

Challenges and strategies in transdisciplinary research – early career researchers' perspectives

Addressing socio-environmental challenges requires a multifaceted approach and a comprehensive understanding, which is precisely what transdisciplinary research can provide. The transdisciplinary approach, however, brings new challenges to early career researchers, who have to acquire the necessary methods and skills while conducting their ongoing research. Along with increasing access to resources and training, guidance from supervisors and informal exchange with other transdisciplinary early career researchers play key roles in effectively supporting them.

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Transdisciplinary (TD) research allows researchers to tackle current societal challenges of varying complexity. As a research approach, transdisciplinarity enables for problems to be better understood by fostering interdisciplinary collaborations and ensuring the involvement of societal stakeholders to co-produce solutions (Pohl and Hirsch Hadorn 2008, Mobjörk 2010). Furthermore, integration as a key process in TD research has been recognized as an open-ended learning process with no pre-determined outcomes (Pohl et al. 2021). While discipline-specific research fields are well established, TD research is still evolving, making early career researchers (ECRs) in particular face various challenges.

Recent studies have stressed the following main challenges for ECRs when conducting TD research: 1. conflicting methodological standards (Lang et al. 2012), 2. lack of integration across knowledge types (Lang et al. 2012), 3. perceived deficit of scientific quality (Rogga and Zscheischler 2021), 4. pressure to generate societal output (Rogga and Zscheischler 2021), 5. establishing disciplinary profiles and at the same time remaining open to cross-disciplinary proceedings (Jaeger-Erben et al. 2018), 6. structuring practitioner involvement (Enengel et al. 2012, Jaeger-Erben et al. 2018), 7. dealing with different TD logics (Jaeger-Erben et

al. 2018), 8. shared responsibility and dependence on actors (Enengel et al. 2012), 9. vast amount of skills and resources needed for effective TD research (Strand et al. 2022), and 10. effectively integrating different stakeholders' perspectives (Killion et al. 2018, Lawrence et al. 2022). Moreover, interdisciplinary research and training is still in an establishing and evolving phase (Haidler et al. 2018, Lyall and Meagher 2012), which consequently influences TD research that combines interdisciplinary and societal involvement.

To tackle these challenges, studies have come up with recommendations and guidelines (e. g., Jaeger-Erben et al. 2018). For example, defining flexible, transparent project designs is key to ensure an effective involvement of practitioners and integration of inputs from other relevant disciplines (Jaeger-Erben et al. 2018). More generally, Rogga and Zscheischler (2021) have stressed that the scientific discourse on TD research must pay more attention to the specific roles of ECRs and their work conditions. Various TD initiatives have been initiated in the last years, such as the *tdAcademy network*¹ and the *td-net*². Further, the *International Transdisciplinarity (ITD) Alliance* established the *ITD ECR working group*³ to provide informal spaces for discussions among international TD ECRs.

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As a group of ECRs at the Transdisciplinarity Lab (TdLab) of ETH Zurich, we contribute with this *Forum* article to the ongoing discussion by exploring the following two research gaps:

- Do the challenges we face as TD ECRs differ between our different projects?
- What do we as TD ECRs need in addition to the above mentioned support initiatives to tackle these challenges?

To this end, we build on the insights gained during the ECR sessions that we organized as part of the virtual 2021 *International Transdisciplinarity Conference (ITD21)*, along with the multiple discussions we had that were aimed at identifying whether we face the same TD research challenges and whether we have the same support mechanisms, considering that we work on different TD projects. These bottom-up insights might serve other TD ECRs to identify their needs and overcome their own challenges, and seniors to effectively address the challenges in training efforts for TD ECRs.

