Transdisciplinary learning to foster sustainable development

Barth, Matthias; Lang, Daniel J.; Michelsen, Gerd

Published in:
GAIA - Ecological Perspectives for Science and Societa

DOI:
10.14512/gaia.28.4.11

Publication date:
2019

Document Version
Publisher's PDF, also known as Version of record

Transdisciplinary learning to foster sustainable development

Institutionalizing co-engaged South-North collaboration

Ways towards sustainable development will require mutual learning processes and processes of change across disciplines and stakeholders and between the Global South and North. The new Institute for Sustainable Development and Learning aims to meet these requirements – through transdisciplinary learning as evidence-generating and evidence-supported learning processes on the individual, organizational and societal levels, thus fostering fundamental system transformations. It invites scholars and other societal actors from the Global South and North to collaborate and partner.

Matthias Barth, Daniel J. Lang, Gerd Michelsen

Transdisciplinary learning to foster sustainable development. Institutionalizing co-engaged South-North collaboration | *GAIA* 28/4 (2019): 382–385 | **Keywords:** education for sustainable development, learning, South-North collaboration, transdisciplinarity

Since sustainable development has emerged as a normative guiding idea at the global level, it has been perceived as a "moving target" (Hjorth and Bagheri 2006) that requires deliberation and an ongoing process of change. Accordingly, there is emphasis on the crucial need to find "ways of promoting the social learning that will be necessary to navigate the transition to sustainability" (Kates et al. 2001, p. 642).

Consequently, the notion of learning for sustainability figures prominently in both academia and policy, and learning and education are increasingly considered as important features in this regard (Barth 2015). This is obvious when looking at *Sustainable Development Goal 4* (ensure inclusive quality education and promote lifelong learning opportunities for all), or the manifold activities revolving around Education for Sustainable Development (ESD) under the umbrella of the *UNESCO Decade for ESD*[1] and the *Global Action Program ESD*[2] over the past 20 years. Yet learning has also been increasingly mentioned as a central concept to foster sustainability transformations in the context of social learning processes (e.g., Reed et al. 2010), real-world laboratories and experiments as learning and research settings (e.g., Schäpke et al. 2018 or Singer-Brodowski et al. 2018), or change processes and capacity-building in administrations and other organizations (e.g., Keeler et al. 2019).

Transdisciplinary learning and sustainable development

When it comes to learning and sustainability, we see the concept of transdisciplinary learning as particularly important. Learning, in that sense, is a broad concept that encompasses many forms and needs to be further clarified. This can be done based on a distinction between two main dimensions: the area of societal interaction and the level of reflection informing learning processes (Barth and Michelsen 2013). For the social dimension of learning, we can distinguish three distinctive forms ranging from individual learning in a group, to learning as a group, to learning as social change process that transcends group boundaries. Learning in all three areas can happen in three forms of learning, that is, single-, double- and triple-loop learning – terms that refer to the level of reflection that

1 *https://en.unesco.org/themes/education-sustainable-development/what-is-esd/un-decade-of-esd*
2 *https://en.unesco.org/gap*

Prof. Dr. Matthias Barth | matthias.barth@leuphana.de

Prof. Dr. Daniel J. Lang | daniel.lang@leuphana.de

Prof. Dr. Gerd Michelsen | UNESCO Chair *Higher Education for Sustainable Development* | michelsen@leuphana.de

all: Leuphana University Lüneburg | Institute for Sustainable Development and Learning | Lüneburg | Germany | *https://transdisciplinarylearning.org*

***NaWis*-Runde:** *Prof. Dr. Uwe Schneidewind* | Wuppertal Institute for Climate, Environment and Energy | Döppersberg 19 | 42103 Wuppertal | Germany | +49 202 2492100 | uwe.schneidewind@wupperinst.org | *www.wupperinst.org*

https://doi.org/10.14512/gaia.28.4.11

informs the learning process (Argyris and Schön 1996). While different forms of learning in the social dimension are equally important, the progress towards triple-loop learning plays a crucial role in sustainability. Ultimately, with triple-loop learning, new ways of thinking are sought after, progressing from reflection on how to do things differently towards how to do different things.

