

# Analyzing the Scientific Impact of Transdisciplinary Research at the Intersection of Sustainability and Health

Jana Semrau<sup>1</sup>, Guido Caniglia<sup>2</sup>, Richard Beecroft<sup>3</sup>, Evelyne De Leeuw<sup>4</sup>, Alfred Rütten<sup>5</sup>

<sup>1</sup> University of Bremen, <sup>2</sup> University of Helsinki, <sup>3</sup> KIT - Karlsruhe Institute of Technology, <sup>4</sup> Université de Montréal, <sup>5</sup>FAU Erlangen-Nürnberg

## tdAcademy Fellow Group “Transdisciplinary Research and it’s Scientific Impact”

- 5 members from transdisciplinary (TD) sustainability science (n=2) and public health (n=3) + Dr. Jinhee Kim
- Start June 2023 to End June 2024
- > Six Online Meetings

### Overall aims

- Mapping of Transdisciplinary Research (TDR) at the interface between sustainability research (SR) and health research (HR)
- Understanding processes of scientific impact through TDR
- Generating insights for the methodological and theoretical advancement of TDR



From left to right: Evelyne de Leeuw, Guido Caniglia, Alfred Rütten, Oskar Marg, Lena Theiler, Richard Beecroft, Chantal Krumm, Jana Semrau, Alexandra Lux; Launch Workshop at ISOE, Feb 2024; circle: Jinhee Kim, Scientia academic at the Cities Institute, UNSW, Australia

## Bibliometric Analysis

### Aims

- To map the landscape of emerging TDR mode and to identify the most important research communities
- To compare the conceptualizations and research practices of the TDR mode between SR and HR

### Methods

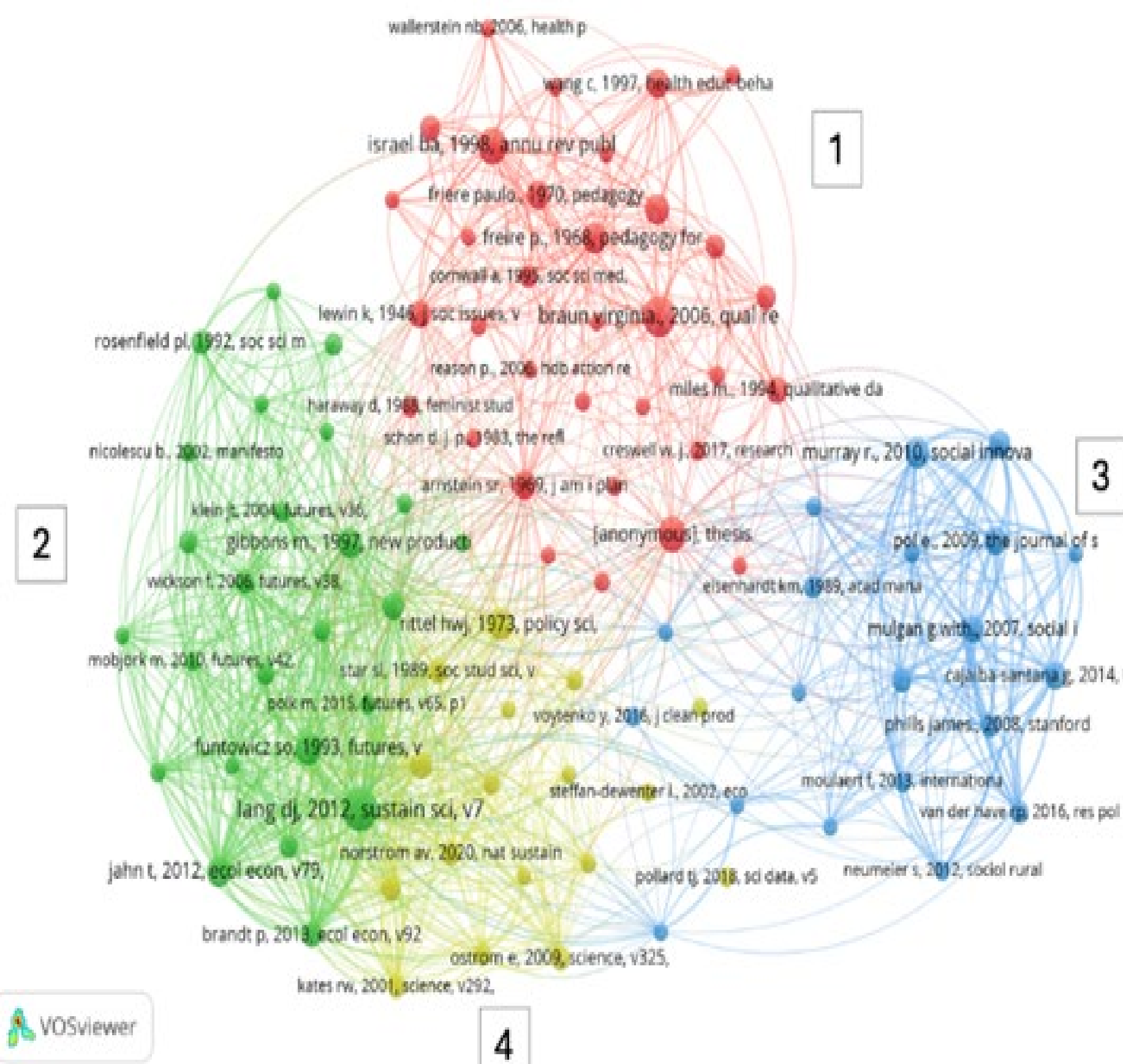
- Search term to collect publications on TDR within the Web of Science Core Collection database (Step 1)
- Bibliometric analysis with document co-citation analysis within the publications to identify key communities in the TDR mode (Step 2)
- In-depth document co-citation analysis separately within the key communities of SR and HR (Step 3)