Methodological procedure

This *Forum* piece is based on the insights from the first day of the *ITD21*, which was dedicated to ECR sessions. Four of us authors jointly defined and co-organized these ECR sessions, which allowed us to better understand the contexts and challenges of TD ECRs around the world. These sessions showed us that despite being involved in different projects (table 1, p. 174), we face similar challenges. Therefore, in the aftermath of the *ITD21*, we organized multiple virtual meetings, where we jointly identified the main challenges of doing TD research as ECRs and critically reflected on how we individually address them to derive conclusions on what we as ECRs actually need to effectively tackle the obstacles when conducting TD research. The comparison entity (cases) as outlined by Crowe et al. (2011) and Schoch (2019) were our own projects (P1 to P7) (table 1). Considering the diversity of our TD projects (including different themes, aims, stakeholders, and regions), we argue that our insights are transferable to other TD research projects on sustainability and resilience (Schoch 2019).

Main challenges and how to address them

We critically reflected on challenges related to three TD areas (figure 1, p. 175): 1. interdisciplinary integration (connecting different scientific disciplines), 2. intersectional obstacles (e.g., knowledge from multiple epistemologies), and 3. stakeholder involvement (involving various societal actors). In the following three sections, we will focus on three specific challenges regarding intersectional obstacles in TD research – knowledge from multiple epistemologies, choosing an appropriate method mix, lack of TD skills –⁴, by first describing them and, second, providing our derived strategies to overcome. Those related to interdisci-

plinary integration (e.g., Lach 2014) and stakeholder involvement (e.g., Stöckli et al. 2018) are already well addressed in other studies.

The collision of different epistemologies

In TD research epistemologies from different scientific disciplines and societal actors collide (experienced in P1 to P7, see table 1). One of us, for example, is working in the Global South as a Western ECR and has experienced that the history of colonization and the epistemicide (destruction of the indigenous ways of knowing) carried out during centuries in colonized countries cannot be ignored (Grosfoguel 2015). This means that there has been a clear hierarchy between knowledge systems (epistemologies) (Mignolo and Tlostanova 2006), and that the Western Cartesian rationality has been depicted as superior for its *scientific validity* (Vaditya 2018). Navigating between these *ways of knowing* is often challenging (P4, P7).

Some of us are collaborating with representatives from both the non-government and the government sector in different countries across Europe and are thus challenged by different cultural aspects that influence the *way of work* (P1, P2). Getting acquainted with these different disciplinary and societal perspectives is time consuming, and the way they affect one's research design is not straightforward (P2, P3, P5). This can lead to doubts like: "I often feel lost on who I should exchange with, how deep I should go into each area, and how this will be reflected in my research design or analysis" (ECR P5), or "For me, this leads to a struggle of feeling torn between different scientific communities and feeling like I do not really belong to one" (ECR P6). Further, the collision of different epistemologies within and between science and society, for example, is also perceived as an obstacle to swift research progress (P2, P3, P4, P6).

To handle this collision of epistemologies, we developed various strategies. First, we attempted to foster discussions in the collaboration process on how the different visions of reality and ways of inquiry complement each other. We learned that this requires at least some amount of curiosity from both sides about the counterpart's questions and motivations. It also requires feeling comfortable about ignorance on both sides and with learning from naive questions and black boxes at the intersections between disciplines (P2 to P7). We further realized that, when approaching such issues from an *engineering background and perspective*, engineers often consider their *modus operandi* to be applicable across contexts. So our second strategy involved taking a step back from the *engineering way* and becoming *active listeners*, which leads to a greater chance of co-creating effective, inclusive, and sustainable societal solutions that are context specific (P1, P3). Third, in our experience, projects should not be divided into discipline-specific work packages and work package

1 <https://td-academy.org>

2 <https://transdisciplinarity.ch/en>

3 <https://itd-alliance.org/early-career-researchers>

4 These three challenges were also key issues at the *ITD21* events for ECRs.

TABLE 1: Overview of the authors' research projects using transdisciplinary approaches.

