

Abassiharofteh, Milad et al.

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Spatial transformation: Processes, strategies, research design

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Forschungsberichte der ARL 19

SPATIAL TRANSFORMATION

Processes, strategies, research design

Milad Abassiharofteh, Jessica Baier, Angelina Göb, Insa Thimm,
Andreas Eberth, Falco Knaps, Vilja Larjosto, Fabiana Zebner (Eds.)

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Christina von Haaren

THE TRUST / ARL DOCTORAL COLLOQUIUM – WELCOME BY THE EXECUTIVE BOARD

Sustainability goals are implemented in physical and social spaces. The world is in transition, and global changes are tangible, visible and measurable. Whether it is climate change, migration, demographic change, increasing social disparities or the digitalisation of living and working environments, all of these so-called *grand challenges* drive diverse transformation processes on different spatial scales and change social interactions. The change in physical/material space (such as infrastructures, buildings, flora and fauna) is closely connected with the sociocultural space (stakeholders, institutions, policy). Spatial transformation knowledge plays a decisive role in the shaping of social transformation processes: the relationship between the physical environment, culture and society therefore not only serves as a background rationale but also as a basis for shaping and steering transformation processes towards sustainable development.

In the research on spatial transformation, the interaction between the various human/environment systems (e.g. trade, the use of resources, material flows, migration, identity, participation, the common good, social relationships) and their subsystems is analysed on various levels. At the same time, this builds a bridge between the spatial sciences and transformation/transformational research.¹

This interaction between human and environmental systems is the focus of the Leibniz Research Centre on 'TRUST – Transdisciplinary Rural and Urban Spatial Transformation' at the Leibniz University Hannover. At the research centre, six faculties and 19 institutes of the Leibniz University Hannover gather together in order to work on four thematic and two interdisciplinary clusters on the common topic of spatial transformation. The centre's aim is to bundle research activities, build up an interdisciplinary network and to be an expert partner for representatives of society, the commercial sector, administrations and policymakers. This continues the long tradition of spatial research at the Leibniz University Hannover.

The Academy for Territorial Development in the Leibniz Association (ARL) also actively advises policymakers and the public on spatial development and spatial planning questions, based on its specific profile and the current spatially relevant trends and challenges. As an extramural forum and centre of excellence for research into spatial structures and development, it brings researchers and practitioners together in an inter- and transdisciplinary network. Its aim is to support successful solutions to spatially related problems and questions and to work together with the relevant stakeholders to this end. An essential aspect of this is to stimulate and increase political and public awareness of the added value of an integrative spatial

1 Cf. Levin-Keitel, M.; Mölders, T.; Othengrafen, F.; Ibendorf, J. (2018): Sustainability Transitions and the Spatial Interface: Developing Conceptual Perspectives. In: Sustainability 10 (6), 1880.

perspective and its inherent potential for problem-solving, and thus to make a contribution to socially responsible spatial design.

The establishment of the TRUST/ARL Doctoral Colloquium in 2015, which is supported and funded jointly by the ARL and TRUST, ushered in an excellence-oriented, cross-faculty and structured support programme based in Hanover for junior researchers working on spatial transformation. Within the colloquium, eight doctoral students are currently researching the topic of 'Spatial transformation – phenomena, planning, steering and design between the opposing poles of town and country'. They are supervised by professors from the Leibniz University Hannover, all of whom are members of the TRUST research centre. Integration in TRUST and the ARL allows the participants of the colloquium insights into the inter- and transdisciplinary working methods of TRUST and the ARL, as well as participation in knowledge transfer activities within and outside the collaboration.

The individual doctoral projects deal with aspects of spatial structural change from different perspectives; they are embedded in the relevant theoretical discourses and relate to the pertinent approaches to planning policy activities. The doctoral students in the current cohort have backgrounds in geography, economic geography and geographical didactics, (environmental) planning, landscape architecture and sociology. The different disciplinary strategies, methods and research approaches are reflected on and discussed within the colloquium with the aim of working out innovative solutions for the challenges of spatial transformation processes.

The present conference proceedings are the result of this intensive interdisciplinary interrogation of the processes and implications of spatial transformation. Based on the results of a conference organised independently by the doctoral students on the topic of 'Spatial transformation – processes, strategies and research design' (24-25 May 2018 in Hanover), it provides a succinct summary of the conceptual reflections and empirical findings.

In the name of the Executive Board of the TRUST/ARL Doctoral Colloquium, I congratulate the doctoral students on their successful conference and trust that these Conference Proceedings will provide much food for thought.

Prof. Dr. Christina von Haaren

Chair of the Executive Board of the TRUST/ARL Doctoral Colloquium

Andreas Eberth, Angelina Göb

INTRODUCTION

‘For the first time in their history, humans have developed technologies, materials and behavioural patterns that could lead to a collapse of the earth system which would deprive them of their basis for life if they do not renounce “carrying on as before”. Human beings have become their own greatest existential risk. Solving this paradox is a pivotal task for humankind.’
(Glaser 2014: 8)

The present anthology is the result of the conference ‘Spatial transformation: processes, strategies and research design’. This conference was organised by the TRUST/ARL Doctoral Colloquium and took place in the Leibnizhaus in Hanover on 23-24 May 2018 with over 50 participants. The thematic focus is based on the introductory remarks by Rüdiger Glaser in the context of global change, the age of the Anthropocene (Crutzen 2002) and planetary boundaries (Rockström/Steffen/Noone et al. 2009; Steffen/Richardson/Rockström et al. 2015) – all of which necessitate a transformation towards more sustainable lifestyles. When considering spatial transformation processes and the possibilities of shaping them from a scientific perspective, the term ‘Great Transformation’, coined by Karl Polanyi (1978) (WBGU [German Advisory Council on Global Change] 2011), and the demand for transformation research and transformative research (cf. Schneidewind 2013) serve as a point of reference. Taking this as a starting point, the conference provided the opportunity for a detailed discussion of how spatial transformation processes can be investigated, steered and shaped. Particular focus was placed on the mutual dependence of spatial and social transformation and on the opportunities and challenges offered by an inter- and transdisciplinary research design in this context. This entailed methodological and methodical reflections on a previously under-represented discourse. In this respect, the conference aimed to critically discuss both substantive aspects and methodological approaches at the interface between different disciplines and to open up new, interdisciplinary perspectives. In order to devise appropriate points of entry and transdisciplinary research projects even more robustly, the conference was directed particularly towards junior researchers, since ‘Science and research should focus (even) more on the challenges of a transformation towards a climate-compatible, sustainable society. Research should place a greater emphasis on research questions and topics relevant to such a transformation and on the new field of transformation research. At the same time, it should fulfil various structural demands such as a systemic, long-term and inter- and transdisciplinary orientation’ (WBGU 2011: 381). The conference also offered the opportunity to take a closer look at the roles and perspectives of the stakeholders involved in the transformation processes and at their methods. In this context and with reference to the global climate treaty adopted in Paris in 2015, Leinfelder and Maum assert: ‘The imperative of self-obligation on the part of states also results in [...] an imperative of self-obligation on the part of all emission-relevant stakeholders, from companies to

organised civil society and each individual' (2016: 132). The shaping of the transformation processes which are necessary today can no longer only be the responsibility of individual stakeholders. Neither science, policymakers, industry, civil society nor individuals can achieve a trend reversal and establish sustainable transformation processes by acting alone. In order for spatial transformation to be successful and effective, it requires the cooperation of very different constellations of stakeholders. The transdisciplinary approach offers a suitable starting point; this can be defined as follows: 'Transdisciplinarity is considered a powerful and efficient means of using *knowledge from science and society with different epistemics serving societal capacity-building* under certain political cultures; [...] [It is] a means of coping with complex, ill-defined (wicked), contextualized and socially relevant problems that are nowadays often defined in the frame of uncertainty and ambiguity. Transdisciplinary processes can organize sustainability learning and capacity-building in society' (Scholz 2011: 379). Transdisciplinary approaches seem to be expedient particularly if the term 'transformation' is understood to be generally necessary changes 'which should be promoted by "pioneers of change" such as ecologically-oriented companies, citizen action groups or scientists' (Brand/Wissen 2017: 29). This means considering the spatial effects of a socio-ecological transformation, which '[address] the required social changes in order to manage the ecological crisis appropriately' (Brand 2016: 277).

The themes briefly outlined here were discussed from different perspectives in six themed sessions and two keynote presentations. The present volume provides an insight into the broad range of facets relevant to transdisciplinary transformation research. The terms and concepts which have been merely outlined in this introduction are more specifically defined and explained in the individual articles.

In their article, Helga Kanning and Christiane Meyer explore the significance of knowledge transfer and the co-production of knowledge in transdisciplinary research projects. Their work demonstrates the enormous potential of such approaches, while also explaining and legitimising the *third mission* of universities.

Martin Held gives a broad and well-founded overview of the term 'Great Transformation', its various understandings and the meanings attributed to it. In his article, he clearly points out the absolute necessity of a Great Transformation if the guiding principle of sustainable development is to be taken seriously.

Antje Bruns takes up this theme by revealing the specific factors and significance of the Anthropocene as an age of planetary boundaries. On this basis, she argues in favour of taking a critical view, since it is precisely in the associated discourses that critical questioning and a deconstruction of global hierarchies and power asymmetries are needed.

