

The 'problem multiple' – performing 'the research problem' in transdisciplinary project contexts¹

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Introduction

Over recent years analysts have started pointing at (a need for) changing modes of knowledge production to address the pressing challenges posed by complex societal developments. Tied to notions such as 'post-normal science' the need for extended forms of knowledge production at moments when "facts are uncertain, values in dispute, stakes high and decisions urgent" (Funtowics and Ravetz 1993, p. 744) is underlined; in a slightly different manner the idea of 'mode 2 knowledge production' (Gibbons et al. 1994) also points at the fact that knowledge is increasingly produced and validated in contexts also framed by extra-scientific rationales. Furthermore under the label of inter- and transdisciplinarity the creation of new kinds of funding and research environments have moved onto the political agenda.

Traditional (disciplinary) modes of knowledge production are in this context discursively framed as deficient – the ivory tower becoming the central metaphor highlighting the 'inwards orientation' of traditional science as problematic when it comes to choosing research problems and finding solutions. In contrast, trans/inter-disciplinarity is staged as a promising approach regarding a better integration of science and society and as capable of both identifying relevant societal problems and producing 'socially robust knowledge' (Nowotny et al. 2001) for solving them. This integration is to be achieved mainly by involving heterogeneous (scientific and non-scientific) actors throughout the different stages of the knowledge production process³.

Moving beyond the mere epistemic level, this particular new way of knowledge production can best be captured by the notion of 'transdisciplinary knowledge regime' (Felt et al. 2011). This should direct attention to the deep entanglements to be observed in transdisciplinary research: between people (ranging from researchers, over partners from praxis to actors governing research) and what they contribute to the knowledge/solution generation exercise; institutions (or groups) and their 'institutional (group) logics', i.e. the shared beliefs and practices of why and how to know and solve problems; ideologies, i.e. how transdisciplinarity research should be performed and the accompanying prescriptions; and different forms of contestation (and workarounds) when it comes to performing this kind of research.

In this paper we will specifically focus on **imaginations and practices of problem**

articulation in transdisciplinary contexts, where problems are generally characterised as of high societal relevance, in need for an urgent solution and clearly demanding scientific and technological input for their solution. Understanding ‘the problem articulation’ as one site of interaction and engagement between different scientific and extra-scientific actors allows us to develop an empirically grounded understanding of issues of participation, translation, epistemic framing etc. within such new modes of knowledge production. The empirical basis for our reflections is the analysis of projects of the Austrian research program proVISION, which has the explicit agenda to foster transdisciplinarity in sustainability research. Concretely we use interviews with different project collaborators, field notes from project meetings, policy documents such as program guidelines or calls as well as documents produced within projects, such as for example glossaries, press releases etc.⁴

Theoretical framing: making ‘the problem at stake’

In analysing imaginations and practices of problem articulation in transdisciplinary projects we inscribe our reflection into the broader frame of actor network theory (ANT). Thus we regard a transdisciplinary project as a heterogeneous assemblage of different material, epistemic and social actors (Latour 1999). We are specifically interested in processes of translation within transdisciplinary project contexts, i.e. in the creation and stabilisation of actor-networks through *problematization* (definition of identities and interests of other actors that match the interests of a specific actor), *interessment* (process of convincing other actors to accept definitions of a specific actor) and *enrolment* (making other actors accept the interests defined by a specific actor) (Callon 1986). Numerous actors within a project or a programme could be involved in different such processes of translation, each process being performed in a specific way and aiming at specific outcomes. In this context John Law’s (2003, 2002) notions of ‘traduction/trahison’ (translation/betrayal) reminds us that any translation is necessarily always partial, and that thus always some kind of betrayal is involved. Taking these reflections one step further we want to embrace Annemarie Mol’s notion of ‘ontological politics’ (Mol 1999, 2002). This directs out attention to the fact that what is to be regarded as reality in a specific setting needs to be constantly performed and that reality itself has always to be regarded as multiple. In other words, Mol regards realities not in any way as prior/preceding to human action or given but as created and stabilized through political practices (which include all kinds of knowledge practices). Using the notion of “multiple” she does further point to the coexistence of different enactments of one seemingly well circumscribed reality. At any point in time when action is needed also a coordination of these different enactments has to be done.

Building on this body of work, our attention is attracted away from looking ‘where the real

problem is' to the practices in which multiple 'problems at stake' are brought about in specific actor-networks within one project context. This will lead us to reflect what this multiplicity might mean with regard to issues of power but also to sustainability more broadly speaking and how these different realities are made to hold together or not within one knowledge/solution generating setting.

