CROSSING BORDERS: TRANSDISCIPLINARY APPROACHES IN REGIONAL DEVELOPMENT

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Abstract. The contribution aims at reflecting on the need to focus on people in (research on) regional planning and development. We see participatory planning process as state of the art on different levels of spatial planning and development since decades now. Most of national and European programs do not only require participation in (regional) planning and development but regard it as a common principle of democratic societies. Looking deeper into practice however, the situation is not as brilliant as it appears to be. Participation is often used synonymously to integrating people at a certain step of a planning process (e.g. local people in general or groups of people affected by a planning project). The way people are integrated is often determined and designed by experts. But participation in terms of equal association, cooperation, joint contribution and control points to a quality of relation between people that can not be simply „calculated”, „planned” or „executed”. The objectivation of people – „parametrised” as „stakeholders” or „actors” – often turns out to be a (much hidden) epistemological problem of research and planning process. Transdisciplinary research seeks to overcome the dichotomies (disparities, divides) by turning them into complementarities realizing the need of co-operation between different qualities of knowledge. Following Gibbons et al. (1996) and Nowotny (1999) in their definition of transdisciplinarity as „mode 2” of research process, the presentation will discuss the consequences of focusing on people in research on spatial planning and development. It will point out the opportunities of transdisciplinarity in uncovering hidden potentials.

Key words: participatory planning process, transdisciplinary research, spatial planning and development.
1. TRANSDISCIPLINARITY: SEARCH FOR NEW FORMS OF KNOWLEDGE PRODUCTION

Since the 90th the use of the term transdisciplinarity has increased enormously (Kueffer et al 2007). The search for a ‘new’ type of research, of knowledge production and problem solving is principally based on difficulties and lack of success in dealing with complex, real-world problems. Because of its increasing complexity and interdependency, transdisciplinarity is called for in all fields of human interaction with natural systems (Thomson Klein 2005: 517). Transdisciplinary research emanates from real-world problems that require applied research for problem solving. The primacy of the problem forces to adopt forms of research to the specific situation to be transformed, as historically grown disciplinary-structures usually do not meet their complexity. But the term transdisciplinarity aims at more than a renaming of the more common term of interdisciplinarity. It is not only a search for crossing disciplinary boarders. The search for new, transdisciplinary forms of knowledge production aims at integrating different forms of knowledge such as orientation knowledge or practical knowledge gained in every day life as well as scientific knowledge elaborated within a disciplinary frame. In this sense, conceptualizing transdisciplinarity as a new form of research meets central epistemological questions of science. The historically grown form of modern, occidental science that has been structured, defined and framed over centuries is questioned in some of its fundamental characteristics. First, its independency of any other form of cognition as well as its’ (postulated) hierarchically higher position in comparison to any other system of knowledge are questioned (Felt et al. 1999; Nowotny 1999). It is therefore also called “the science and art of discovering bridges between different areas of knowledge and different beings” (Thomson Klein 2004: 516, referring to Nicoulescu 2001).

These questions are of course not ‘new’ nor do they originally arise out of the debate on transdisciplinarity. What makes the actual discussion on knowledge integration and cultures of cognition special is the practical, the applied context they are arising from. Whatever has been subject of philosophy and theory of science for a long time, the debate on transdisciplinarity started to integrate these subjects into the core of applied research on real world problems, taking place within a wide range of disciplines on both sides of the traditional cultures of science. But the debate is still very heterogeneous as it is relatively young and did come up in different thematically contexts. Therefore, I will point out the most characteristic aspects of understandings of transdisciplinarity.