Building on these overviews in the first section, the articles in the subsequent sections offer insights into specific case studies and projects. Section 2 focuses on processes of transformation in social and settlement structures. Jana Kühl takes up the current discussion about sufficiency in relation to lifestyles and presents the practices and

infrastructures for sufficiency-oriented lifestyles. Using a relational approach to space, Jessica Baier outlines a new research perspective on public service provision and infrastructures in rural areas.

Section 3 focuses on 'Regional development and innovation'. In connection with knowledge networks, Milad Abbasihahrofteh and Tom Brökel provide insight into a study on aspects of socio-cultural diversity in Germany. With reference to an empirical case study on technology parks, Elena Franziska Schlich reflects on the significance of geographies of proximity and addresses the question of how spatial proximity can be shaped.

Section 4 is decidedly oriented towards transformation processes in countries in the so-called Global South. Leonie Tuitjer gives an overview of ethical questions and positionality following post-colonial approaches. She maps out the challenges, but also and particularly the opportunities presented by research in the spaces of the so-called Global South. Andreas Eberth presents findings from a case study in the slums of Korogocho in Nairobi, Kenya. He subjects these to a critical examination and identifies the implications for urban planning and spatial development in connection with slum upgrading measures. Sebastian Purwins gives an insight into China's involvement in Ghana using the example of the bauxite-aluminium industry. In the process, he explores the dynamics and consequences of China's economic/ecological double crisis.

New challenges in the context of spaces in transition are presented in section 5. Zora Becker reflects on aspects of village development in the light of new structures of responsibility, while Yvonne Siegmund's essay-like contribution addresses the question of whether openness can be planned, particularly focusing on the temporal dimension in spatial planning. Falco Knaps, Sylvia Herrmann and Tanja Mölders offer approaches for the conceptualisation, capture and integration of place branding processes, which they place in the context of landscape identity. The significance of civic energy cooperatives as change agents for an energy transition is explored by Insa Thimm, with reference to aspects of her empirical survey.

Methodological reflections and selected methodical approaches for the shaping and conceptualisation of transdisciplinary research projects are presented and discussed in section 6. Moritz Engbers introduces the section by showing how spatial transformation processes can be understood and shaped by means of transdisciplinary case studies. Vilja Larjosto and Angelina Göb present different transformative research approaches in the form of research through design and arts-based research. They explore the opportunities and challenges and reveal the potential of a creative approach to the transfer of scientific knowledge.

We hope that the present volume will not only provide an overview of selected aspects of the discourse on spatial transformation and transdisciplinary research but also initiate impulses and ideas for future research projects.

We would like to extend our sincere thanks for the financial support of the conference and this publication to:

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- > The research centre 'TRUST: Transdisciplinary Rural and Urban Spatial Transformation' at the Leibniz University Hannover
- > The Academy for Territorial Development (ARL), Hanover

We sincerely thank all reviewers for their constructive reviews of the individual articles.

We trust that there is much here to stimulate and inspire!

Andreas Eberth, Angelina Göb
Speakers at the TRUST / ARL Doctoral Colloquium

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Helga Kanning, Christiane Meyer

THE UNDERSTANDING AND MEANING OF KNOWLEDGE TRANSFER FOR RESEARCH AND EDUCATION IN THE CONTEXT OF A GREAT TRANSFORMATION

Contents

- 1 Introduction
 - 2 Knowledge transfer in science policy
 - 3 Knowledge transfer in transformation and transformative research and education
 - 4 Philosophical and educational reflections on the Great Transformation
 - 5 Conclusions
- References

Abstract

Knowledge transfer between universities and society, as well as the social commitment of universities ('third mission'), are coming increasingly into the focus of public attention and of science policy (section 2). The central role of universities in supporting search and learning processes in society, as well as the need for a change in mindset towards (more) sustainable development, are also emphasised in the context of the Great Transformation towards greater sustainability (section 3). At present, the two strands of discussion are largely unconnected. This article outlines the basic aspects of both fields of knowledge. This demonstrates that the basic understanding is the same in both areas: they share an understanding of knowledge transfer based on recursive exchange processes between science and society, which ideally entail the joint generation (co-production) of knowledge which can be linked both to science and to practice. However, there are 'blind spots' which will be illuminated by focusing on transformative education, an area still marginalised in the debate about transformation. Philosophical and educational reflections (section 4) demonstrate that deeper cultural and individual values, as well as holistic worldviews – i.e. based on the unity of humans, nature and culture – appear to be suitable key orientations for radical transformations towards sustainability. From the authors' perspective, the communication of normative target/orientation knowledge and its scrutiny in scientifically-grounded debates in line with a transdisciplinary understanding of science – in combination with a reflection on the values and mindsets embedded in a holistic education in relation to the environment or values – represents a central 'hinge' for knowledge transfer and for the path from knowledge to action. These aspects are currently underrepresented and deserve more attention in research and development.

Keywords

Third mission – transfer as recursive exchange – transformative research/education – shift in consciousness/shift of mindsets – transformative literacy – transformative learning – change agents – values education – worldviews

1 Introduction

Together with the increased value placed on knowledge and innovation in the economy and society, the transfer of knowledge by universities to the social, cultural, economic and political spheres, as well as social engagement, are coming increasingly into the public focus. Yet the discussion about the transfer of knowledge from universities is not new: the social mission of the university played a role in the founding of the world's oldest university, the University of Bologna, in 1088 (Conway/Humphrey/ Benneworth et al. 2009). There has been intense discussion since the 1980s, particularly in the fields of regional economic research and, in connection with this, in science policy, to the effect that universities should fulfil social tasks that go beyond their core tasks of teaching and research. Thus, the 'promotion of knowledge and technology transfer' is now an explicit task of universities according to section 2(7) of the German Higher Education Framework Act (*Deutsches Hochschulrahmengesetz, HRG*). This 'third mission' is regarded as a core task alongside research and teaching (WR [German Council of Science and Humanities] 2016: 5 with reference to WR 2013: 25).

In parallel to the regional economic and science policy developments, the expert report by the German Advisory Council on Global Change (*Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen, WBGU*) on the 'Great Transformation' (WBGU 2011) also injected a significant impulse into the debate. In this report, the German Advisory Council on Global Change explicitly referred to the central role and responsibility of universities and the scientific field in supporting the knowledge-based social search processes to support the targeted shaping of sustainable, future-proof societies, and proposes extensive further developments. It recommends 'four transformative pillars of the knowledge society' (ibid.: 21), which establishes both targeted research and education about transformation processes (transformation research and education) and active participation in shaping them (transformative research, education) and interlinks them. To achieve this, a new form of interaction between politics, society, science and the economy is required (ibid.: 24-25). In *The Great Mindshift* (2016), Göpel additionally points out the necessity of a fundamental, radical shift in consciousness.

The two lines of discussion about knowledge transfer and the third mission on the one hand and the contribution of universities to shaping sustainable development within a Great Transformation on the other are still conceptually largely unconnected. The present article aims to outline fundamental viewpoints on the understanding and meaning of knowledge transfer from both fields of discussion, i.e. from regional economic research and science policy (section 2) and from transformation and transformative research and education. For the latter, we will focus on transformative education, which is still underrepresented in the scientific discourse (section 3). This is connected with holistic education approaches, which fundamentally also re-

quire a critical reflection on worldviews, values and mindsets in relation to a radical or ‘great’ social transformation towards sustainability. This will be substantiated and illustrated through a philosophical and educational lens (section 4). In conclusion, we will summarise the current desiderata regarding further research and development (section 5).

2 Knowledge transfer in science policy

The understanding of knowledge transfer in science policy is characterised by an understanding of the notion of transfer that has been discussed in regional economic research from as early as the 1980s. Whereas the concept of transfer initially predominantly referred to the transfer of technology and, in this connection, the relationships between universities and the economy, it is now interpreted more broadly as the transfer of knowledge between universities, the economy and society. A more precise definition is provided by a position paper published by the German Council of Science and Humanities (*Wissenschaftsrat*, *WR*) on knowledge and technology transfer (*WR* 2016, with reference to *WR* 2007, 2013). According to the etymological origin of the word *transfer* (Latin *transferre*, to put across or convey), as well as the everyday understanding of the term, in the scientific context it generally means the transfer of knowledge from its formation or generation to its application/use. This can ‘be an application of knowledge in a new context, but also the use of explanatory knowledge for the development of technologies or the transfer of knowledge from the institutions of the scientific system into other areas of society. These different connotations are also reflected in linguistic usage when scientists or those interested in scientific knowledge speak of “transfer”’ (translation of the original German quote; *WR* 2016: 9).

Also closely connected to the current debate about knowledge transfer is what is known as the *third mission* of universities. The third mission refers to the role of universities in relation to society and goes beyond the core performance areas of teaching and research (the ‘first’ and ‘second’ mission). In the assessment by the German Council of Science and Humanities, the discourses about transfer and the third mission significantly overlap but also require clarification (*WR* 2016: 8 et seq. [FN 9]). Generally, there has been no clear differentiation to date between the terms and concepts of transfer and of the third mission (e.g. Nölting/Dembski/Kräusche et al. 2018); accordingly, they will be used synonymously in the following text.