PROJECT (CASE)	THEME	AIMS	MAIN SCIENTIFIC DISCIPLINES	INVOLVED SOCIETAL STAKEHOLDERS	REGION
P1	energy transition	empowering citizens to take direct action in the energy transition	<ul style="list-style-type: none"> ■ social sciences ■ engineering ■ communication 	<ul style="list-style-type: none"> ■ general public ■ local governments ■ energy experts 	<ul style="list-style-type: none"> ■ Europe ■ North America ■ Africa
P2	risk and hazard communication	designing understandable, actionable communications to increase societies' resilience to earthquakes	<ul style="list-style-type: none"> ■ communication ■ social sciences ■ earth sciences (mainly seismology) ■ modelling ■ engineering 	<ul style="list-style-type: none"> ■ general public ■ cantonal and national authorities ■ natural hazard institutions ■ civil protection 	<ul style="list-style-type: none"> ■ Switzerland ■ international
P3	mobility hubs	devising methods to support the co-creation of mobility hubs	<ul style="list-style-type: none"> ■ architecture ■ business administration ■ transportation planning ■ urban planning 	<ul style="list-style-type: none"> ■ architects ■ business developers ■ transportation planners ■ urban planners 	Switzerland
P4	social and gender dimensions within the circular bioeconomy	understanding the work experiences and work satisfaction of female and male workers and agri-entrepreneurs involved in biowaste management	<ul style="list-style-type: none"> ■ social sciences ■ gender studies ■ postcolonialism ■ visual studies 	<ul style="list-style-type: none"> ■ general public ■ Swiss Development and Cooperation Agency (SDC) ■ Rwandan authorities (agriculture, gender, youth empowerment) 	Rwanda
P5	effectiveness and equity of carbon dioxide removal (CDR)	early identification of opportunities and risks in the contribution of CDR to climate change mitigation	<ul style="list-style-type: none"> ■ social sciences ■ engineering 	<ul style="list-style-type: none"> ■ national and sub-national governments ■ researchers ■ CDR companies ■ NGOs 	<ul style="list-style-type: none"> ■ Switzerland ■ Iceland
P6	academic air travel and virtual communication	reducing academic air travel through a shift to effective virtual communication	<ul style="list-style-type: none"> ■ social sciences ■ psychology ■ sociology ■ communication 	<ul style="list-style-type: none"> ■ researchers ■ conference organizers ■ university management 	<ul style="list-style-type: none"> ■ Switzerland ■ international
P7	circular bioeconomy	co-construct innovations to recycle organic and human waste into fertilizers for agriculture	<ul style="list-style-type: none"> ■ sustainability science ■ agronomy ■ sanitation 	<ul style="list-style-type: none"> ■ entrepreneurs ■ farmers ■ households ■ waste collectors ■ regulators ■ public administration 	<ul style="list-style-type: none"> ■ Democratic Republic of the Congo ■ Ethiopia ■ Rwanda ■ South Africa

leadership. Rather, structures fostering interdisciplinary collaboration are needed, such as cross-work package activities and cross-disciplinary work package co-leadership (P1, P2, P3, P7). Fourth, we believe that ECRs can make use of tools that help show why TD research (e.g., equal inclusion of different perspectives, Mobjörk 2010) is important to solve societal problems, and that it is not inferior to specific scientific disciplines⁵.

The choice of a flexible, suitable method mix

A key challenge in TD research is to choose a suitable and flexible mix of methods to address the research aims (P1 to P7). Coming from disciplinary training, some of us believed that being a

TD researcher means doing research using specific methods, tools, and steps. It took time to become familiar with what transdisciplinarity means and realize that TD research does not mean doing research in one specific way, but that it involves creativity in finding ways of doing research that can vary greatly between projects (P1, P2, P3, P4, P6).

Forms of co-produced knowledge take shape in different project steps, demanding adaptive capacity and a good deal of patience (P1, P3, P6, P7). TD research projects frequently require

⁵ https://naturalsciences.ch/co-producing-knowledge-explained/methods/td-net_toolbox

