesting link between TD and „action research“. (2)
- it is a good reference work. (1)

**Not recommended because...**
- it is not really designed as an introductory text. (1)
- it is for the large community of decision makers in higher education and politics. (1)

Transdisciplinary public health: Core characteristics, definitions, and strategies for success

**Recommended because...**
- it is a good reference work. (1)
- it is an interesting discussion within the health domain. (1)
- proposes a conceptual model of TD public health research and practice. (1)

**Not recommended because...**
- the publication introduces students to a specific understanding of inter- and transdisciplinary research (in a specific field). (1)
- it is not really designed as an introductory text. (1)
Implications of transdisciplinarity for sustainability research

**Recommended because...**
- it is a good reference work. (1)
- it is a quite interesting paper for professionals knowing about a minimum of schools of thought and epistemology. (1)
- it is a basic introduction to transdisciplinary research and the concept of sustainable development as well as how they are related with a view on systems-, target-, and transformation knowledge. (1)

**Not recommended because...**
- it is not really designed as an introductory text. (1)

The potential of transdisciplinary research for sustaining and extending linkages between the health and social sciences
Rosenfield P L 1992. Social Science & Medicine, V35, N11, pp 1343-1357. (Rating: 0.80/5)

**Recommended because...**
- it is a good reference work. (1)
- it is more than a case study, a relevant illustration in the health domain. (1)
- is a foundational, landmark publication that proposes definitions of uni, multi, inter, and transdisciplinarity. (1)

**Not recommended because...**
- the publication introduces students to a specific understanding of inter- and transdisciplinary research (in a specific field). (1)
- it is not really designed as an introductory text. (1)
- it is an important paper when it was published but the more recent contributions in public health (see Stokols 2006, for example) supersede it. (1)

The increasing dominance of teams in production of knowledge
Wuchty S, Jones B F, Uzzi B 2007. Science, V316, N5827, pp 1036-1039. (Rating: 0.80/5)

**Recommended because...**
- it provides an important analysis. (1)
- it is a milestone publication that traces the increasing size of scientific co-authorship teams on scholarly publications and patents that have been produced over five decades and across multiple disciplines and fields. (1)

**Not recommended because...**
- it is not really designed as an introductory text. (2)

Organizing teaching and research to address the grand challenges of sustainable development
Crow M M 2010. BioScience, V60, N7, pp 488-489. (Rating: 0.50/6)

**Recommended because...**
- it may be of high importance for deans and provosts. (2)
- it is a provocative and influential delineation of Michael Crow’s model of the „New American (TD) University“. (1)

**Not recommended because...**
- it is not really designed as an introductory text. (3)
- deals with a tangential topic. (1)

Science and public policy: what’s proof got to do with it?
Oreskes N 2004. Environmental Science & Policy, V7, N5, pp 369-383. (Rating: 0.43/7)

**Recommended because...**
- it is a good reference work. (1)

**Not recommended because...**
- it is not directly focused on ITD. (1)
- deals with a tangential topic. (1)
- it is not really designed as an introductory text. (1)
Why social scientists should engage with natural scientists

Recommended because...
... this paper helps to handle a particularly relevant issue. (1)
... it is very important for building up a new research group. (1)
... it encourages the integration of social sciences.

Green Hydropower: The contribution of aquatic science research to the promotion of sustainable electricity.

Recommended because...
... it is a good illustration of the relevance of system approach and the utility of problem framing before finding solutions. (1)
... it nicely illustrates dealing recursively with systems-, target- and transformation knowledge. (1)
... it shows, how to systematically elaborate on problem framing and determining target knowledge as a task of research. (1)
... it is an excellent case study, much to learn from. (1)

Enabling effective problem-oriented research for sustainable development

Recommended because...
... it is a good paper, well built and convincing. (1)

Not recommended because...
... it deals more with institutional issues and strategies for science policy, not so much with doing research. (1)

Being undisciplined: Transgressions and intersections in academia and beyond.
Robinson J 2008. Futures, V40, N1, pp 70-86. (Rating: 1.00/4)

Recommended because...
... it is a good reference work. (1)

Not recommended because...
... the publication introduces students to a specific understanding of inter- and transdisciplinary research (in a specific field). (1)

From complex systems analysis to transformational change: a comparative appraisal of sustainability science projects

Recommended because...
... it offers important distinction between descriptive and transformative sustainability science; the latter is inherently TD and normative in its conceptual and pragmatic goals. (1)

Not recommended because...
... it is not really designed as an introductory text. (1)
Latest added publication without rating

Transdisciplinarity: Between mainstreaming and marginalization