What we can identify as common aspects is that transdisciplinarity is always understood as a form of knowledge production being ‘forced’ by ‘real world problems’. The search for a new form of science, the need to widen-up disciplinary contractions, historically developed borders between disciplines, is caused by societal problems. Lieven and Maasen (2007) regard it even as a reaction to an emergency that forces us to look for different modes of research. The definition of research questions is therefore always oriented on extra-scientific situations. And there is a consensus about the chance in
reintegrating real-world problems with academic knowledge. Transdisciplinary forms of knowledge should connect what has been disconnected by the ongoing specification and fragmentation of knowledge production in disciplinary structure. Therefore, transdisciplinarity always means different disciplines jointly working together without leaving their theoretical and methodological disciplinary framework. It should be complemented not substituted. “Transdisciplinary research is an additional type within the spectrum of research and coexists with traditional monodisciplinary research.” (Thomson Klein et al. 2001: 4).

The main difference within the actual debate relates to the type of knowledge or knowledge production that should complement disciplinarily gained results. While one branch of the debate only questions the internal structures of a so called ‘body of knowledge’ (e.g. Mittelstraß 2003), authors like Nowotny (1999) before together with Gibbons et al. (1996), Scholz et al. (2000, 2006), Thomson Klein (2006) and Thomson Klein et al. (2001), Max-Neef (2005), Freyer and Muhar (2006a) do not only question the internal structure but also the ‘shape’ of this body of knowledge. In other words: the discussion questions the exclusive academic form of research and advocates the integration of non-scientific forms of knowledge. Therefore, the participation of non-scientific actors in research on real world problems is a key question within this understanding of transdisciplinarity. The idea behind is that scientific analysis or knowledge production is regarded as one special form that contains complementary parts which are to be integrated to get a more complete understanding of problems. Further, the aim is to strengthen the application or implementation of results by working jointly with those who have to implement changes. In words of Rudolf Häberli: “The core idea of transdisciplinarity is different academic disciplines working jointly with practitioners to solve a real world problem” (in Thomson Klein et al. 2001: 4). But ‘working together’ requires an understanding for the need of complementarity and mutuality in research processes which has to be gained on at least two levels.

First of all the epistemological need for integrating different forms of knowledge and cultures of cognition has to be clarified to be able to see scientific production of knowledge as one specific knowledge system that is always embedded into a wider historical and therefore cultural context. In words of Erich Hamberger: “Science can operate only against the background of an all-embracing understanding of human cognition. Scientific insight as a cultural act occurs transdisciplinarily as it emerges out of a context of interpretation located between scientific and extrascientific cognition.” (2004: 489). Thus transdisciplinarity emerges as a scientific essential (ibid: 2004). If scientific knowledge production is not to separate from other forms of ordering the world, the integration of different sources of knowledge can be argued and understood in applied science. Secondly, it requires a revision on the self-understanding of the own scientific expertise that is still (often) regarded to be higher in quality related to other forms of expertise. This is probably the most difficult process to prepare a basis for a mutual learning and heterarchical knowledge integration. Even if useful methods for integrating different qualities of knowledge (e.g. scenario techniques, see Freyer and Muhar 2006a) are applied, knowledge

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1 For further discussion on the epistemological dimension of transdisciplinarity see B. Niculescu 2001 (see also footnote 2); Ph. W. Balsiger 2004: Supradisciplinary research practice: history, objectives and rationale. – In: Futures 36, 407-421; Max-Neef 2005: Foundations of transdisciplinarity. – In: Ecological Economics 53, 5-16.
integration needs always dialogues and a successful dialogue depends principally on the personal attitude of each partner. If mutual learning is a key of transdisciplinary research as Thompson Klein et al. (2001) point out, the development of this new form of research has a lot to do with the reflection of ourselves.

2. JOINT RESEARCH ON REGIONAL DEVELOPMENT

Regional development as a subject of applied research is extremely high in complexity. It comprises several sub-problems that tackle questions out of a wide range of disciplines from natural science, social science and the humanities. Therefore, it was always organized interdisciplinarily to some extent. But practical experiences lead to the insight that regional development can not only be governed and managed from an exterior point of view, even if it is organized interdisciplinarily. The lack of success in transforming regions without integrating the inhabitants, local or regional authorities and opinion leaders lead to a revision of methodology on different levels. On an administrative level the European Union was anchoring the principle of ‘subsidiarity’ and public participation to develop bottom up and therefore dialogue oriented processes of regional development. Many national and departmental laws were modified the same way. A shift from a top-down to a bottom-up oriented planning and development culture should take place. Since the beginning of the 90th public participation has, at least formally, become the status quo in regional development and in planning in many European countries.