In particular, two projects funded by the Federal Ministry for Education and Research (*BMBF*) for performance evaluation and operationalisation currently provide an orientation for the science policy discourse about the third mission at a national level: the ‘FIFTH – Facets and Indicators of Research and the Third Mission at Universities of Applied Sciences’ project by the Centre for Higher Education (*Centrum für Hochschulentwicklung*, *CHE*), which focuses on universities of applied sciences¹, and the ‘Be-Mission’ project by the Institute for Research on Higher Education (*Institut für Hochschulforschung*, *HoF*) at Martin Luther University Halle-Wittenberg, which relates to

1 <http://fifth-projekt.de/english.html> (6 May 2021).

all types of universities². Both of these also offer definitions and overviews of the developmental history of the concepts (Roessler/Duong/Hachmeister 2015; Henke/Pasternack/Schmid 2016, 2017).

Henke/Pasternack/Schmid (2016, 2017) systematise and illuminate the various origins of the third mission debate with regard to new and expanded tasks in addition to the traditional university tasks of teaching and research. Approaches such as transformative science and the sustainable university are also mentioned here for the first time (Henke/Pasternack/Schmid 2016: 36 et seq.), but do not reappear in the subsequent operationalisation. In this respect, the discussions are still in the early stages (for more on this, see Kanning/Richter-Harm 2018).

When seeking a general definition of the third mission/transfer among all the different approaches and expectations, this refers – in relation to the pioneering European project ‘European Indicators and Ranking Methodology for University Third Mission’ (E3M) – to services ‘which lead to a beneficial interconnection between the university and its extramural environment by means of reciprocal interactions in relation to transfer and human capital. The third mission comprises [...] services [...] by universities which have a direct impact on society and the economy, as well as currents and movements emanating from the economy and society which, in turn, have an impact on universities’ (translation of the original German quote; Roessler/Duong/Hachmeister 2015: 39).

This broad understanding of the term is linked to two central insights: firstly, *transfer is understood as a recursive exchange* of knowledge (cf. also WR 2016; Froese/Mevissen/Böttcher et al. 2014). This goes hand in hand with the understanding of *recursive innovation processes* which has developed in (regional) economic transfer and innovation research since the 1980s. Accordingly, innovation processes are usually characterised by a high degree of collaborative interactions involving the participation of numerous people and institutions. More recent innovation research particularly emphasises the importance of diverse recursive interaction processes between the economy, science and policy (e.g. Kline/Rosenberg 1986; Schmoch 2000; WR 2007: 16).

Secondly, *society is mentioned as an important target group and stakeholder in addition to the business community*. This corresponds to the recommendations by the German Council of Science and Humanities, which states in its position paper on knowledge and technology transfer that it will be necessary in future ‘to apply scientific knowledge as broadly as possible in cooperation with all stakeholders in society, including economic partners’ (translation of the original German quote; WR 2016: 35 et seq.).

In this context, the German Council of Science and Humanities refers to a heuristic model developed by Froese/Mevissen/Böttcher et al. (2014) for non-university institutions in social sciences research for the analysis of knowledge transfer; in the

2 <https://www.hof.uni-halle.de/projekte/bemission/> (06 August 2018).

authors' opinion, this relativises and expands the existing notion of linear transfer and innovation processes in which researchers pass on their knowledge unidirectionally to practical stakeholders (ibid.: 5; see Fig. 1).

In the process model, knowledge transfer processes are considered analytically in the context of knowledge generation, knowledge use and types of research. However, the authors wish to point out that these are interconnected in research practice. The basis for the model is the assumption that knowledge transfer processes are already influenced by knowledge generation and that this influence has an effect right up to the use of knowledge by different user groups. For the production of knowledge, it is crucial to look into how research questions are developed and to what extent problems that occur in practice are addressed (Froese/Mevissen/Böttcher et al. 2014: 4 et seq.). Froese/Mevissen/Böttcher et al. base this understanding on pioneering contributions to transdisciplinary research (Bergmann 2010; Bergmann/Schramm 2008) (ibid.: 4), with the result that this recursive understanding of transfer contains the first references to the field of transformative research (see section 3).

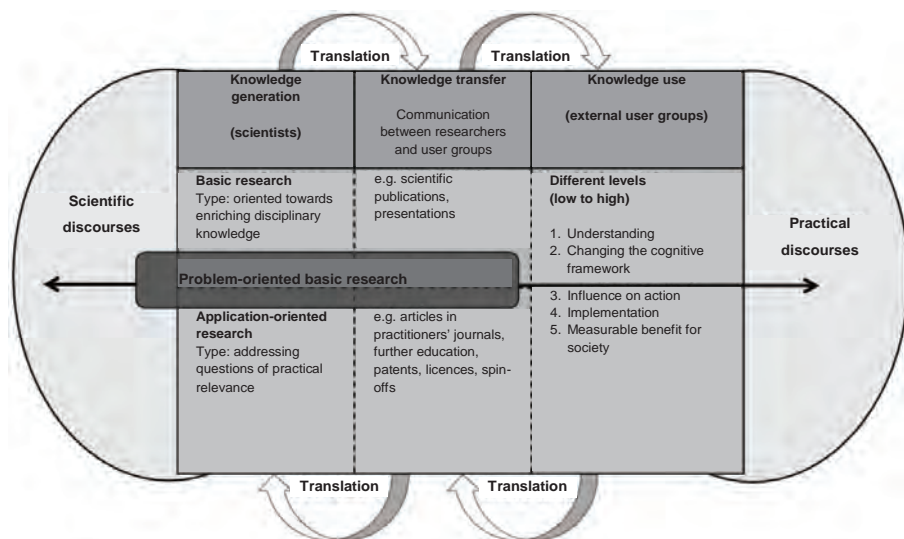


Fig. 1: Process model for knowledge transfer /Source: Froese/Mevissen/Böttcher et al. (translation of the original German figure) 2014: 5

In many cases, a corresponding bidirectional or multidirectional and recursive exchange between stakeholders from science and from different areas of society also encompasses recursive processes relating to the translation of scientifically generated findings into an understandable, accessible and practicable form for partners outside of science, and in return, the translation of non-scientifically generated questions and problems into research questions. This enables practical questions and problems to be transformed into scientific questions and thus become linked to the specialist knowledge, methods and the approaches of various disciplines (WR 2016: 11).

According to this understanding, knowledge transfer is therefore characterised by diverse reciprocal/recursive exchange processes between science and society. Ideally, it includes the joint production of new knowledge (*co-production*), which can be linked to both science and practice. This is particularly significant for the transformation of society towards sustainability (see section 3). However, the knowledge policy discussion still reveals differences of understanding in this respect. An example is the 2017–2020 project known as BePerfekt, sponsored by the Federal Ministry for Education and Research and implemented by the Potsdam Institute for Climatic Impact Research (*Potsdamer Institut für Klimafolgenforschung*) in cooperation with the Karlsruhe Institute of Technology and the Helmholtz Centre Dresden-Rossendorf (HZDR). Its aim is to develop educational tools and to empower people and teams in transfer structures in universities, non-university research institutions and, if applicable, also in businesses (not in society).³ Although it refers to the previously outlined process model, the project modifies it at a crucial point: the analytical separation put forward by Froese/Mevissen/Böttcher et al. 2014 into knowledge producers (science) and knowledge users (society, politics and the economy) is retained for the concept of transfer services. Knowledge transfer is simply interpreted as the translation of scientific findings and thus remains within a unidirectional understanding of transfer, which is precisely what needs to be overcome.

3 Knowledge transfer in transformation and transformative research and education

The contributions to recursive knowledge transfer processes outlined above correspond to the conceptual proposals for the further development of the scientific system that has become established in transdisciplinary science (*ProClim* [Forum for Climate and Global Change] 1997; Brand 2000; Becker/Jahn 2006; Bergmann 2010; Jahn/Bergmann/Keil 2012 – for an overview see Pohl/Hirsch Hadorn 2008). This is linked to a new understanding of science which is no longer based on freedom from value judgements but is geared towards the specific problems of society. This requires disciplinary boundaries to be transcended and a paradigm change towards a ‘post-normal science’ (Funtowicz/Ravetz 1991); as distinct from ‘normal science’ (‘Mode 1’); this is also described as ‘Mode 2’ (Nowotny/Scott/Gibbons 2001; Mittelstraß 2003). Cooperation between scientific and non-scientific stakeholders is intended to generate ‘socially robust’ knowledge (Scholz 2011). Conceptually, this transdisciplinary understanding of science largely corresponds to the approaches of analytical-descriptive *transformation research* and actively structuring *transformative research* (WBGU 2011; Geels 2002; Scholz 2011; Schneidewind/Ernst/Lang 2011; Schneidewind/Singer-Brodowski 2013; for an overview see Wittmayer/Hölscher 2017), which are needed to shape sustainable development processes.