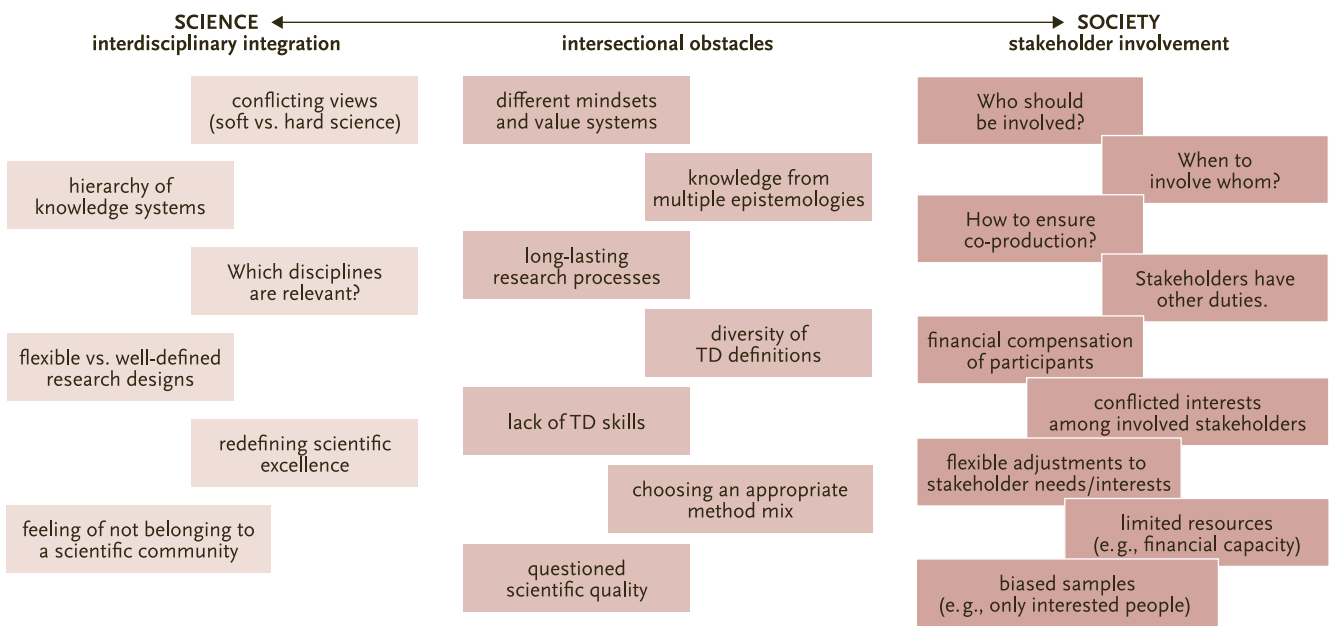


FIGURE 1: Overview of challenges identified in the different research projects, divided into the areas of interdisciplinary integration, intersectional obstacles, and stakeholder involvement.

a mix of different methods (qualitative and quantitative), which can complicate knowledge presentation and dissemination (P1, P3, P4, P6, P7) and raise questions about the external validity of qualitative methods, in particular (P2, P4, P6, P7). These methods and the data collection and analysis involved are also more time consuming (P1, P2, P4, P6). Thus, project-related time constraints may be a challenge. The time aspect also raises the question if societal stakeholders should be financially paid for their invested time, which is current practice when working in the Global South (P4, P7). A further challenge, especially in the last three years, was the transition to virtual interaction forms (P2, P3) against the background of not all stakeholders being technology affine, and in the process still fulfilling the core TD research aims, such as taking into account the diversity of perspectives (Hirsch Hadorn et al. 2008).

Although using mixed methods might be time consuming, we recommend such inquiry since they are a valuable and powerful lens to grasp the context around our specific research fields and understand tacit and fuzzy process dynamics. We have found that summer schools on such methods can be resourceful places where one can dive deep into a particular method in a short time and exchange with other ECRs from different backgrounds (P5, P6). We collaborated with peers and researchers to familiarize ourselves with new methods, to learn from their experience and knowledge in research design, to catch on to new software, and to gather recommendations on literature about specific methods. We have benefited from a research group with a broad knowledge base and from the willingness of professors and colleagues to share their network of contacts to turn to for such questions (P3, P5, P6).