Within science the search for a new methodological access to complex questions such as transformations of regions has come up since the mid 90th. The academic reflection on knowledge integration in terms of systematic collaboration between science and non-scientific actors has been applied in various fields. As shown above they have in common that the research questions are not to answer within the horizon of empirical analysis. They are characterized by having not only an empirical and pragmatically level but also a normative and value level. Basarab Niculescu, head of the CIRET (Centre International de Recherches et Etudes Transdisciplinaires), points out the core idea of transdisciplinarity by the aid of four different horizons of questions that he relates to levels of reality. In his ‘Manifesto of Transdisciplinarity’ he differs between an empirical level, a pragmatic level, a normative level and a value level which he considers as levels of reality that should be linked in transdisciplinary research (2002). Transdisciplinarity is constituted in combining these four levels giving answers to the four questions:

- What does exist? (empirical level)
- What are we capable of doing? (Pragmatic level)
- What do we want to do? (Normative level)
- What should we do? Or: How should we do what we want to do? (Value level)

2 For an overview and discussion of applied transdisciplinarity see: GAIA 1/2007, online available at www.ingentaconnect.com or ETH-UNS case studies done by the Swiss Federal Institute of Technology, Zurich, online http://www.uns.ethz.ch/translab/.

All the questions arising in the field of regional development are usually within this horizon. There are of course questions that are to be analyzed within the empirical level, such as the aspects of the functionality of an ecosystem or material flow. But the development of a region is to a large extent based on criteria with high subjectivity such as individual needs, wishes, hopes, fears or personal visions, philosophies, values, to name just a few. Therefore, transdisciplinary approaches in research on regional development are appropriate in the search for possible transformations. Participation of non-academics in research process allow to get a more complete picture of a complex situation as a multi-perspective approach takes into consideration that there are as many interpretations of ‘world’ as there are people. But participatory approaches in research do not only allow for a more detailed analysis of a situation. Due to a joint proceeding in problem solving or creating futures participatory approaches are getting more and more fruitful in research on regional development. Identification with the region itself or at least with a project that should be implemented can be strengthened and a joint implementation can be realized more constructively. If we focus once again on the four questions pointed out by Nicoulescu and put them into the context of the development of a region with unfavourable conditions for inhabitants and entrepreneurs, it is obvious that traditional methods of analysis – even organized interdisciplinarily – do not have the capability of finding appropriate answers. An analysis measuring economic disparities, the lack of education, qualification and labour market, environmental pollution, to name just a few, even complemented with qualitative social studies on contentedness, regional identity and health can not displace a process of joint knowledge production. Mutual learning within a living dialogue enables not only the exchange of given knowledge and opinions. It also leads to joint production of knowledge which makes the difference. I tried to point out that this is of course not to be organized in an arbitrary way. Transdisciplinary research needs to be based in a common rationality and it needs its own methodology for knowledge integration. But what does it mean to ‘be based in a common rationality’? We still try to bridge the gap between natural science and the humanities. How should we then overcome borders between science and non-scientific knowledge production? This is not the moment of going further into that dimension as the contribution aims at reflecting transdisciplinary approaches in applied research on regional development. At least it should be highlighted that within the discussion of transdisciplinarity there are different ways of thinking outlined going beyond classical logic and therefore opening up perspectives on new rationalities (e.g. Nicoulescu 2001, Hamberger 2004, Max-Neef 2005, Balsiger 2004).

