ZMT LEIBNIZ CENTRE for Tropical Marine Research

Interdisciplinarity at ZMT

Outcome of the scientific workgroup leaders' strategy retreat (April 2019)

In line with ZMTs mandate to conduct empirical research for the facilitation of sustainably governing coastal ecosystems and their resources in the tropics, the institute is home to disciplines ranging from biology and ecology to biogeochemistry, chemistry, geology, mathematical modelling, geography, economics, sociology and anthropology. Interdisciplinary interaction across these disciplinary boundaries is systematically nurtured, determined by the respective research questions and thematic foci in programme area, project, capacity development exercise, publication or policy advice. It is thus motivated by the high complexity of the addressed resource governance and sustainability challenges, with the intention to develop science-based solutions, innovations and science-based decision support systems. Tropical coasts and their ecosystems, shaped by increasing pressures ranging from overpopulation to increasing pollution levels and coastal erosion, are among the most challenged social-ecological systems on our planet. Addressing these highly complex challenges requires the disciplinarily differentiated strengths and interdisciplinarily socialised capacities.

ZMT thus fosters a balanced combination of disciplines for effectively undertaking highly interdisciplinary and transdisciplinary research activities in large collaborative projects but also disciplinary-oriented research where needed. The interdisciplinary, collaborative exchange is largely guided by research questions and problems underpinning our mission. Depending on the thematic, methodological, and theoretical expertise required, regional and language capacities, and on partnership networks and group capacities available, collaborative research teams (within programme areas and for projects) are formed and research questions are jointly defined. Paying conscious attention to regular interdisciplinary interaction in the projects, including joint visits to the field, exchange of method and theory trainings, back-from-the-field presentations etc. has proven useful in overcoming disciplinary boundaries. Within the constantly evolving scientific staff body of the institute, this attitude also contributes to building awareness about the multiplicity of approaches that can be considered to tackle research problems and also about how each research problem itself can determine which type of disciplinarity, interdisciplinarity, or transdisciplinarity is most appropriate for the problem at hand. Regular reflections of the potentials and limitations of the different degrees of disciplinarity, interdisciplinarity, or transdisciplinarity allows again and again for an engagement with and refinement of our identity and mission, especially in relation to how we approach and contribute to the jointly defined programme areas.

Based on qualitative ethnographic research in 10 case study research institutes and clusters in Europe, North America and Australia on the types of interdisciplinarity practiced Barry et al. (2008), observed that three forms of interdisciplinarity are dominantly employed, they are: 'integrative-synthesis', 'subordination-service' and 'agonistic-antagonistic'. If reflected through this lens, ZMT's interdisciplinarity does indeed range from the extreme of 'subordination-service', with in a given project the research question being determined largely by one discipline, with others performing supporting research services (covering a small study on the

side supporting the main research) to 'agonistic-antagonistic', where the interdisciplinary interaction "is conceived neither as a synthesis nor as a division of labor" (2008: 29) but instead as a critical engagement with existing forms of knowledge, while further developing the structures of knowledge production itself. Nevertheless, the most common type of interdisciplinarity practiced at ZMT is, the 'integrative-synthesis' in which a range of different disciplines collaborate in a relatively symmetrical, balanced form, with each discipline contributing to comparable degrees to answering a joint research question.

For the actual facilitation of interdisciplinary exchange, ZMT draws on, amongst others, Mollinga's (2008, 2010) work on the rational organization of dissent in inter- and transdisciplinary research teams. Particularly, the concept of identifying 'boundary concepts', meaning words, theories, concepts that are used in different disciplines with varying meanings, as starting point for developing a joint language, have proven useful in several projects. A more elaborated interpretation of 'boundary objects' (meaning models, innovation packages, or joint papers, thus concrete, tangible products to jointly work on, to facilitate research output oriented exchange) is employed in several projects and shapes the discussions for building up DigiZ, the most encompassing boundary object of ZMTs research in the future. Finally, the emphasis on reflecting the institutional settings in which interdisciplinary work is supposed to flourish and assure nurturing environments (including questions of who decides over the money, whose standards distinguish 'good' from 'bad' science) has spurred numerous discussions in the institute, sharpening awareness for the structural conditions in which ZMT research takes place.

The conscious and regular reflection of what types of inter- and transdisciplinarity is being practiced and should be practiced at ZMT, and how this is done, is an ongoing continuous process intimately connected to the development of the institute's own capacities. This process shapes the ZMT research niche in an increasingly internationalized and normatively challenged science system. Reflecting interdisciplinarity at ZMT, what it is and how it is practiced, is thus a contribution to developing the field of coastal research in institutionally and the often social inequality challenged societies of the tropics, as its own interdisciplinary field of research, capacity development and policy advice.

References:

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