The problem to be researched: imagined and prescribed

We start by shortly reflecting the imaginations and prescriptions of the 'transdisciplinary knowledge regime' produced by people and institutions promoting transdisciplinary research in the context of sustainability research in Austria. While these are far from homogeneous, some basic assumptions concerning transdisciplinary research problems seem to constitute a common reference frame:

1. Transdisciplinary knowledge production means 'stepping into the lifeworld' (see e.g. BMWF - Bundesministerium für Wissenschaft und Forschung 2007) and grasping a given 'lifeworld-problem' there (see e.g. Hirsch Hadorn 2005).
2. The life-world problem is collectively – involving the experiences of both scientific and nonscientific actors concerned with the problem – transformed into a scientific research problem in order to better assure the development of commonly acceptable solutions.
3. Finally, the solution is to be re-translated into the life world, where it is expected to trigger change and support more sustainable development.

The transdisciplinary knowledge regime simultaneously prescribes specific forms of transdisciplinary collaboration, thus shaping the kinds of questions to be asked, defining 'reasonable' roles and possibilities of action for those involved, forms of togetherness and the kinds of knowledge that can be produced in the projects.

Empirical observations: The 'problem multiple' and its articulations

Presenting some observations from the field work, we will proceed in two steps. We will first show how in different actor constellations, at different moments in time and in different settings 'the problem at stake' within larger projects got performed rather differently. Secondly, we will then reflect on the strategies at work within project contexts to make these different problem realities (more or less) hang together.

To start with, **research proposals** can be regarded as one setting in which one kind of 'problem at stake' gets performed. Here 'the problem' is staged as inseparably intertwined with issues of societal change and related values such as e.g. living sustainably. Different project collaborators are generally framed as equally knowledgeable in their own distinct ways and should have their share in defining what the problem is and what could reasonably

contribute in developing viable solutions. Knowledge to be constructed in the course of problem solution is here generally perceived as public good.

This performance of 'the problem at stake' however differs completely when moving to the site of producing **scientific output**. A scientist who needs to accumulate credit for his or her career and thus tries to address a specific scientific community, enrolls particular methods and theories, is confronted with specific materialities and thus situates the problem in an entirely different setting. Thus we observe how the problem and its potential meaning gets constructed within a specific discipline or field. This means that also non-scientific project collaborators' identities get performed in a substantially different way; while they are described as actors with a specific sort of knowledge important for researchers in other project constellations – for example when conceptualising the research proposal or when wanting to create practice relevant output – they get mainly transformed into agents of validation or research objects when it comes to publishing articles for a particular scientific community.

Yet another performance of 'the problem' can be observed when '**following**' the **Praxispartners** as key-actors. As actors in different political/life-world arenas their aim is to establish their own perception of the 'problem at stake'. Scientists' knowledge and their institutional setting to which they gain access through project participation is perceived as a strong ally in stabilising this perception. Thereby researchers' identities are somehow reduced to producers of reliable and up-to-date facts that can then be reconfigured, adapted, recombined and deployed in political arenas.

As these three examples show, each performance of 'the problem' involves different forms of problematisation, interestment and enrolment at a specific point in the transdisciplinary research process. Interestingly, these different performances seem to be able to co-exist within the projects without becoming problematic or without initiating major conflicts. The question then is: how are these heterogeneous problems made coherent and co-exist in (more or less) stable arrangements after all?

One major strategy of creating coherence within transdisciplinary projects is **linear (temporal) sequencing**: i.e. the configuration of 'the project' as a clear and non-interfering sequence of 'tasks'. This takes place mainly in the initial phase of creating a project structure or work plan with clearly defined milestones and responsibilities for the different partners. What is created and maintained here is the imagination of a linear development of the research process, where each work package builds on or is a necessary condition for the next. Most of the time, this allows to not blur classical scientific hierarchies within the projects: scientifically sound data is produced and on the basis of this data subsequently applicable solutions are developed for different *Praxispartners* or publics. This is often

described as '*herunterbrechen*' which means to break something more complex down into its elements, to simplify and adapt the findings for specific audiences. In doing so, different performances of the problem become separated (1) in time and (2) along pre-established epistemic boundaries. Thus, boundaries are not transcended; rather, translations for the *Praxispartners* are temporal attachments to the network of researchers.