3. CREATING SPACE FOR RESEARCH ON REGIONAL DEVELOPMENT

Transdisciplinary approaches in regional development aim at creating space for research by setting up a communication net which is understood to be heterarchical. This does not mean that all the participants do have the same role. The principal understanding of participation as equal association, cooperation, joint contribution and control allows for creating a communication space based on different complementary strengths and potentials. As they are complementary, their value can not be ordered in a hierarchical way. They are needed for completing each other. The ‘space’ that is opened up in dialogue, exchange and structured knowledge integration aims at crossing many boarders. Not only the boarders
between the scientific system of knowledge production but also borders between separated areas in society or economic sectors should be overcome if necessary for the research question. In the following, a research project on transdisciplinary approaches in regional development will outline important steps for a joint research process.

4. “HOW SHALL LANDSCAPE, LAND USE AND SOCIETY IN THE REGION APPEAR IN TEN YEARS FROM NOW?”

This was the overall question that should lead to a scenario-development and project elaboration to initiate changes in regional development. Researchers, students, authorities and inhabitants out of the Oberpinzgau region (Salzburg, Austria) jointly elaborated and outlined possible future developments. The project with the title: ‘Leben 2014 – perspectives for integrated regional development in the national park region Hohe Tauern, Oberpinzgau, Salzburg’ was a pilot study on transdisciplinary research and teaching, jointly conducted by the University of Applied Science, Vienna and the University of Salzburg and commissioned by the Austrian Ministry for Education, Science and Culture and the nine local municipalities of the Oberpinzgau region. To give an idea of the size of the project: it took place from 2002-2005 and involved around 20 researchers and lecturers, 50 students from 6 study programs out of natural and social science and around 70 persons out of the project region working constantly together, not counting pupils and inhabitants being involved at certain steps of the project for scenario assessment or interviews. The most intensive period of collaboration took place in spring 2004, were students and researchers remained in the region over several weeks.

Regional partner organisations:
Nine municipalities of the region Oberpinzgau, Region Manager Pinzgau; EU LEADER+, Ferienregion Nationalpark Hohe Tauern GmbH, Tauriski/Leopold Kohr-Akademie; m²Kulturexpress

Partners from province administrations:
Department of Agriculture and Forestry; of Economy; Tourism and Energy, Planning Department, Salzburg Institute of Spatial Planning; Commissioner for Culture
Universities, departments:
University of Applied Science, Vienna: Landscape Planning, Agricultural Sciences, Forestry Sciences
University of Salzburg: Geography, Sociology, Communication Sciences
Schools:
Two secondary schools
Inhabitants:
Representatives of regional initiatives, interested individuals

4 The research report including evaluations to the methodological approach was publishes in german by Muhar and Freyer (Eds) 2006a: Transdisziplinäre Kooperation in der universitären Ausbildung. Die Fallstudie ‘Leben 2014’ in der Nationalparkregion Hohe Tauern/Oberpinzgau. Selected aspects were published in English such as Transdisciplinary Goal Finding in Regional Development Processes (Vilsmaier, Freyer, Muhar 2005a), Initiating transdisciplinarity in academic case study teaching (Muhar, Vilsmaier, Glanzer, Freyer 2006c) and The Polarity Field Concept – A New Approach for Integrated Regional Planning and Sustainable Processes (Muhar, Vilsmaier, Freyer 2006b).
The Oberpinzgau region is a planning region, including 9 municipalities with a total of 22,100 inhabitants. It is situated at the upper Salzach-river and forms part of the Department of Salzburg. The region lies in a peripheral location related to main traffic routes (1-1.5h to the next highway and 0.5 – 1h to the main rail route), and its distance to the capital of the department (1.5 – 2h to the city of Salzburg). According to its peripheral location it has certain weaknesses like the lack of jobs (78/100)\(^5\) and the reduction of the purchasing power. But there has been a surprisingly constant growth in resident population (6%) and a growth in job offers (22%) since 1991. The actual development can be interpreted due to the background of some specific characteristics of the region. The region forms part of the national park Hohe Tauern which was founded in 1984. After an intensive and contradictory process of discussions related to the implementation of the national park during the first years, authorities and inhabitants started to position the region as a ‘national-park region’ expanding its potential to sustainable tourism and small scale industry such as timber construction and agriculture. The high quality of environmental conditions and the variety of spare time activities were perceived as high values which strengthened the identity and the positive image of the region. Further, there has always been a strong internal cohesion which has been improved by many different forms of activities related to the tradition of the region, its natural potentials and heritages. But the region is also characterized by a very polarized development. While the southern part of the area is a protected area and therefore taken out of economic activities except the national park tourism and forms of extensive agriculture, the valley and the northern part are high in dynamics and intensive in economic use. A main target for the Oberpinzgau region is to find a balance in this development which would enable the region to maintain the positive development on the one hand and not to destroy the specific image as a national-park region and the quality of recreation on the other.