This understanding of learning is very closely linked to transdisciplinarity as a problem- and solution-oriented research practice that plays a central role in sustainability science (see, e. g., Lang et al. 2012). This link becomes obvious, as a key characteristic of transdisciplinary research is mutual learning processes among different scientific disciplines as well as between science and society on equal footing. In this sense, we conceptualize transdisciplinary learning as evidence-generating and evidence-supported learning processes on the individual, organizational and societal levels, fostering fundamental system transformations.

The new Institute for Sustainable Development and Learning

At Leuphana University Lüneburg, the idea of transdisciplinary learning for sustainable development has been further developed, applied in diverse research projects, and used for curricula development on all levels of education, particularly at the UNESCO Chair for Higher Education for Sustainable Development, for more than 20 years. Building on this experience, in September 2019, the Institute for Sustainable Development and Learning (ISDL) was officially inaugurated. As an inter-faculty body, it strives to evolve into a national as well as international platform that enables evidence-generating research and supports the evidence-based application of findings in close collaboration with partners from the Global South. To this end, it will systematically put the South-North dimension of transdisciplinary learning processes in sustainable development at the center of its activities and aims at actively contributing to the implementation of the *Sustainable Development Goals (SDGs)*.

According to the areas of learning on the societal dimension outlined above, a three-tier learning underpins the institute's work: individual education processes, experience-based cooperation, and societal interaction.

Transdisciplinary learning through individual education processes

In our research, we are interested in processes and approaches that empower the individual to actively participate in shaping sustainable development within transdisciplinary settings. Research on the respective learning processes can facilitate contributions towards shaping, implementing, and developing learning formats that encourage individual education processes leading to sustainability-related skillsets.

Transdisciplinary learning through experience-based collaboration

In this area, research focuses on group learning and organizational processes that contribute to the establishment of "Communities of Practice". The integration of different stocks of knowledge opens the discussion for a diversity and plurality of theoretical and methodological perspectives, backgrounds, and world views, as well as a variety of perceptions on political and governance design. Research in this sector enables the development of specific principles of how to shape capacity-mobilizing measures. Consequently, it can directly contribute to the establishment of sustainable local as well as regional Communities of Practice, which are vital for sustainable development, particularly in the Global South.

Transdisciplinary learning through societal interaction

Here, we are interested in learning processes that go beyond individuals and well-defined social entities and their ability to initiate systemic change for sustainable development. Through a special focus on the role of universities on the one hand and the mutual learning processes between science and society on the other, insights on the implementation of the *SDGs* shall be gleaned. Thereby, evidence-based progress in the implementation of the *SDGs* can be detected and will enable consulting for the future implementation of sustainable development.

For all of these levels, we strive for co-developing meaningful activities to support evidence-based activities in research, capacity mobilizing and agenda setting. These activities explicitly focus on long-term impacts, address leverage points for sustainable development, and underline the relevance of transdisciplinary learning processes to foster sustainability transformations.

The goal of the new Institute for Sustainable Development and Learning is to create spaces for exchange, critical and creative discussions, and joint activities of actors from the Global South and the Global North.

Exemplary activities

The activities of the ISDL are usually project-oriented and placed in content-focused spheres. Three sample projects are:

Actionable Sustainability Education Across the Pacific with SolarSPeLL

In this project on individual learning especially in the Global South, funded by the *Global Consortium for Sustainability Outcomes*[3], we partner with *SolarSPELL*[4] *(Solar Powered Educational Learning Library)*, a student-centered initiative hosted at Arizona State University. The *SolarSPELL* digital library provides locally relevant, open-access educational material through an offline wi- >

3 *https://sustainabilityoutcomes.org*
4 *www.solarspell.org*

Declaration of Inception of the Institute for Sustainable Development and Learning (ISDL)

I

We acknowledge that we are living in a time of transformation. A range of interconnected social, economic, cultural, and environmental changes are taking place globally at levels never before seen. These changes threaten a number of "planetary boundaries" in the long term and thus bring the topic of inter- and intragenerational justice to the fore. How can we ensure sustainable development within safe and just boundaries?