### Results

- N=40,880 articles on TDR in the Web of Science Core Collection database
- N=96 articles in four clusters showed a co-citation relationship
- N= 13.529 articles and n=10.330 articles in the key communities of SR and HR each with four clusters

### Discussion

- TDR mainly applied in sustainability, health and social innovation in a mode of "epistemic elitism"
- Full potential of TDR to address interconnected complex health and sustainability challenges may not yet been realized



### Aims

- To discuss the first results of the bibliometric analysis and to plan the Launch Workshop
- To discuss concepts, methods, and scientific impact at the intersection of HR and SR

### Process

- Onsite Meeting in Frankfurt Feb 1, 2024

### Results

#### Concepts used

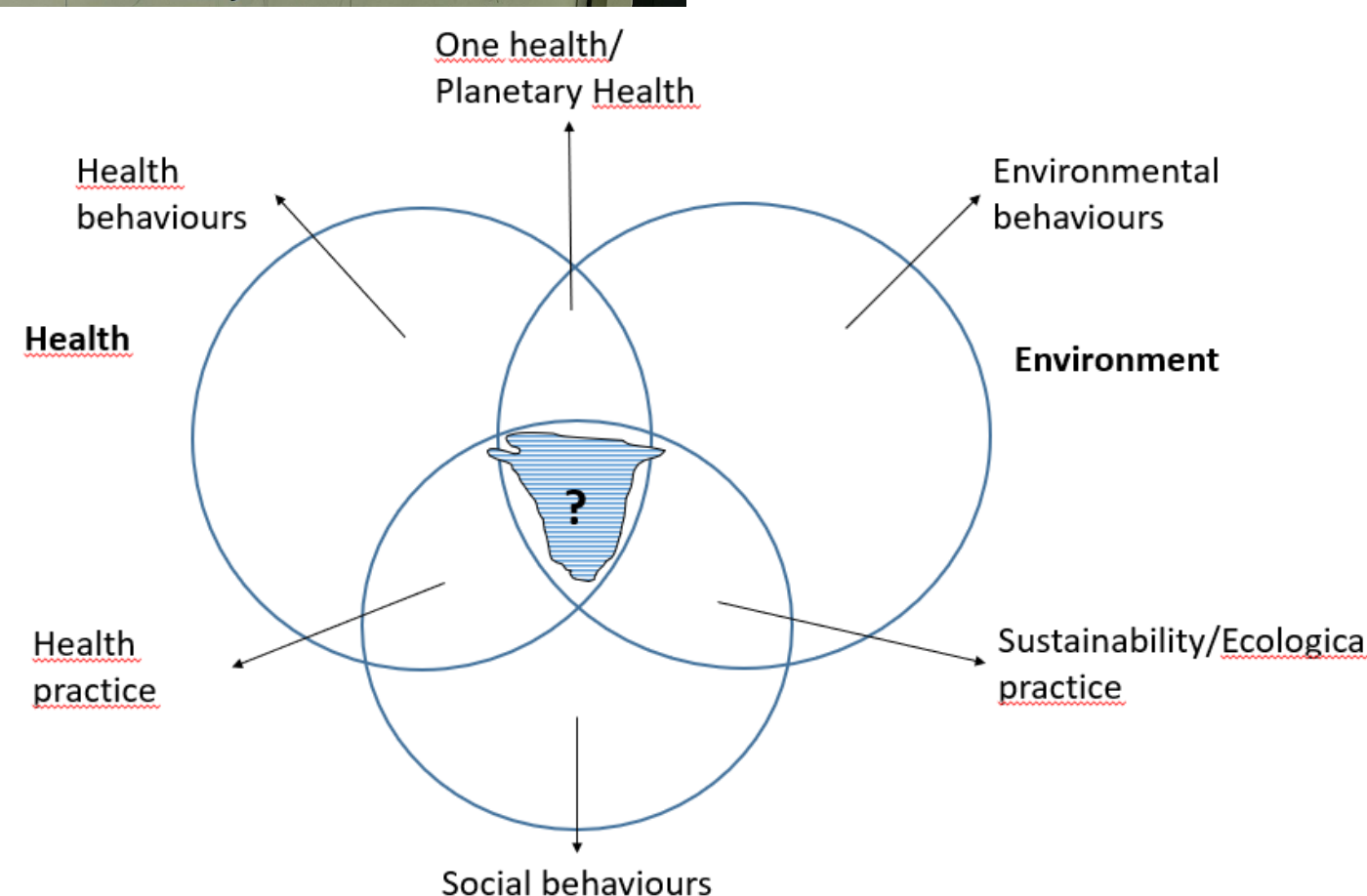
- Various concepts e.g., Urban Health, Indigenous Health Activism, Complexity and Systems Thinking, Insurance companies, Salutogenic environment
- Include context-specific practices, e.g. active transport, veganism
- Practice theory as one potential theoretical approach

#### Methods used

- Many projects start as small-scale pilots, require substantial resources, transferability to other contexts or larger scales challenging
- Participatory approaches a core method/methodology (e.g., ideal-typical TDR approach vs. interactive knowledge to action approach)
- Practical, real-world impact is addressed

#### Scientific impact

- Social and scientific impact of TDR as two sides of the same coin; traditional metrics may not capture the full potential of TDR
- Relationship between scientific knowledge and associated practices
- Evaluation of structural changes in scientific research.