The project was conceptualized by the following three main goals: 1) developing methods and working structures for transdisciplinary knowledge integration, 2) a model for inter- and transdisciplinary teaching in higher education and 3) applied objectives related to the regional development of the Oberpinzgau region. Focussing on goal number 1 and 3 now, I would like to make some comments on the establishment of communication and working structures. Also, I would like to point out how a general understanding of the common goals between the representatives out of the region and the academia could grow, for this turned out to be a key topic until the end of the project.

As the idea of a research project on transdisciplinarity research in regional development was ‘born’ outside the region, it was important to find out properly if there would be a need and a vision for such a study within the region. Therefore, we found it crucial to initiate a slow approach to the region keeping it open whether cooperation would be established or not. Probably the most difficult aspect was to find a common language and to get to know the others’ perspectives related to the potential such a study might have. The decision was made after several meetings with the 9 mayors, the regional manager and several representatives of some regional organizations. By then it was up to a steering committee which was constituted by representatives out of the municipalities, regional organizations (such as some cultural associations, the national park, the tourism marketing) and representatives of the universities to decide on the architecture of the research process.

\(^5\) Job offer related to employed living in the region (see: Regional Management Pinzgau: www.regpi.at).
There were some principal ideas we could agree on that were leading through the whole process:

**Multiperspectivity:** A common understanding could be developed about the need of complementary perspectives and experiences related to the research questions. It was not from the beginning on that all the partners did incorporate this key idea of transdisciplinarity. There were certain expectations according the potential of ‘academic experts’ as well as prejudices from both, the academic and non-academic participants that had to be overcome. Further, it was important to decide on a balanced composition of the project team, representing people from different labour contexts, age and gender.

**Joint development of a common problem understanding and definition of research questions:** The overall question leading the research process had to be broken down to operational questions which should contain themes that were relevant to the majority of people. The theme finding process was a significant part of the project as it was the time where all the participants did express and develop their personal point of views, priorities and expectations. And it was an important period of developing a common problem understanding since university members coming from outside of the region had the chance to ‘dip into’ the matters of the region. With the aid of the researchers and students, regional representatives also got some new ideas of new perspectives and knowledge. Further, it was the period for creating confidence due to the establishment of personal relations. In eight steps (workshops, presentations, interviews) six main research questions were defined and elaborated as research fields for six working groups\(^6\) (see fig. 2).

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<tr>
<th>“How shall landscape, land use and society in the region appear in ten years from now?”</th>
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<td><strong>Wilderness and Culture:</strong> How can the national park, agriculture and tourism be integrated?</td>
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<td><strong>Tradition and Innovation:</strong> How can new economic impulses be infused between tradition and innovation?</td>
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<td><strong>Fast and Slow:</strong> How should integrated and sustainable mobility -concepts look like?</td>
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<td><strong>Young and Old:</strong> Which social and spare-time related benefits are needed to keep it attractive for inhabitants?</td>
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<td><strong>Inside and Outside:</strong> How can external influences be joined with existing potentials for sustainable development?</td>
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<td><strong>Single and Together:</strong> How can relations between municipalities be organized to be a benefit for all?</td>
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**Joint responsibility for decisions and ownership of ideas:** As mentioned above a steering committee was installed at the beginning of the project where most of the communication between academics and regional representatives took place and decisions were negotiated. But it turned out to be crucial to clarify with all the participants the responsibilities, roles and expectations. Nonetheless, this procedure could avoid conflicts and disappointments, and it could clarify ones’ own role and targets. We found it also very important to jointly reflect on the ownership of ideas. Even if it was not possible to trace back to the originator every idea and contribution, it was at least the responsibility of the