A further strategy of articulating the different problem ontologies is the definition of a considerably **enlarged normative meta-aim** which plays a crucial role in the envisioned project-results and which can function as a boundary object (Star/Griesemer 1989), thus being sufficiently recognisable for all actors involved while being open to rather divergent interpretations. Such meta-aims can e.g. deal with wider societal issues as healthy nutrition styles or organic agriculture. Given the breadth of these project aims different performances of 'the problem at stake' can co-exist without conflict.

Finally, as a third such effort of creating stable arrangements between different ontologies of 'the problem at stake' is **displacing** the performance of a common research problem to specific well-delimited spaces, such as the creation of a common terminology within a project (e.g. through glossaries). In doing so incompatibilities and different visions of the problem are mainly construed as a 'language or translation problem', which can be technically solved. Defining the different meanings of terms is then imagined as allowing for keeping problems separate while creating consistency through the idea of making them mutually understandable.

Conclusions

We've addressed in our presentation how the processes of defining a common research problem are imagined and practiced within transdisciplinary research. In contrast to the transdisciplinary knowledge regime based on the idea that within transdisciplinary research one common research problem is built on which all concerned actors can agree/have agreed, we experienced various co-existing problematisations (multiple problem performances) in transdisciplinary research practice.

This was made possible without major destabilisation of the project through for example sequencing, enlarging or displacing strategies.

Overall, the presented work aims at drawing attention to the fact that problem definition is not simply happening at the start of the project, but that problematisation is a continuous process throughout the project making visible power-dimensions of transdisciplinary research. In that sense we can return to Annemarie Mol and draw our attention to two forms of politics which are at work in this kind of research. First, it is about a 'politics of who', asking who counts as a knowledgeable actor and who is able to stabilise a specific problematisation in a certain

project-constellation. This seems to be especially important when looking at research contexts where heterogeneous actors come into play. Yet it is also a “politics of what (a politics that includes ontology rather than presuming it)” (Mol, 2002, p.184). Thus we want to emphasise the coexistence of different forms of realities which cannot easily be mapped into each other and which need careful work in order to find articulations which allow stable solutions.

Notes

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3. see also www.provision-research.at
4. Projekt „Transdisciplinarity as Culture and Practice“
<http://sciencestudies.univie.ac.at/forschung/transdisciplinarity-as-culture-and-practice>

Literature

BMWF - Bundesministerium für Wissenschaft und Forschung (2007). Zweite Ausschreibung des Forschungsprogramms proVISION: Vorsorge für Natur und Gesellschaft. (pp. 30). Vienna.

Callon, M. (1986). Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St. Brieuc Bay. In J. Law (Ed.), *Power, Action and Belief. A New Sociology of Knowledge?* (pp. 196-233). London/Boston/Henley: Routledge/Kegan Paul.

Felt, U., Igelsböck, J., Schikowitz, A., & Völker, T. (2011). Growing into what? On the (un-)disciplined socialisation of early stage researchers in transdisciplinary research. *Higher Education, submitted*.

Funtowics, S. O., & Ravetz, J. (1993). Science for the Post-Normal Age. *Futures*, 25(7), 739-757.

Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., & Trow, M. (1994). *New Production of Knowledge: Dynamics of Science and Research in Contemporary Societies*. London, Thousand Oaks, New Delhi: SAGE Publications.

Hirsch Hadorn, G. (2005). Anforderungen an eine Methodologie transdisziplinärer Forschung. *TECHNIKFOLGENABSCHÄTZUNG Theorie und Praxis, Nr. 2, 14. Jahrgang – Juni 2005* (Schwerpunktthema: Method(olog)ische Fragen der Inter- und Transdisziplinarität – Wege zu einer praxisstützenden Interdisziplinaritätsforschung), 44-49.

Latour, B. (1999). *Pandora's Hope. Essays on the Reality of Science Studies*. Cambridge/London: Harvard University Press.

Law, J. (2002). *Aircraft Stories. Decentering the Object in Technoscience*. Durham/London: Duke University Press.

Law, J. (2003). Traduction/Trahison: Notes on ANT, published by the Centre for Science Studies, Lancaster University, Lancaster LA1 4YN, at <http://www.comp.lancs.ac.uk/sociology/papers/Law-Traduction-Trahison.pdf>

Mol, A. (1999). Ontological Politics. A Word and Some Questions. In J. Law, & J. Hassard (Eds.), *Actor Network Theory and After* (pp. 74-89). Oxford: Blackwell.

Mol, A. (2002). *The Body Multiple. Ontology in Medical Practice*. Durham/London: Duke University Press.

Nowotny, H., Scott, P., & Gibbons, M. (2001). *Re-thinking Science. Knowledge and the Public in an Age of Uncertainty* Cambridge: Polity Press.