Although the normative orientation of the guiding principle of sustainability in the scientific landscape has sparked a heated debate about whether science is not obliged

3 <https://www.beperfekt.de/about/was-ist-wtt/> (18 January 2019).

to be ‘pure’ science in the sense of Humboldt,⁴ transformation research and transformative research on the basis of a transdisciplinary understanding of knowledge are relatively highly developed. Despite the different positions with regard to the normative orientation, underlying value judgements and normative settings should always be disclosed and reflected on critically (cf. Mittelstraß 2018; Grunwald 2018; Strunz/Gawel 2018).⁵ A systematic foundation for the integration of knowledge from science and civil society on the basis of analytical findings and normative value judgements is offered by the three dimensions of knowledge developed within transdisciplinary science: system knowledge, target/orientation knowledge and transformation knowledge (see Fig. 2).

In comparison with research, the field of *transformation and transformative education* is still in its infancy. Although there are current, basic theoretical foundations from different disciplines (e.g. pedagogy, sociology), educational goals in connection with social transformation remain marginalised in practice, which means that the path to concrete implementation in educational institutions is still a long one (Singer-Brodowski/Beecroft/Parodi 2018). The first approaches for universities and schools were formulated in the context of the UN Decade of Education for Sustainable Development 2004–2015 (DESD).⁶ These were initially aimed predominantly at the transfer of competences which enable people to participate actively in planning sustainable development processes (above all, *Gestaltungskompetenz* according to de Haan 2007). The UNESCO Global Action Programme on ESD (2015–2019) which followed on from the UN decade expanded this objective even further, particularly to school education, and in addition to societal transformation as a dimension of ESD (UNESCO 2014: 12), it firmly characterised teachers and facilitators as ‘powerful agents of change’ (ibid.: 20) for ESD. This led to the discussion of an orientation towards ‘transformative literacy’, which can be generally described as the ability ‘to understand transformation processes adequately in their multidimensionality and to contribute to them through one’s own actions’ (translation of the original German quote; Schneidewind 2013: 120). It can be viewed as a ‘way to increase social reflexivity when observing and contributing to transformation processes’ (translation of the original German quote; ibid.: 139). With reference to the transition cycle (see Fig. 2), the three knowledge

4 On the two opposite poles, see Schneidewind (2010), the President and Scientific Director of the Wuppertal Institute, and Strohschneider (2014), as well as the German Council of Science and Humanities in a mediating capacity (2015).

5 In this context, one might also refer to the ‘reflective framework for socially responsible research’ (*Reflexionsrahmen für Forschen in gesellschaftlicher Verantwortung*) (Ferretti/Daedlow/Kopfmüller et al. 2016), which was developed jointly by three large non-university research institutions: the Fraunhofer Society (*Fraunhofer-Gesellschaft*), Helmholtz Association (*Helmholtz-Gemeinschaft*) and Leibniz Association (*Leibniz-Gemeinschaft*), as part of the joint research project LeNa sponsored by the Federal Ministry for Education and Research. This aims to provide orientation as to how responsible research should look, and not to prescribe dogmatically what should be researched (ibid.: 5).

6 Further information on education for sustainable development can be found, for example, in Barth/Michelsen/Rieckmann et al. (2015), Stoltenberg/Burandt (2014), Buckler/Creech (2014), <https://www.hochschule.uni-hamburg.de/en/2-handlungsfelder/03-lehre.html>; examples of good practice include the German Commission for UNESCO e.V. (DUK) (2011, 2013), Weisser/Geibel (2016), ISCN (2017). General information on education for SDGs can also be found in the publication on ‘Education for Sustainable Development Goals’, published by UNESCO (UNESCO 2017).

dimensions mentioned above should be taken into account in knowledge transfer processes (Singer-Brodowski/Schneidewind 2014: 131).

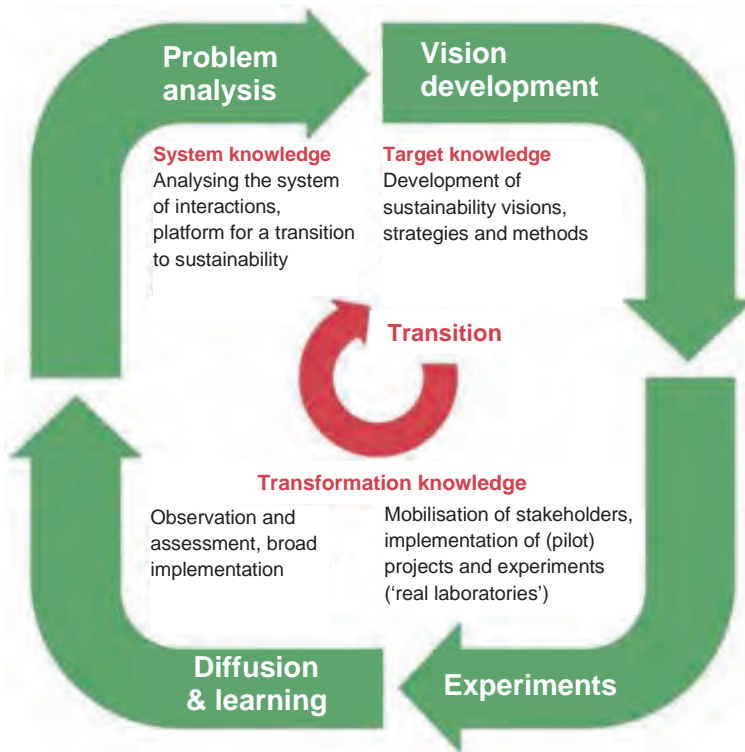


Fig. 2: Transition cycle / Source: Meyer 2018b: 27 after Brüggemeier/Scheck/Schepelmann et al. 2012: 31; Loorbach 2010: 173; Singer-Brodowski/Schneidewind 2014: 135 (translation of the original German figure)

For academic teaching/education, Wiek, Withycombe and Redman (2011) emphasise five key competences: competences in systemic thought, strategic thought and action, interpersonal cooperation, and anticipatory and normative competence. From a methodological point of view, learning by trial and error and reflexive learning are considered particularly significant (Michelsen/Adomßent 2014: 44 with reference to Martens 2006, Kemp/Martens 2007). With regard to transformative science Schneidewind and Singer-Brodowski (2013) also point out that in addition to transferring system knowledge, universities, too, should place a greater focus on acquiring target and transformation knowledge (with regard to the significance of real laboratories, e.g. Singer-Brodowski/Beecroft/Parodi 2018). In connection with target knowledge, particularly worth discussing is the paradigm of economic growth (SDG 8), which critical economists have already been referring to since the late 1960s and early 1970s (Boulding 1966; Daly 1996) and are currently expanding in relation to the sustainability guiding principle to include post-growth (Paech 2005; Seidl/Zahrnt

2010) and degrowth⁷ approaches. Even today, more than 40 years after ‘The Limits to Growth’ (Meadows/Meadows/Randers et al. 1972), the replacement of the neo-classical growth paradigms is still deemed the (most) important key to societal transformation: ‘[...] the most critical aspect for turning the wheel toward fulfilling the SDGs is changing the economic paradigm’ (Göpel 2016: 3). Thus, the economist Maja Göpel, Secretary-General of the German Advisory Council on Global Change since 2017, entitled her book analysing the Great Transformation (WBGU 2011) *The Great Mindshift – How a New Economic Paradigm and Sustainability Transformations go Hand in Hand* (see also section 4).

In view of the current criticism of education in relation to ESD, which is uncritically based on the economic growth paradigm and on an instrumental and uncritical view of nature and ecosystems (cf. Getzin/Singer-Brodowski 2016: 38; Singer-Brodowski 2016: 13 et seq.), in order to achieve ‘a comprehensive change for reasons of understanding, prudence and providence’ (WBGU 2011: 5), new content and participatory, inclusive and multi-perspective methods are demanded of ESD and global learning (Singer-Brodowski 2016: 14). On the basis of this criticism, the objective of an instrumental ESD or ‘education for sustainable development’ is shifted to a critical-emancipatory ESD or ‘education as sustainable development’, which is also placed in the context of degrowth (translations of the original German quotes; Getzin/Singer-Brodowski 2016: 39). Meanwhile, the theory of transformative learning is discussed in this context as a way to convey transformative education, and refers back to approaches from critical theory, as well as to socio-constructivist learning theories (ibid.: 14 et seq.). On this foundation, the focus is firstly on the change in individual perspectives on meaning and secondly on collective awareness and emancipation processes, which can be promoted in learning arrangements by ‘a constant interaction between specific action and reflection on the experiences thus engendered’ (translation of the original German quote; ibid. 16): for example, by questioning mental infrastructures (Welzer 2012). Ultimately, such shifts of mindsets can or should contribute to a ‘great mindshift’ (Göpel 2016) for a Great Transformation (see also section 4).

Therefore, the following should fundamentally be taken into account: ‘Socio-ecological transformations never mean [...] only the formation of the external conditions of human existence, but also that of the psychological structure of people – i.e. their patterns of perception and interpretation, their self-image, their emotions and their habits’ (translation of the original German quote; Sommer/Welzer 2014: 106). In order to reduce the gap between knowledge and action or perception (mind-behaviour or mind-perception gap), it is therefore pointed out that we should observe our own perception and behaviour more intensively and question them in order to become aware of unconscious patterns of perception and behaviour (cf. Entzian 2015: 208). The cultural theorist Annett Entzian also emphasises that ‘perception is not only influenced by cognitive aspects but also seems to be particularly linked to emotional factors. Thus, some cases revealed clear changes in environmental behaviour over the course of their lives which were

7 More information about this can be found at <https://www.degrowth.info/en/> (26 May 2021).

primarily caused by emotions' (translation of the original German quote; *ibid.*: 210). It is therefore also important to integrate affective approaches and value systems (Joas 2006) into transformative education and transformative learning, as emphasised, for example, within a holistic values education (Meyer 2018b: 23 et seq.). A holistic approach in environmental education is currently being discussed and tested in the context of ESD and transformative education with reference to the three forms of knowledge (e.g. Jung 2009; Vogelsang 2017).