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\(^6\) For more details see: Vilsmaier et al. 2005a
academics to mention those who had contributed to a transdisciplinary process or to offer joint presentations or publications.7

Establishment of transparent and stimulating working and communication structures: An establishment of a clear working and communication structure was necessary for creating an open and constructive space where all the participants would feel equal, free and confident. Thus six working groups based on the six main research questions were set up. The structuring of the working process followed the idea of polarities. Since differences are easily seen as opposing positions, the construction of a systematic in-betweeness of contradictory poles should open up the wide field in-between them. The structure itself should invite to step out of old boundaries of thinking, and it aims at opening up new communication canals by bringing together the persons out of different fields.8 The working groups were composed of students, local players and one or two researchers. Obviously, local players could only participate in part as they had to follow their daily lives.9 The six polarity-fields were working independently most of the time with an information exchange once a week during the core-period in spring 2004. Each student had her/his specific role being responsible for general coordination of the working group, methodology (to follow the overall methodological frame of the scenario technique), group dynamics, data management, terminology or gender aspects. Participants from the Oberpinzgau region were equally demanded to complement the research process according the scenario-steps.

Fig. 3: Polarity-field structure. Source: Freyer and Muhar 2006a: 23

Structura polaritate-câmp

During the first year of the project when first collaboration steps were made and the theme finding process was going on, the project’s architecture and the overall

7 For more details see: Muhar et al. 2006c: 301f.
8 The polarity-field approach was developed during the project. It was elaborated to replace established models for thematic structuring of planning and development processes such as sectoral or conflict-oriented approaches. For more details see Muhar et al. 2006b.
9 For more information about the research architecture and methods of collaboration within the polarity fields see Freyer and Muhar 2006a.
methodological framework were developed. During year two, mainly from April to June 2004, the realization of the scenario development for possible future developments of the region was made. The polarity-field structure favoured the elaboration of opposing scenarios. Each working group did elaborate two to three scenarios which were assessed in various scenario assessments by general public, pupils and academics. Implementation projects based on the favourites were elaborated and proposed to the public and to the politicians. Some of these implementation projects were selected for implementation.

CONCLUSIONS

The experience of the transdisciplinary research on regional development with and within the Oberpinzgau region and its people was chameleonic. It was primarily an intensive lesson for me and for many of my colleagues. Working together with people who are usually to objectify, as 'objects of research,’ requires a reordering of familiar methods, habits and above all attitudes. It forces to question what a matter of course is in traditional research and allows getting insights that could not be accessed in another way. It was an enormous growth in many ways. There were these constant interdisciplinary discussions on meanings of words, potentials of methods and compatibility of theories. Further there is this tendency of scientists working together with non-academics to be more equal… On the other hand the experience showed that some of the principles elaborated for transdisciplinary research were easy to apply, others tended to fail or had to be reformulated, adopted or simply discussed constantly. The results were diverse too. While a concept for a stronger cooperation of the nine municipalities as a planning region (elaborated by the polarity-field single and together) was implemented and influenced the regional development crucially on a political and decision making level, other suggested and even selected projects seem to be forgotten now. I could only give a very brief insight into the application of the idea of transdisciplinarity as there is too less time/space for extending the experiences. I tried to line out some aspects which are primarily to reflect due to the background of a societal role of science that was constructed over centuries. The example was addressed to give an idea of new forms of knowledge production in applied research on regional development.

LITERATURE


