Transdisciplinarity "RELOADED": Developing a transdisciplinary educational model

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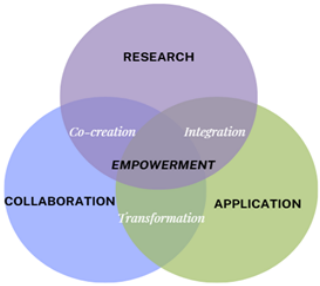
Transdisciplinarity has become a key paradigm for addressing the complex and interconnected transitions confronting modern societies. Policy frameworks and research agendas increasingly call for transdisciplinary approaches, yet a crucial gap persists in empowering future decision-makers to design and implement such initiatives effectively. Genuine empowerment requires an educational approach that moves beyond narrow disciplinary proficiency and reductionist approach, fostering systemic, collaborative, and reflexive learning. Still, the question remains: do we really know how to integrate transdisciplinarity into teaching practices? The central challenge is to ensure that transdisciplinarity becomes more than a rhetorical label or policy aspiration, but a structural component of education, embedded in curricula, teaching methods, and institutional frameworks for generating tangible learning outcomes and competences for future decision-makers.

As part of education, transdisciplinarity cannot exist without a contextual and methodological basis, which is designed in a way that allows learners to perceive and comprehend why and how to apply such an approach. For bridging the gap between knowledge and action, in a transdisciplinary setting, students should take on a self-confident and self-critical role, becoming active co-designers of their own learning process, engaging in a dialog with teachers and experts on an equal footing. The empowerment of learners should happen through an in-depth perception of a surrounding system and their place in it to recognize themselves as part of a broader setting where cross-boundary (across systems, components) and cross-border (across national and organizational) communication is essential for the anticipation and initiation of innovations as problem- and solution-oriented approaches viable within individual and collective innovation strategies.

Similar to "cybernetics of cybernetics" (von Foerster, 2003), transdisciplinarity in the education process should function both as an approach and as an outcome of knowledge integration, in which learners are not merely recipients or objects but active collaborators. This principle is the backbone and innovation of the *transdisciplinary education model* in TISE. TISE creates a collaborative learning environment in which continuous synergies between *Research context*, *Application framework* and *Collaboration processes* transcend disciplinary and system boundaries, promote discourse among diverse stakeholders, and foster knowledge *co-creation* and *integration*, leading to *transformative* impact through innovation orientations and strategies. Students, educators, entrepreneurs, policymakers, and other stakeholders interact, exchange, and share their knowledge, which leads to an iterative loop of ongoing co-creation, integration, and transformation, and thus improvement.



Strengthening the integration of knowledge between science and practice through continuous collaboration positions such an education process as an integral component of a co-evolutionary processes in innovation systems (Satalkina, Steiner, 2025), making education both a product of ongoing co-creation and a catalyst for continuous transformations, enhancing its potential for systemic impacts on different levels, from individual to society. In this way, transdisciplinarity can be operationalized into an independent education process that is not merely an add-on to a specific research initiative, but a mode of education on a philosophical and methodological level.