The lack of transdisciplinary skills

We, as TD ECRs, come from discipline-specific or interdisciplinary fields and have not been trained as TD researchers (P1 to P7). This implies that we have to gain the skills required for conducting the TD research while we are working on the research process. This can trigger insecurity and unease (P5, P6), as the following statement demonstrates: “As an ECR, with an environmental science background, I was not sufficiently prepared for the deep psychological endeavor of deconstructing my research biases to decolonize my research” (ECR P4). TD research can further make work planning relatively unpredictable by leading to an increased workload because new methods, skills, and capacities need to be gained, which are quite different from discipline-specific skills (P1, P4, P6, P7).

While appreciating the freedom to choose methods to address our own research questions, there is also the fear of applying them incorrectly or staying on the superficial side: “After many years of studies, I’ve learned to learn. However, I fear that lack of time will hinder me from going deeply into methods I’ve never used before, with their different philosophical underpinnings, advantages, and disadvantages” (ECR P5). Thus, we see a need for study curricula offering TD courses or academic degrees.

Learning by doing would be the main recommendation we have. But to be able to do so as an ECR, safe spaces for exchange (e.g., peer support groups) and support from TD research seniors is needed, as exemplified by this statement: “In this context, relying on the competences of others has been very important: my colleagues, my supervisor, and my network have helped me to find the best resources to learn new methods” (ECR P5).



We – mostly doctoral students at TdLab – created a *doctoral support group* where we exchange on the processes we are experiencing and challenges we are facing. By doing so, we benefit from having different backgrounds and being able to share our knowledge on different methods gained during our studies (P1 to P6).

It is important to expand and strengthen these initial insights with some form of self- or guided learning, including, but not limited to, attending courses and workshops. We gathered valuable experience at a seminar on TD research, where we familiarized ourselves with the literature strand on TD research and had the opportunity to try out different TD tools in small groups in the safe space of a classroom (P1, P3 to P6).

In order to be able to improve the integration of knowledge from different epistemologies, for example, ECRs should moreover develop a culture of reflection and self-criticism about their epistemology (see section *The collision of different epistemologies*).

How can transdisciplinary research of early career researchers be supported?

Addressing socio-environmental challenges requires a multifaceted approach and a comprehensive understanding, which is what TD research can provide. The comparison of our projects showed that despite their diversity in terms of the themes, aims, disciplines, and stakeholders involved in our projects, ECRs face similar challenges when conducting TD research.

Thanks to recent initiatives (e.g., *tdAcademy*), TD ECRs have access to resources and training that enable them to gain skills to address these challenges. However, guidance from supervisors and informal exchange with other TD ECRs also play a key role in effectively overcoming the challenges, as argued by Nyboer et al. (forthcoming). We thus encourage TD seniors and

experts to provide spaces for informal exchange where TD ECRs can voice their concerns, needs, and questions, without fearing to ask trivial questions. These spaces can be virtual coffee hours, for example, such as those organized by the *ITD* ECR working group⁶, specific sessions at TD as well as interdisciplinary and transdisciplinary conferences, summer and winter schools, or any form of a support group, formal or informal, such as the one we have at the TdLab.

Providing more of these spaces enables ECRs to jointly identify coping strategies and to learn from each other's experiences. If possible, such spaces should be supported by more advanced TD researchers and experts. This last element is imperative for gaining skills to overcome TD research challenges, considering that such context-specific skills are mostly gained throughout the TD research process itself.

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References

- Crowe, S., K. Cresswell, A. Robertson, G. Huby, A. Avery, A. Sheikh. 2011. The case study approach. *BMC Medical Research Methodology* 11/2: 1–9. <https://doi.org/10.1186/1471-2288-11-100>.