4 Philosophical and educational reflections on the Great Transformation

The challenges of a Great Transformation towards sustainable development must be addressed as quickly as possible in view of the 'planetary boundaries' in combination with the 'great acceleration' (Rockström/Steffen/Noone et al. 2009; Steffen/Richardson/Rockström et al. 2015), but also because of the global and regional social disparities in the sense of socio-economic limits or 'critical human deprivation' (Raworth 2017: 9). Raworth uses the metaphor of the doughnut here, which she characterises in her well-known image as 'both an ecologically safe and socially just space for humanity' (*ibid.*: 39). She emphasises that the task of bringing humanity in the 21st century into this ecologically stable and socially just space is 'unprecedented' (Raworth 2017: 39). She particularly highlights the authority of economics: 'Economics is the mother tongue of public policy, the language of public life and the mindset that shapes society. [...] (E)conomic beliefs, values and assumptions are shaping how we think, feel and act' (*ibid.*: 5 with reference to F. S. Michaels and her book *Monoculture: How One Story Is Changing Everything*, published in 2011). This future task therefore – following the major didactic questions and decisions – involves changing *what* is produced and consumed, *what for*, *how* and *with what*. The UNESCO Global Action Programme also argues along these lines: 'It will require a wholesale change in the way we think and the way we act – a rethink of how we relate to one another and how we interact with the ecosystems that support our lives' (UNESCO 2014: 8). The current discussions, e.g. about transformative learning in a degrowth society (Getzin/Singer-Brodowski 2016), follow this line of thinking (see section 3).

This shows that spatial transformations go hand in hand with social transformations – particularly a shift in consciousness – or perhaps even necessitate them. According to the findings of research on transitions and transformations (e.g. Schot/Geels 2008; Loorbach/Frantzeskaki/Avelino 2017), decisive impulses for this are set by *pioneers of change* or *change agents*, who initiate and disseminate the change as transformative forces (e.g. Kristof 2010: 106 et seq.; WBGU 2011). In this context, reference may even be made to Gottfried Wilhelm Leibniz (1646–1716) during the early Enlightenment period. As the founder and first president of the Berlin Academy (Society) of Sciences, he represented 'a philosophically substantiated concept of scientific research which (predominantly) sees its aim and purpose in union with practice ("theoria cum praxi"), in the satisfaction of people's needs, in the promotion of the common good (and) in the solving of socially relevant problems' (translation of the original German quote; Li 2012: 21). It is in fact self-evident that research should have practical relevance and provide a service to humanity by solving socially relevant problems, but this is also controversially debated (see section 2). With regard to the promotion of

the common good and in connection with the usual market-oriented concepts of the satisfaction of needs by means of increased consumption, Maja Göpel analyses the findings of the Chilean developmental economist Manfred Max-Neef and his demand ‘that we need an entirely new language in order to understand better what people really need’ (Göpel 2016: 63). His 1992 matrix of fundamental human needs ‘opens up a plethora of possible solutions for good lives which do not have to cost the Earth’ (ibid.: 66). With regard to aims and purposes, it should be noted that contrary paths towards sustainable development are considered equally expedient and purposeful. These include, for example, the discussion about genetically modified seeds in connection with the use of pesticides – and the associated power positions of global corporations. Vandana Shiva, an Indian pioneer of change and winner of the Alternative Nobel Prize in 1993, has not only called attention to these problems in numerous publications (e.g. ibid. 2000) but also actively advocates alternative paths as best-practice examples (Meyer 2017a).

Following Leibniz’s understanding of science, Wenchao Li, who held the Leibniz Foundation professorship at the Leibniz University Hannover from 2010 to 2017, criticises current science for becoming simply a productive force and argues that it is urgently necessary to ‘provide a key orientation for modern secular civilisation’ (translation of the original German quote; 2017: 25). Key orientations which point in the direction of sustainable development are highlighted by different pioneers of change and/or scientists. Three such key orientations are taken as examples in the following.

Vandana Shiva has developed an *Earth Democracy* (ibid. 2015), which is both an ancient philosophy and a current political movement for peace, justice and sustainability (ibid.: 1). It is based on ten principles, and its aims are *Living Economies*, *Living Democracies* and *Living Cultures*. In particular, political involvement and power in the sense of self-empowerment are of crucial importance.

Satish Kumar, the founder of Schumacher College in Dartington Hall (a leading centre for environmentally-friendly, economic and social sustainability) and publisher of the journal *Resurgence & Ecologist*, argues for a new trinity of our time, in the form of *Soil – Soul – Society* (ibid. 2013). To this end, he interprets the Bhagavad Gita for today’s era with reference to ecology, spirituality and humanity (ibid.: 16). For *soil*, he emphasises that ‘the challenge for humankind, in the twenty-first century, is to find humility and reconnect with nature’ (ibid.: 18). For *soul*, he states: ‘the inner landscape of spirituality and the outer landscape of sustainability are intricately linked’ (ibid.: 26). He views *society* on this basis and demands a social movement that will stand up for justice, equality, freedom and wellbeing for all (ibid.: 29).

A further *key orientation* is educational purposes. Victor Nolet, Professor of Secondary Education at Western Washington University, calls this a *sustainability worldview*. He defines it as follows: ‘[A] sustainability worldview is a holistic phenomenon that involves a combination of values, knowledge, dispositions and agency’ (2016: 64). Such a worldview also emphasises certain thinking capabilities (cf. ibid.: 108): adaptive expertise, systems thinking, critical thinking, decision-making, character strengths.

Sustainability, spirituality and transformation

A worldview for sustainability – as made particularly clear in the statements by Satish Kumar with reference to ‘Care of the Soul’ (ibid.: 24 et seq.) – predominantly requires a certain (self-)awareness which can be seen as fundamental for the required transformation (see also the holistic approach in Jung 2009 and the references to deep ecology and integral theory in Meyer 2018b). The spiritual traditions of Asia (such as Hinduism, Buddhism and Taoism) distinguish between a ‘normal, limited “ego self” and an unlimited “original self”. The ego self is characterised by what Einstein called the “optical illusion of separation”’ (translation of the original German quote; Stanley/Loy 2015: 46). For personal (and ultimately also societal) transformation, it is stated that: ‘We must recognise that our original self encompasses the entire living world. This type of empathy based on a holistic worldview is essential for life’ (translation of the original German quote; ibid.: 47).

Individual transformation is therefore described as follows: ‘The individual is released from his or her narrow identity or ego and is transformed into divine consciousness. The way to such an enlightened state is [...] the understanding that “I am part of the whole”. I am an organ of the Earth body; I am a member of the Earth community. [...] Through universal love we are able to break out of this ego and become part of the eco – making a quantum leap by changing from “g” to “c”. The Greek word “eco” is very beautiful. From it we get “ecology” and “economy”. Eco [...] means home’ (Kumar 2013: 24 et seq.).

Pioneers of change, who have implemented their key orientation and vision of sustainable development with great efficacy, can serve as role models (Meyer 2018a, 2017b). Maja Göpel comments with regard to ‘pioneer practice’: ‘We see how essential the role of worldviews or mindsets are in the formation of individual identity, collective vision and strategies for systemic change that have a mobilizing effect’ (2016: 149). Some of these change agents have been awarded the Alternative Nobel Prize, e.g. the Kenyan environmental activist Wangari Maathai in 1984 (see below) and the Chilean economist Manfred Max-Neef in 1983 (see above). ‘Through the “Right Livelihood Award”, as the Alternative Nobel Prize is literally called, the founder [Jakob von Uexküll, born in 1944 in Uppsala, Sweden] [...] also brought values and the question of meaning back into the discussion, since the change demanded by the prizewinners [...] attempts to address the roots of the problems – and these often extend deeply into worldviews and views of humanity, fundamental religious convictions and myths of modern civilisation. There is thus scarcely a prizewinner who does not call for a fundamentally new spiritual and ethical orientation’ (translation of the original German quote; von Lüpke 2010: 21). The common denominator of all the approaches advocated by these change agents for the ‘right livelihood’ is ‘overcoming the separation between humans and nature. Homo sapiens is no longer viewed as the master, but as a thread in the web of life’ (translations of the original German quotes; ibid.: 20; for the environmental sciences, fundamentally cf. Immler/Hofmeister 1998). This connection is also demanded in the context of a holistic science, e.g. by Stephan Harding, lecturer in holistic science at Schumacher College (see above): ‘Holistic science is thus about

reuniting fact and value in ways that enable our culture to explore new possibilities of living harmoniously with the Earth' (ibid.: 43). He refers back to indigenous knowledge and the relationship of indigenous ethnic groups to earth or nature (as do all the change agents mentioned here as examples) and to James Lovelock's Gaia theory (ibid.: 68 et seq.).