We emphasize the fact that sustainability science (comprising the natural and social sciences as well as the humanities) shows an increasing capacity for analyzing and understanding key challenges and their drivers. At the same time, societies are responding to these challenges by establishing a global agenda of sustainable development goals as well as implementing them on national levels. South-North relations and links between the global and the local are reinterpreted and newly considered. However, the concept of sustainable development does not provide the pathway or distinctive solutions that can be easily followed. Sustainability science hence not only faces the challenge of generating an even more nuanced understanding of sustainability problems but also needs to contribute to finding and testing possible solutions.

We see the need for societal learning processes to address these challenges and the inherent complexity therein. Different actors around the globe will have to contribute to a transformation toward sustainability. In doing so, universities will play an important role in and for a civic society in the 21st century. They will have to reconsider their roles and activities to contribute to finding and testing solutions for and with society.

II

We recognize that the quest for methods to transition toward sustainability involves constant mutual learning and negotiation. These processes take place at the interface of science and other sectors of society. Science thus needs to co-design new methods of communication and investigation on equal footing with actors from other sectors of society, while the whole society is being asked to become open and engage in these co-design and mutual learning processes. These learning processes will take place between science and other sectors of society as well as between the Global South and the Global North.

We understand that transdisciplinary learning is key for sustainable development. Transdisciplinary learning occurs on three closely interlinked levels: 1. the level of individual learning, in which key competencies and practical wisdom for sustainability are developed; 2. the level of organizational learning through experience-based collaboration; 3. the level of social learning through societal interaction and action, including the transformation of taken-for-granted unsustainable societal norms.

III

We affirm our deep commitment to enable and foster transdisciplinary learning processes. The co-creation of knowledge between science and other sectors of society as well as between the Global South and the Global North lies at the heart of our activities. We will contribute to such learning by collaboratively designing, implementing and evaluating learning processes, by building the mutually beneficial capacities to do so, and by active, shared agenda-setting.

We act in three strategic working areas to live up to our commitment: first, our research focus lies in transdisciplinary learning for sustainable development, and we aim to provide evidence-based insights into transdisciplinary learning processes and their potential to foster sustainable development. Second, by supporting communities of practice and networks of local and regional experts both in the Global South and the Global North, we actively aim at mobilizing and support the capacities of change agents. Finally, we offer and share consultation and advice for actors from such fields as policy, civil society, the economy, and administration regarding issues of transdisciplinary learning for sustainable development to mutually learn with these diverse actors.

IV

We invite key stakeholders in science, policy, economy, and civil society to an open dialogue on pathways toward sustainability. Meaningful societal learning can only occur as a joint endeavor across boundaries and by thinking critically and creatively outside the box. It is our very intention to establish the Institute for Sustainable Development and Learning (ISDL) as a facilitator of mutual learning processes across boundaries and for making a substantial contribution to a safe and just future.