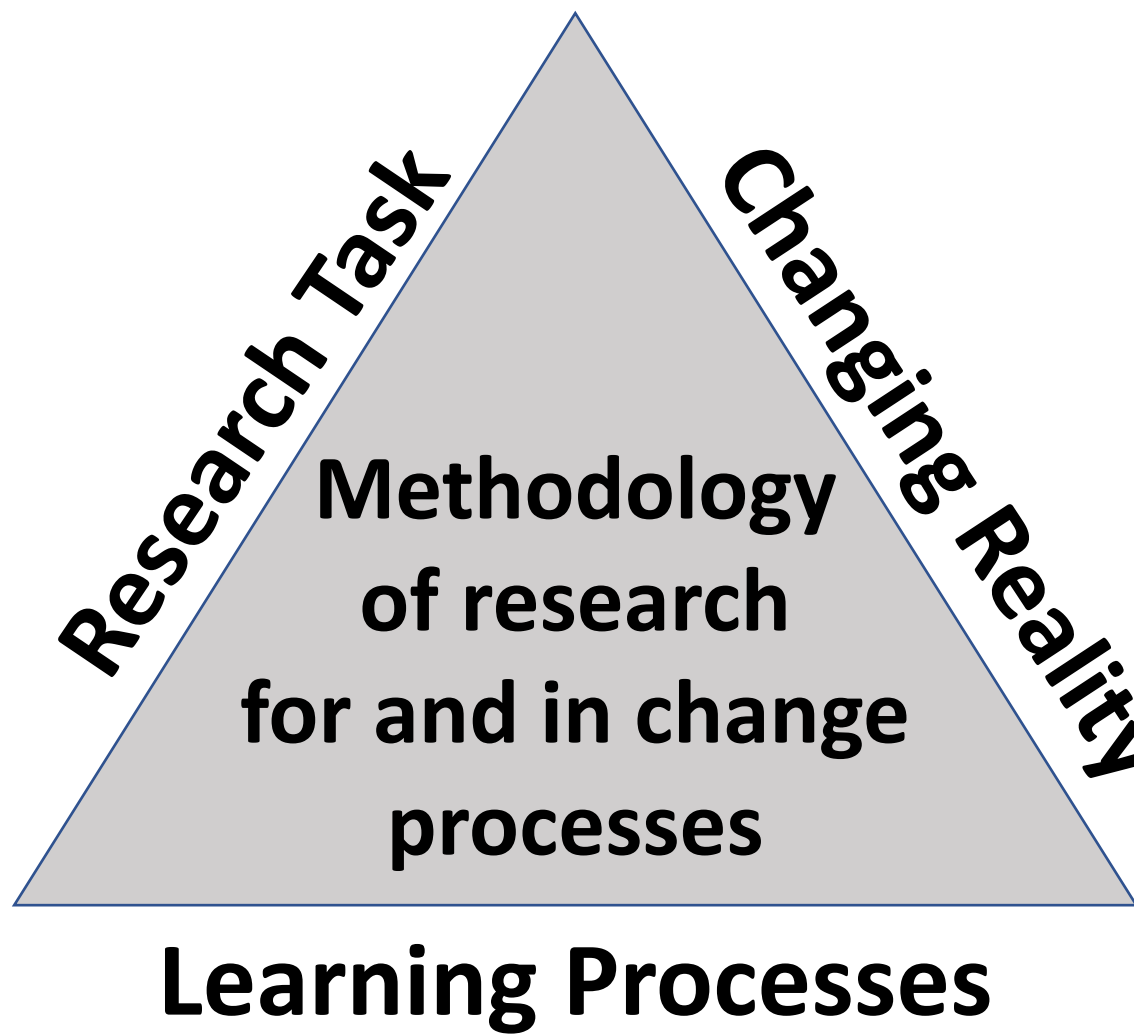
### Aim

- To explore collaborative approaches at the intersection of SR and HR, as well as their scientific impact

### Process

- Launch workshop took place May 21, 2024 online with the fellow group members, one participant from the ISOE and two external participants

### Results



#### Scientific Impact

- Focus is on the impact of TDR on the scientific System
- TD researchers could be more conscious and strategic in changing the academic system in the direction of TDR
- Emphasize more the transformative impact that TDR might have on the science system
- In order for TDR to thrive, the science system needs to be different and this difference needs to be described

## Further Output

### Research Agenda

- Research Agenda at the intersection of HR and SR
- Research Agenda regarding the scientific impact of TDR

### Publications

- Kim, Jinhee; Semrau, Jana; Caniglia, Guido; Beecroft, Richard; Rütten, Alfred, de Leeuw, Evelyne: *Mapping the landscape of TDR: a bibliometric analysis (Working title)*. In preparation.
- Caniglia, Guido; Rütten, Alfred; Semrau, Jana; Beecroft, Richard; de Leeuw Evelyne: *Are we making a difference? A framework to reflect on the impact of transdisciplinary research (TDR) on the knowledge system of science*. In submission.