With regard to the consciousness of a unity between humans, nature and culture, the legacy of Wangari Maathai (1940–2011), Nobel Peace Prize winner in 2004 (Meyer 2016) could also be mentioned. In her last book, *Replenishing the Earth – Spiritual Values for Healing Ourselves and the World*, she emphasises spiritual values for the Green Belt Movement that she founded, which served as a key orientation for her and all the participants – and thus contributed to a social and spatial transformation in some regions of Kenya: 1. 'Love for the environment', 2. 'Gratitude and respect for Earth's resources', 3. 'Self-empowerment and self-betterment' and 4. 'The spirit of service and volunteerism' (Maathai 2010: 14 et seq.). She states: 'Such values are not unique to the Green Belt Movement. They are universal. [...] They define our humanity' (ibid.: 16). With the Green Belt Movement, Maathai exemplified the significance of knowledge transfer for sustainable development and thus initiated transformative learning (Meyer 2016, 2017b) – entirely in the spirit of the knowledge transfer discussed in this article.

5 Conclusions

The above discussion has shown that knowledge transfer between universities and society belongs to the 'third mission' of universities (section 2). At the same time, knowledge transfer is a constitutive feature of sustainable universities as well as of transformation research and education, as well as of transformative research and education (section 3). In both fields, the basic 'modern' understanding of knowledge transfer is the same: it does not mean a unidirectional knowledge transfer *from* science as the knowledge producer *to* society as the user of knowledge; rather, it refers to diverse recursive exchanges *between* science and society, in which, ideally and according to a transdisciplinary understanding of science, new 'socially robust' knowledge is generated together (*co-production of knowledge*), and is linked both to science and to practice. However, the two debates – the science policy debate about transfer and the third mission on the one hand, and the transformation debate about sustainability on the other – have very seldom referred to each other. There is still a considerable need for research and development here, in which both fields could learn from each other.

In the authors' assessment, the 'path from knowledge to action' in the direction of radical transformation to sustainability hinges on the communication and scientifically-grounded discussion of *normative target/orientation knowledge*. Too little attention has been paid to this to date. For spatial transformation, the focus here is particularly on the spatial and planning sciences. The task of spatial planning is to coordinate discussions on objectives and/or social claims to spaces, while directing them towards sustainable development (section 1 of the Federal Spatial Planning Act [ROG]). However, 'blind spots' remain in research, as do underlying 'preanalytical visions' and

worldviews in practice (Kanning 2005: 120 et seq.; Kanning 2013), which connect ecology with the economy, i.e. assume a unity between humans, nature and culture, and can thus promote sustainable development – as also shown by visionaries or change agents (Meyer 2018b) (section 4). In other words: ‘Worldviews or paradigms serve as central reference frameworks for epistemic communities in research but also for the pioneers or situated groups that transition researchers observe taking action on strategic change’ (Göpel 2016: 150).

Critical reflections on culturally transferred ‘mental infrastructures’ and the initiation of reflection processes, including the strengthening of self-awareness, and in particular of a conscious examination of value commitments and value orientations, therefore seem to have a key function for both transformation research and education and for transformative research and education (see section 4).

Whereas underlying value judgements and normative settings in research should always be disclosed and discussed critically, for education/teaching, which is ultimately also shaped by researchers and affects them in return, a holistic environmental education or values education in combination with transformative learning and ‘transformative literacy’ could be pioneering, on the basis of a critical/emancipatory ESD in the context of degrowth (see section 3). Change agents play a central role in this as transformative forces of change (see section 4) in the transfer of knowledge between universities and society.

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Martin Held

SPATIAL TRANSFORMATION – AN INTRODUCTION TO THE GREAT TRANSFORMATION TOWARDS SUSTAINABILITY

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Abstract

A Great Transformation from fossil-based unsustainability to post-fossil sustainable development is on the horizon. This article provides an introduction to the research and debate on the sustainability transformation, with a special focus on the spatial dimension. Examples of current approaches and research are presented. Spatially orientated transformation research requires a view of the temporal processes.¹

¹ The article is based on a working paper by the ARL Working Group on ‘Sustainable spatial development for the Great Transformation’ (Bauriedl/Held/Kropp 2017). I would like to thank Sybille Bauriedl and Cordula Kropp, as well as Richard Sturn, Barbara Adam, Jörg Schindler and members of the discussion group ‘Transformers – actors in the Great Transformation’, as well as an anonymous reviewer for their suggestions. Of course, I myself take responsibility for any imprecise formulations and errors that may occur.

Keywords

Great transformation – unsustainability – sustainable development – spatial transformation – transformation approaches – timescapes – landscapes – digital transformation

1 Introduction

*‘What we are currently simultaneously experiencing [...] are the **very beginnings of the next great transformation**: a developed market society must be further developed in a way that permanently guarantees the ecological and social prerequisites for economic activity’
(Biervert/Held 1994: 25; emphasis in the original).*

The adoption of Agenda21 at the Rio Conference in 1992 was a great success. The idea of sustainable development found broad acceptance. However, the concept of a fundamental transformation towards sustainability was not yet established. Instead, transformation research in the 1990s related to the transformation countries of the former Soviet Union and its sphere of influence. By way of comparison, transformations of political systems such as the transition from the Franco dictatorship to democracy in Spain (*transición*) were incorporated into this line of transformation research (Merkel 2010).

At the end of the 1990s and beginning of the 2000s, research on transitions towards sustainability developed (early publications include National Research Council 2000). This research encompasses various disciplines and perspectives, with different objectives and research questions. The scope of studies ranges from individual socio-technical innovations and their dissemination to the Great Transformation from unsustainable development to sustainable development. In my article, I introduce this field of research, with a focus on the spatial perspective. Although this field of research is still in its infancy, I can only address a few selected approaches, categories, themes and examples.

2 Transformation – transitions – the Great Transformation towards sustainability

In the context of sustainability, the terms *transformation(s)* and *transition(s)* are used. Some approaches partially differentiate between transformation and transition (Stirling 2014). The plural form, transitions/transformations, typically describes transformation processes on a smaller scale.

The point of departure is the *unsustainability* of the prevailing economic and social system in industrialised countries. Despite all their differences (*varieties of capitalism*, Hall/Soskice 2001), all capitalist countries have fossil-based unsustainability in common – a development model that is being propagated worldwide. This can be

described as a catch-up development of unsustainability (Schindler/Held/Würdemann 2009: 136 et seq.).

2.1 Multi-level perspective and sustainability transition management

The multi-level perspective (MLP) approach, which was initiated in the Netherlands, has a significant influence on the debates in the research. This approach offers what has hitherto seen the most highly developed structuring of research on sustainability transitions (for an introduction, see Kemp/Schot/Hoogma 1998; Elzen/Geels/Green 2004; Grin/Rotmans/Schot 2010).

The approach has its roots in innovation research. It is not envisaged for purely technological innovations; rather, it considers these to be socio-technological innovations. It has various roots, such as Science Technology Studies (STS), Actor-Network Theory (ANT) and evolutionary economics. The approach is geared towards transitions towards sustainable development. The basic understanding envisages the shaping (management) of specific transitions in the sense of socio-technological innovations. Three levels are distinguished here (Geels/Schot 2010: 25):

- (1) *Niche innovations*: technological innovations towards sustainability (networks of actors who support innovations, etc.)
- (2) *The socio-technological regime*: the dominant regime (markets and preferences of users, industry, science, culture, politics, technology)
- (3) *The socio-technological landscape* (exogenous context): institutions, developments which exert pressure to change, etc.

Landscape is not used in the common sense usually found in the spatial sciences:

‘The metaphor landscape has been selected because of the literal connotation of relative hardness and to include the various material aspects of society, e.g. material and spatial arrangements of cities, factories and electricity infrastructures’
(Geels/Schot 2010: 23).

The three levels are arranged in a sort of hierarchy: level (1) is embedded in level (2), and level (2) is embedded in level (3). The socio-technological regimes are comparatively more stable than the first level, while the overarching landscape is more persistent, despite all the social changes. At the same time, change pressure on the prevailing socio-technological regime can also be exerted from this level. The diverse interactions, both within each level and between the levels, are emphasised (cf. Fig. 1).

This approach is frequently used as a reference, particularly in studies relating to the spatial dimension; it has been critically discussed and refined by the proponents of the approach. At the same time, the perspective is also used for larger-scale change processes which go beyond individual socio-technological innovations (see section 4.2).