For the Institute of Sustainable Development and Learning:
Prof. Dr. Matthias Barth, Prof. Dr. Daniel J. Lang, Prof. Dr. Gerd Michelsen

For Leuphana University Lüneburg hosting ISDL:
Prof. (HSG) Dr. Sascha Spoun, Prof. Dr. Henrik von Wehrden

For the Advisory Board committed to supporting ISDL with their expertise:
Rebecca Harms, former MP European Parliament; *Prof. em. Helga Kromp-Kolb,* University of Natural Resources and Life Sciences (BOKU), Austria; *Prof. Dr. Heila Lotz-Sisitka,* Rhodes University, South Africa; *Prof. Dr. Thomas Potthast,* University of Tübingen, Germany; *Prof. em. Tan Sri Dato Dzulkifli Abdul Razak,* International Islamic University, Malaysia; *Prof. Dr. Imme Scholz,* German Development Institute (DIE), Germany; *Prof. Mirian Vilela,* Earth Charter Center for Education for Sustainable Development

fi hotspot. It mimics an online experience to build information literacy and engage with sustainability-relevant material. No external electricity, internet connection, or data is required for operation. Giving access to the material in such a way, coupled with teacher guidance in its use, is expected to improve students' learning experience. By developing, testing, and implementing meaningful educational material, this project aims to contribute to supporting the competence development of those students from regions most at risk when it comes to climate change and hardest to reach.

Towards a Sustainability University Barometer

Organizational learning is sought after with the *Sustainability University Barometer,* which aims at continuously mapping the contribution of the higher education sector to sustainability and meeting the goals of the *2030 Agenda* on a global, regional, and national scale. Besides insights related to the *2030 Agenda,* as such, it focuses on *SDG 4* and is informing the follow-up post *Global Action Program* for ESD. This will be done in a twofold approach: established guiding principles indicating progress towards sustainability are continuously observed ("cruise

mode"), while at the same time enabling factors for exploring new pathways are also part of the barometer as well as good practice examples that allow for mutual learning ("exploration mode"). The barometer will include a set of indicators that are measured in each wave of inquiry (longitudinal), but each wave also has a specific topical focus with more in-depth inquiries. In contrast to other assessment tools, the unit of analysis is not the single higher education institution (HEI), but the sector as such. To reach this goal, the selection of institutions will be based on a purposeful sampling.

Globally and Locally Sustainable Food-Water-Energy Innovation in Urban Living Labs (GLOCULL)

In this project on societal learning, funded by the European Union and the *Belmont Forum* within the *Joint Programming Initiative Urban Europe,* seven universities from Africa, South America, the US, and Europe work together with several local actors outside academia at the places of the respective universities. The aim of these collaborations is to foster sustainability transformation through real-world experiments in urban living labs (ULL).

Transdisciplinary learning plays an essential role in this project in at least two ways: 1. within the different ULLs as learning among the involved actors from different societal sectors, and 2. across the different ULLs to explore the possibility to transfer and scale solutions as well as processes. For enabling these learning processes, a formative, evaluative scheme for real-world experimentation (Luederitz et al. 2017) has been specified for the project context and will be applied in all ULLs. Furthermore, collaboratively developed causal-loop diagrams will be used to allow for mutual learning and bridging the gap between contextualized learning in the single ULLs and learning to generate transferable insights on a general level.

All experiments in the *GLOCULL* project focus on the water-food-energy nexus and range from small-scale gardening projects in informal settlements and craft-beer production to the refurbishment of an urban neighborhood.

An open invitation

Transdisciplinary learning for sustainable development cannot and should not happen in silos, nor can sustainability be reached through following a competitive idea. Therefore, ISDL is already embedded in and closely linked to the activities of different networks such as the *NaWis* consortium or the *Copernicus Alliance*. The goal of ISDL is to create spaces for exchange, critical and creative discussions, and joint activities of actors from the Global South and the Global North who want to advance transdisciplinary learning as a means to foster sustainable development. Everyone who is interested in this endeavor is warmly invited and welcome to join us through collaboration and partnership in order to jointly make a substantial contribution for a safe and just future. To make the ethos and commitment of ISDL for potential partners transparent, you find its declaration of inception above.

References

Argyris, C., D. A. Schön. 1996. *Organizational learning II: Theory, method, and practice. Organization development series.* Reading: Addison-Wesley.

Barth, M. 2015. *Implementing sustainability in higher education: Learning in an age of transformation.* Routledge studies in sustainable development. London: Routledge.

