Integrative Training in Inter- and Transdisciplinary Research Settings

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Research on global change and sustainable development issues requires a special approach to ensure close cooperation between different scientific disciplines on the one hand, and between scientists and other societal actors on the other hand. Training researchers to develop the necessary skills in this context is a challenge. The purpose of the special research approach for sustainable development is to enhance *systems knowledge* (i.e. increase understanding of how current systems work), encourage participants in the research process to develop *target knowledge* (i.e. a vision of what are the 'right' things that need to be achieved), and enable them to explore *transformation knowledge* (i.e. knowledge on how to shape the transition and 'do' the right things (Pohl and Hirsch Hadorn, 2007). In the process, a reflection on the normative dimension of sustainable development is essential (Hurni & Wiesmann, 2014). This, ultimately, will enhance the societal relevance of research.

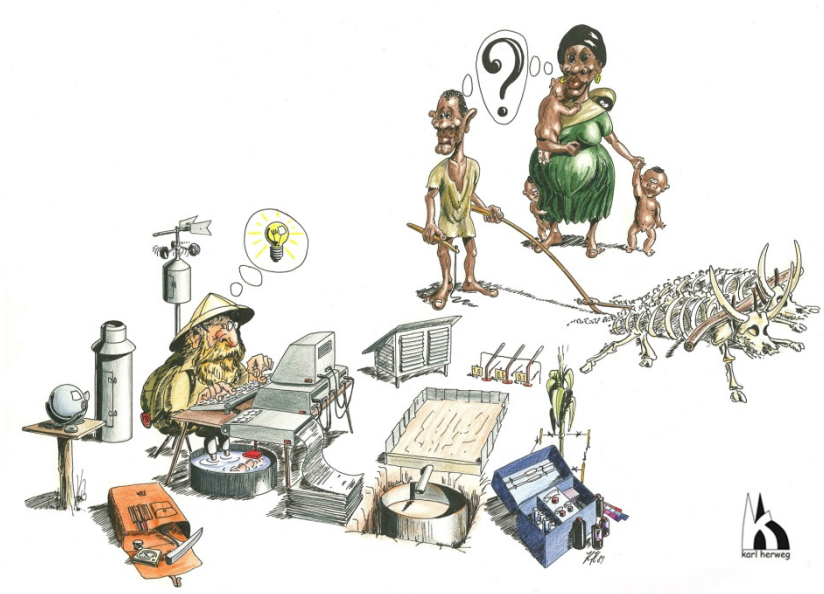

Figure 1: Societal Relevance of Research (cartoon by Karl Herweg)

What training approach is appropriate to support this type of research? Within the context of a twelve-year international research programme addressing global change and sustainable development issues, we experimented with different ways of conducting 'integrative training', i.e. training that integrates students from different scientific disciplines, researchers and practitioners, and different cultures in academic training. We started in 2002 with a very conventional format, where each discipline offered one-time lectures on the topics it found particularly important within the context of the specific research projects that had been designed at the time. The result was a very fragmented two-week course with a set of separate field excursions to illustrate selected research issues in each of the separate projects. Over the years, the research partners agreed to developing a more integrative training approach, under the lead of the management centre, and to

try and offer PhD candidates a more consistent approach to interdisciplinary and transdisciplinary work.

The core of this integrative training concept is now a case-study-based learning approach, implemented during an annual ten-day summer school somewhere in one of our partner countries in the global South, during which our doctoral students design a common transdisciplinary research strategy (Herweg, *et al*, 2012). During the summer school, participants choose to join a group based on their interest in an *issue* rather than in a specific disciplinary research question, and they go through the process of becoming an interdisciplinary group with the intention of conducting societally relevant research. At the beginning of the summer school, they all attend half- or one-day seminars on conceptual, thematic, and methodological issues, with inputs from senior trainers selected on the basis of their ability to communicate matters in an academically sound and consistent but broadly understandable way. Interdisciplinary groups are formed, followed by a half-day introduction by local researchers to a broad context of real-world problems and potentials. This socioeconomic, ecological, cultural, and political context constitutes the milieu within which a two- to three-day fieldwork module then takes place. Each group is given a clear set of tasks and instructions to prepare for the field trips; they are asked to determine adequate procedures for achieving the very general objectives they are given, and to decide who will play what role during the field trips. Their work is self-organized from this point. Senior researchers are available on demand at all times to help them find information, understand relations between different problems they identify in their case study, explore methodological and theoretical concerns, or simply overcome a stand-still or conflict in their common work. The fieldwork simulates an exploratory survey that provides the interdisciplinary teams of participants with an opportunity to interact with several non-academic actors. Each group is asked to identify what kind of knowledge they will need to address at what stage of their fictive research project, and what strategies they will need to elaborate to co-produce this societally relevant knowledge.

This setting and corresponding didactic approach provides a space for learning in which participants must cross epistemological and other borders. Over the years we have observed how these young researchers have to go through the experience of acknowledging that the definitional power they have gained through their disciplinary training can in fact be a barrier in their attempt to conduct interdisciplinary (and transdisciplinary) research. Confronted with the inevitable academic divide between the North and the South, Northern students learn how to adopt a more humble attitude for communicating in a productive way with Southern students. The groups always go through ups and downs, with moments of elation when they succeed in finding a common language and conceptualization of their research issues, and when each individual manages to integrate what they have learned before into this new conceptualization in a way that is productive for the whole group. Importantly, the senior trainers have proven to be most successful in guiding the group work when they themselves have shed the attributes of power they have garnered as part of their academic career: by becoming supportive coaches who do not know much more than the students, rather than being seniors and professors, they gain participants' trust and become models of what each participant must be as well: someone who knows a great deal and yet knows nothing at all and has everything to learn from others. With this preparation, encounters with non-academic stakeholders in the field are more fruitful.

References

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