Increasing structuration
of activities in local practices

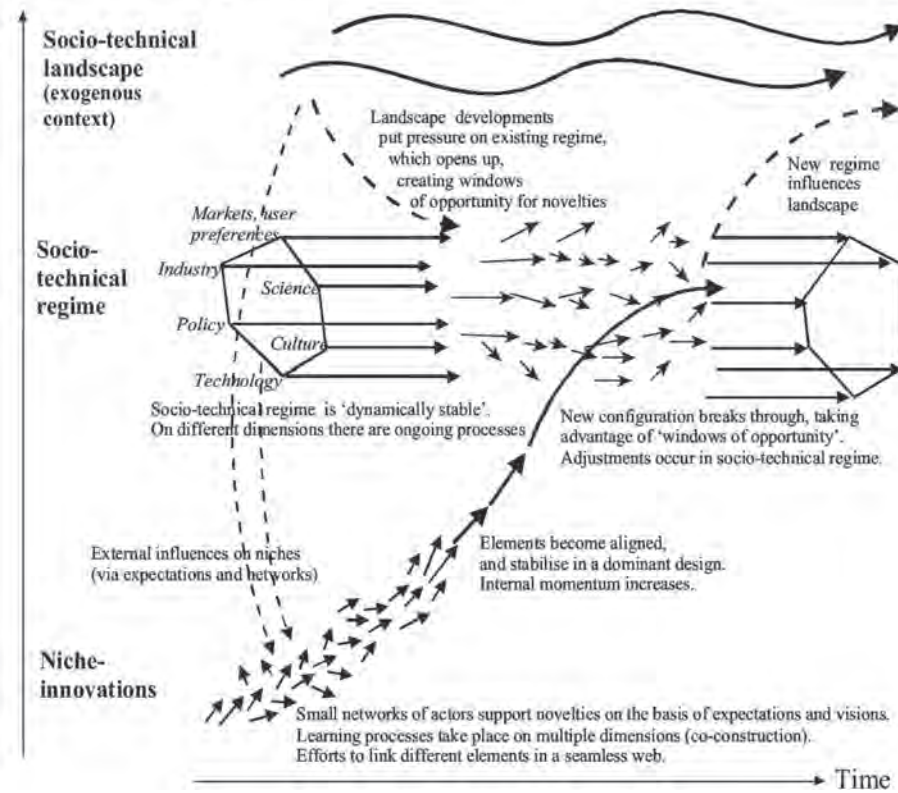


Fig. 1: Multi-level perspective (MLP) on transitions / Source: Geels 2011: 28

2.2 Ecological and socio-ecological transformation

Another root of transformation research focuses on global environmental changes. The necessity of a fundamental transformation towards sustainability is grounded using the synthesising concept of planetary boundaries (for an introduction, see Rockström/Steffen/Noone et al. 2009a, 2009b). The boundaries are assessed as having been exceeded when a loss of biodiversity and a change to the global nitrogen cycle occur. In the case of anthropogenic climate change, the boundaries have not yet been exceeded, but in view of the rate of change, the development is regarded as being extremely critical (IPCC [Intergovernmental Panel on Climate Change] 2018).

In contrast to the MLP approach, this part of transformation research is based not on socio-technological innovations but on the analysis of global ecological change processes. Given the extent of the problems, these require a fundamental transformation from fossil-based unsustainability towards post-fossil sustainable development.² This is based on the expert reports by the German Advisory Council on Global Change (*Wissenschaftlicher Beirat der Bundesregierung Globale Umwelt, WBGU*) (WBGU 2011, 2016a),

Global environmental changes are the point of departure for the expert report by the German Advisory Council on Global Change (2011). At the same time, the Advisory Council goes beyond ecology and systematically incorporates the economy, politics and society. Because of the magnitude of the required transformation, which is described in more detail in the expert report using the example of climate change, the Advisory Council searched for a foundation. This was found in Polanyi's work *The Great Transformation* (1978 [1944]). The Advisory Council introduced the Great Transformation as a heuristic concept (cf. section 2.3). The statements on the fundamental transformation areas – energy transition, urbanisation, land use and global governance for infrastructure development – offer great potential for spatially-relevant transformation research.³ The 2011 expert report dealt with different concepts of change management (e.g. the MLP approach). In the follow-up report (WBGU 2016a) on the 'Unlocking the transformative power of cities', which has thus far received less attention in transformation research on sustainability, the Advisory Council presented its own conceptualisation, which can be used in spatially-relevant transformation research.

The German Advisory Council on Global Change proposes a conception of the Great Transformation towards sustainability which goes beyond ecology. For example, the consideration of planetary guidelines is linked to questions of power, i.e. it is not approached purely naturalistically. The '*Eigenart*' category (a German word meaning 'individual character') to describe the spatial diversity of cities, introduced in the Advisory Council's normative compass, is particularly interesting for spatial transformation research. Unsustainability is the point of departure for the Advisory Council's work on the sustainability transformation.

Another line of transformation research emphasises the connection between social and ecological issues. Accordingly, the transformation towards sustainability is also characterised as a socio-ecological transformation. The handbook entitled *Die sozial-ökologische Transformation der Welt* [The socio-ecological transformation of the world] (K.-W. Brand 2017) illustrates this using the concept of society-nature rela-

2 Which frequently focus on climate change. The keyword *decarbonisation* has entered linguistic usage as a strategic orientation. I do not use this term, since it is objectively inaccurate: without carbon, there is no life. Carbon is the basic element of organic processes. Instead, the term 'post-fossil' describes the actual issue better (for the significance of framing and reframing, see Lakoff/Wehling 2012; Wehling 2016; Held 2016a).

3 In contrast to the discussion on the MLP approach, this potential has not yet been given sufficient attention. For example, the Advisory Council's excellent work on the development of conceptual perspectives in spatial transformation is not incorporated due to the exclusion criterion (*peer-reviewed*) (Levin-Keitel/Mölders/Othengrafen et al. 2018).

tionships. This strand of research analyses structural driving forces, the contradictory interests of different actors and conflicts (section 4.2). The controllability of fundamental transformations is not a prerequisite but rather a part of the analysis of transformation dynamics (section 5.2).⁴

2.3 The Great Transformation towards sustainability

As mentioned above, the concept of the Great Transformation originates in Karl Polanyi's seminal work *The Great Transformation. Political and economic origins of societies and economic systems* (1978 [1944]). He focused on the historically singular emergence of a market society in the 18th and 19th centuries, and introduced the concept of a 'Great Transformation' to describe this. He treats commercialisation as part of the overarching development of a market society and the Industrial Revolution (Held 2016b). The disembedding of the economy from nature and society is a fundamental characteristic for him. Disembedding and re-embedding processes are a focal point of space-related research on the Great Transformation which has great potential.

The transition from fossil-based unsustainability towards post-fossil, sustainable development is comparable in its scope with the emergence of market society or the Industrial Revolution. Various classifications are used in the literature: for example, Siefert (2010) compares the magnitude of the transformation facing us with that of the Neolithic Revolution, as well as the Industrial Revolution. Additionally, he includes the use of fire as another fundamental transition in human history. In other studies, the development of language, the emergence of nation states, European colonisation and the scientific-technological revolution are described as comparably fundamental transitions (Takács-Sánta 2004).

In accordance with its significance for human history, the pending Great Transformation towards sustainability is sometimes written in capital letters. In contrast with the Industrial Revolution, which started in the United Kingdom, this transformation is not starting in a specific country or region of the earth, but is worldwide. The programmatic part of the UN's Sustainable Development Goals (SDGs) refers to this peculiarity: all countries are now transformation countries in this sense, but with very different circumstances, problems and potentials (UN 2015). The timescale of the incipient Great Transformation is shorter than the previous transformations in human history. Yet, despite all the acceleration dynamics, it is a discrete historical phase which will probably last for at least two generations.

⁴ Unfortunately, due to space constraints I am unable to go into further differentiations in this brief introduction, for example between transformation research and transformative research (Schneidewind/Singer-Brodowski 2013).

3 Space-specific transformation research – time-conscious

3.1 Spatial transformation – space, place, scale

Space, place, scale – these categories mark the research on the geography of sustainability transitions (Truffer/Murphy/Raven 2015; Hansen/Coenen 2015; Levin-Keitel/Mölders/Othengrafen et al. 2018). This is a line of research which is strongly anchored in economic geography, but at the same time unites a broad range of approaches, specific research questions and numerous case studies, with a focus on the spatial dimensions of the sustainability transformation:

- > *Space*: A distinction is made between different spatial concepts. There is evidence for the advantages of physical proximity in clusters, as well as for the significance of culturally or socio-culturally determined spaces. These may be advantageous or, conversely, detrimental to socio-technological innovations towards sustainability. To some extent, outdated dichotomies remain potent in research (e.g. nature – culture), and spaces are sometimes conceptualised in their interactions in the sense of society-nature relationships (Levin-Keitel/Mölders/Othengrafen et al. 2018).
- > *Place*: This could be paraphrased as follows: *contexts may matter*. Several case studies demonstrate that the specifics of particular ‘places’ (*place* is used to describe very different geographical units) can be essential for the understanding of transition processes. I am phrasing this cautiously because, considering the dynamic of the development of interrelationships, this is not simply a given. Therefore, it is not only individual ‘places’ or regions that are examined; rather, the relationship between places can be just as decisive. This becomes evident in the development of the concept of proximity: for transition processes, geographical proximity may be important; in other cases, proximity via professional networks, networks of municipalities and other actors, or socio-cultural networks may be decisive (Truffer 2016).
- > *Scale*: In agreement with a lot of other research on the sustainability transformation, the question of scale or levels is fundamental. Some studies on the *geography of sustainability transitions* embraced the idea that a particular level – e.g. cities or regions – is more important for transition processes towards sustainability than other levels. There is now a stronger emphasis on analysing the interaction between different levels and actors.