Barth, M., G. Michelsen. 2013. Learning for change: An educational contribution to sustainability science. *Sustainability Science* 8/1: 103–119. DOI: 10.1007/s11625-012-0181-5.

Hjorth, P., A. Bagheri. 2006. Navigating towards sustainable development: A system dynamics approach. *Futures* 38/1: 74-92.

Kates, R. W. et al. 2001. Sustainability science. Policy forum: Environment and development. *Science* 292/5517: 641–642.

Keeler, L. W. et al. 2019. Building actor-centric transformative capacity through city-university partnerships. *Ambio* 48/5: 529–538.

Lang, D. J. et al. 2012. Transdisciplinary research in sustainability science: practice, principles, and challenges. *Sustainability Science* 7/1: 25–43.

Luederitz, C. et al. 2017. Learning through evaluation: A tentative evaluative scheme for sustainability transition experiments. *Journal of Cleaner Production* 169: 61–76.

Reed, M. et al. 2010. What is social learning? *Ecology and Society.*

Schäpke, N. et al. 2018. Jointly experimenting for transformation? Shaping real-world laboratories by comparing them. *GAIA* 27/S1: 85–96.

Singer-Brodowski, M., R. Beecroft, O. Parodi. 2018. Learning in real-world laboratories: A systematic impulse for discussion. *GAIA* 27/S1: 23–27.

Kapp-Forschungspreis für Ökologische Ökonomie

Ausschreibung 2020

Der *Kapp-Forschungspreis für Ökologische Ökonomie* richtet sich an junge Wissenschaftlerinnen und Wissenschaftler im deutschsprachigen Raum und soll Studien zur Ökologischen Ökonomie fördern. Für die Ausschreibung 2020 lautet die übergeordnete Themenstellung:

»Ökologische und soziale Kosten des Wirtschaftens – und ihre Vermeidung«

Die Ausschreibung bezieht sich damit auf zentrale Forschungsfragen von K. William Kapp (1901 bis 1976), einer der Gründerfiguren einer sozialökologisch ausgerichteten Ökonomie. Im Zuge der wirtschaftlichen Globalisierung und der zunehmenden Auslagerung von Kosten und Folgewirkungen des Wirtschaftens auf Natur, Gesellschaft und zukünftige Generationen hat die obige Problemstellung an Bedeutung gewonnen.

Berücksichtigt werden folgende Kategorien von Arbeiten:

1. Dissertationen und Habilitationsschriften.
2. Diplom- und Masterarbeiten (keine Bachelorarbeiten).

Die Veränderungen, die für eine ökologische Ökonomie erforderlich sind, können kaum aus einer rein wirtschaftswissenschaftlichen Perspektive allein begründet werden; deshalb sind inter- und transdisziplinär angelegte Arbeiten (in deutscher oder englischer Sprache) bei diesem Thema besonders naheliegend.

Das Preisgeld wird auf mehrere, in der Regel maximal zwei Preisträger/-innen verteilt und beträgt insgesamt

5.000 Euro

Interessierte erhalten die Bewerbungsunterlagen über die Geschäftsstelle des Kapp-Forschungspreises (Adresse siehe unten). Die Bewerbungsfrist endet mit dem

1. März 2020

Die Preisträger werden von einer unabhängigen Jury ausgewählt. Der Rechtsweg ist ausgeschlossen.

Der Kapp-Forschungspreis wird gemeinsam ausgeschrieben von:

der Vereinigung für Ökologische Ökonomie (VÖÖ) e.V., der Hatzfeldt-Stiftung, der Kapp-Stiftung, der Selbach-Umwelt-Stiftung sowie der anstiftung.

Anforderung der Bewerbungsunterlagen

Dr. Manuel Schneider,
Projektbüro ! *make sense* !,
Waltherstraße 29, D–80337 München
info@make-sense.org