⁶ <https://itd-alliance.org/early-career-researchers>

Nachhaltigkeit

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- Grosfoguel, R. 2015. Epistemic racism/sexism, westernized universities and the four genocides/epistemicides of the long sixteenth century. In: *Eurocentrism, racism and knowledge: Debates on history and power in Europe and the Americas*. Edited by M. Araújo, S. R. Maeso. London: Palgrave Macmillan. 23–46. https://doi.org/10.1057/9781137292896_2.
- Haider, L. J. et al. 2018. The undisciplined journey: early-career perspectives in sustainability science. *Sustainability Science* 13: 191–204. <https://doi.org/10.1007/s11625-017-0445-1>.
- Hirsch Hadorn, G. et al. (Eds.). 2008. *Handbook of transdisciplinary research*. Dordrecht: Springer. <https://doi.org/10.1007/978-1-4020-6699-3>.
- Jaeger-Erben, M. et al. 2018. Building capacities for transdisciplinary research challenges and recommendations for early career researchers. *GAIA* 27/4: 379–386. <https://doi.org/10.14512/gaia.27.4.10>.
- Killion, A. K. et al. 2018. Preparing the next generation of sustainability scientists. *Ecology and Society* 23/4: 39. <https://doi.org/10.5751/ES-10395-230439>.
- Lach, D. 2014. Challenges of interdisciplinary research: Reconciling qualitative and quantitative methods for understanding human-landscape systems. *Environmental Management* 53: 88–93. <https://doi.org/10.1007/s00267-013-0115-8>.
- Lang, D. J. et al. 2012. Transdisciplinary research in sustainability science: Practice, principles, and challenges. *Sustainability Science* 7: 25–43. <https://doi.org/10.1007/s11625-011-0149-x>.
- Lawrence, M. G., S. Williams, P. Nanz, O. Renn. 2022. Characteristics, potentials, and challenges of transdisciplinary research. *One Earth* 5/1: 44–61. <https://doi.org/10.1016/j.oneear.2021.12.010>.
- Lyll, C., L. R. Meagher. 2012. A masterclass in interdisciplinarity: Research into practice in training the next generation of interdisciplinary researchers. *Futures* 44/6: 608–617. <https://doi.org/10.1016/j.futures.2012.03.011>.
- Mignolo, W. D., M. V. Tlostanova. 2006. Theorizing from the borders: Shifting to geo-and body-politics of knowledge. *European Journal of Social Theory* 9/2: 205–221. <https://doi.org/10.1177/1368431006063333>.
- Mobjörk, M. 2010. Consulting versus participatory transdisciplinarity: A refined classification of transdisciplinary research. *Futures* 42/8: 888–873. <https://doi.org/10.1016/j.futures.2010.03.003>.
- Nyboer, E. A. et al. Forthcoming. Goals, challenges, and next steps in transdisciplinary fisheries research: perspectives and experiences from early-career researchers. *Reviews in Fish Biology and Fisheries*. <https://doi.org/10.1007/s11160-022-09719-6>.
- Pohl, C., G. Hirsch Hadorn. 2008. Methodological challenges of transdisciplinary research. *Natures Sciences Sociétés* 16/2: 111–121. <https://doi.org/10.1051/nss:2008035>.
- Pohl, C., J. T. Klein, S. Hoffmann, C. Mitchell, D. Fam. 2021. Conceptualising transdisciplinary integration as a multidimensional interactive process. *Environmental Science & Policy* 118: 18–26. <https://doi.org/10.1016/j.envsci.2020.12.005>.
- Rogga, S., J. Zscheischler. 2021. Opportunities, balancing acts, and challenges – doing PhDs in transdisciplinary research projects. *Environmental Science & Policy* 120: 138–144. <https://doi.org/10.1016/j.envsci.2021.03.009>.
- Schoch, K. 2019. Case study research. In: *Research design and methods: An applied guide for the scholar-practitioner*. Edited by G. J. Burkholder, L. M. Crawford, K. A. Cox, J. H. Hitchcock. Newbury Park, CA: Sage. 245–258.
- Stöckli, B., U. Wiesmann, J. Lys. 2018. *A guide for transboundary research partnerships: 11 principles*. 3rd edition. Bern, CH: Swiss Commission for Research Partnerships with Developing Countries (KFPE).
- Strand, M. et al. 2022. Transdisciplinarity in transformative ocean governance research – reflections of early career researchers. *ICES Journal of Marine Science* 79/8: 2163–2177. <https://doi.org/10.1093/icesjms/fsac165>.
- Vaditya, V. 2018. Social domination and epistemic marginalisation: Towards methodology of the oppressed. *Social Epistemology* 32/4: 272–285. <https://doi.org/10.1080/02691728.2018.1444111>.



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