This direction of research is influenced by ongoing unsustainable processes and their consequences (climate change, etc.), as well as by initial transformation steps, particularly in the energy system. The influence of the MLP approach is also intrinsic to this research; in many studies, it serves as a reference point and as a means to structure the study. Just as influential is its strong orientation towards socio-technological innovations (for example, in the programmatic part of the journal *Environmental Innovation and Societal Transitions*). Occasionally, studies on the geography of sustainability transitions refer to the role of infrastructures (for example, in research on energy technologies) and, in connection with this, landscapes.

Other lines of research, particularly those on the foundation of spatial and landscape planning, place the shaping of landscapes, and therefore the role of infrastructures, at the centre.

The above mentioned overviews argue in favour of differentiating between fundamental concepts (conceptualisation of space, etc.), as well as incorporating influential factors such as power and normative questions such as justice to a greater degree. Despite all the differences, there is agreement about the basic question (paraphrased in my words): What significance do local or spatial contexts have for transition processes towards sustainability in an age which is defined by a strong development dynamic and space-time compression?

3.2 Times – spaces

Transition processes occur in physical spaces, they change socio-cultural spaces, weaken networks and create new connections. The transformation towards sustainability is played out in time, through processes with their own development speeds (accelerating, decelerating), different phases, path dependencies and structural ruptures.

In transition research towards sustainability which specifically considers spatial dimensions, a frequent criticism is that these dimensions are not explicitly treated in more detail. In a complementary way, one might note that in the geography of sustainability transitions, temporalities are often used ad hoc without being explicitly conceptualised. Indeed, spatial transformation research gains from being time-conscious and from taking *temporalities* seriously (for space-time, see Hofmeister 2006).

For example, in the energy transition, the rhythm of renewable energies is highlighted as a disadvantage by many actors. In a *framing* which is geared towards controlling nature and is characterised by the time theft of the accelerated consumption of fossil energy deposits formed over millions of years, this fossil disembedding from the natural context is imagined forward into the post-fossil age. Space-related, time-conscious transformation research develops appropriate new frameworks (*reframing*). Accordingly, natural rhythms are not understood a priori purely as *constraints*; rather, processes of production and reproduction, or production cycles, are considered to be part of the transformation.

Time is not simply linear, comprising uniform time units, but encompasses temporalities as a whole: acceleration, inherent time (*eigenzeit*), speed, rhythm, sensitive time, timing, deceleration, forms of time, time policy, time scales, time values, time affluence (cf. the Tutzing project ‘Ecology of time’ [*Ökologie der Zeit*]; e.g. Held/Geißler 1995, 2000; Adam/Geißler/Held 1998; Held/Hofmeister/Kümmerer et al. 2000; Geißler/Kümmerer/Sabelis 2006; cf. also Reisch/Bietz 2014).

Timescape – the concept introduced by Adam (1998, 1999) – is particularly important for spatial research. This approach conceptualises the multi-dimensionality of time:

- > Duration/period
- > Processes/change
- > Speed
- > Past – present – future
- > Timing

In her analysis, Adam (1998) refers to *time lags* of different lengths, latency times, and initially invisible effects which only become visible in other places with a time delay. This refers not only to common instances such as the half-lives of nuclear fuel rods in relation to societal timescales such as legislative periods and planning horizons, but also to numerous comparable processes of shaping landscapes, the development of spatial and settlement structures, transport, energy and other infrastructures.

The German translation of *timescapes* would be *Zeitschaften*. However, as this sounds unusual in German, we translate *timescapes* in the Tutzing project as *Zeitlandschaften* (Hofmeister/Spitzner 1999). The distinction between ‘timescapes’, ‘land-scapes’ and ‘time-landscapes’ is productive for spatially focused transformation research. The Federal Nature Conservation Act [*BNatSchG*], for example, speaks generally of landscape protection. In actual practice, this is geared towards the protection of day landscapes, while transitions to night landscapes are only included in individual cases on an ad hoc basis (Haber 2013; Held/Hölker/Jessel 2013; SRU [German Advisory Council on the Environment] 2018).

The use of the fossil trio (coal, petroleum, natural gas) has increasingly greatly influenced the development of landscapes, both directly and indirectly, since the beginning of the Industrial Revolution. Comparably fundamental is the question of the appropriate shaping of post-fossil landscapes in the actual transformational changes towards post-fossil, sustainable development (Held 2018).

Wind, solar power and energy from renewable resources have the advantage that they can be used decentrally. This brings the question of how the landscape – in the sense of an energy landscape – is shaped back onto the agenda (Hofmeister/Surrell 2016). The question of how to mix centrally and decentrally produced renewable energies is put into concrete terms by the scaling of the transmission networks on which it depends (for the overlapping of landscapes and hybridisations of urban landscapes, see Schöbel 2018; Hofmeister/Kühne 2016; Kühne/Bruns 2015).

The shaping of landscapes in the sustainability transformation by no means occurs simply on the basis of measures for climate protection and the energy transition towards renewable energies. In its statement on large-scale insect protection, the German Advisory Council on the Environment (SRU) (2018) ascribes the serious loss

of biodiversity in part to the large-scale impoverishment of landscape structures. It shows that measures for insect protection must be coordinated with the development of the energy transition, for example the expansion of wind turbines. It is precisely such tasks of shaping the landscape and spatial planning, which do not point in the same direction for all criteria of the sustainability transformation (i.e. they entail *trade-offs*), that are interesting for both research and practice, and simultaneously challenging.

4 The Great Transformation towards sustainability – conceptualisation

4.1 Transformation – form of time transition and space-time scales

Transformation, in a temporal view, is a form of time (on forms of time: Held 2004; Hatzelmann/Held 2010: 113 et seq.). Transitions – in contrast to forms of time such as the start, the end and waiting – contain a temporal and a spatial aspect. For example, mountain passes characterise spatial transitions.

Transitions can range from very small to very large space and time scales. Transformations are examined on different scales in transformation research on sustainability. As shown, the analysis of transformation towards sustainability leads to the classification of it in terms of human history on an overarching scale, comparable with the Neolithic Revolution or the Industrial Revolution, for example. The term ‘Great Transformation’ has therefore not been invented out of thin air but is the result of the analysis of the subject being studied. As in these reference examples, it is a historically singular transition.

The understanding of the Great Transformation towards sustainability as a transitional form of time is heuristically useful: transitions denote temporal changes from a ‘before’ to an ‘after’. This makes it clear that the analysis of transformation has three fundamental, connected parts: *before – transition – after*. Transformation, when understood as a transition, makes it clear that the opposite of sustainable is unsustainable. This is emphasised by a core element of the concept of ‘the Great Transformation towards sustainability’: *the point of departure is fossil-based unsustainability*. That means that this development is not future-viable on a permanent basis. The longer the transition is delayed and the more actively it is counteracted, the more difficult it becomes to shape the transformation in a fair and acceptable way, and the more serious are the ruptures and distortions (see, for example, Hirsch/Bezdek/Wendling 2005: Chapter 3 ‘Why transition will be time consuming’).

For the analysis of transformation and the transformative processes, it is useful not simply to characterise the *before* in a generalising way as being equivalent to ‘unsustainable’. Rather, a deeper analysis reveals that in their degree of unsustainability, individual countries, social strata and economic sectors have progressed to different levels (‘developed’ according to the previous understanding). At the same time, differences also exist despite the basic fossil-based character of all societies (cf. above on *varieties of capitalism*). For example, some global regions, countries and cities are more extremely dependent on fossil petroleum than others. This diversity is significant

for the transformational processes, since there are transformatively usable specific examples in some areas in the direction of sustainability (for example, the difference between Portland, Oregon and other American cities of a comparable size).

Figure 2 represents the basic scheme of the Great Transformation towards sustainability in a simplified form (see Fig. 2 without phasing-in and phasing-out).

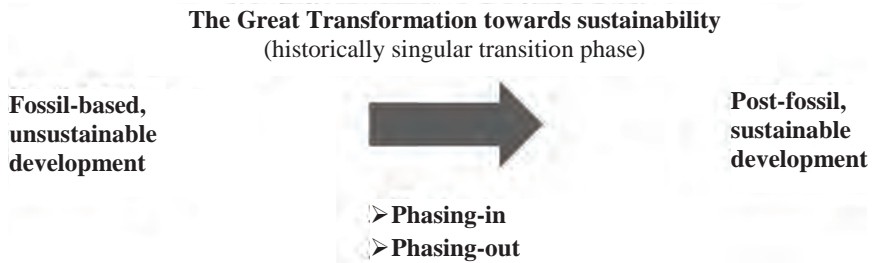


Fig.2: The Great Transformation towards sustainability – expanded basic scheme with phasing-in and phasing-out / Source: modified from Schindler/Held/Würdemann 2009: 137

4.2 Phasing-in and phasing-out

In transformation research, attention was directed for many years almost exclusively towards innovations in the direction of sustainability, particularly towards socio-technological innovations. This is, indeed, an important part of the sustainability transformation. However, it also neglected significant aspects of the developments. In the last few years, in addition to innovations, the question of the development of previously dominant, unsustainable structures, technologies and lifestyles has been addressed. In accordance with the focus on socio-technological innovations towards sustainability, the notion of ‘exnovation’ is often used here. Exnovations are part of the overarching phasing-out.

To analyse transformation, a categorical differentiation between phasing-in and phasing-out is *heuristically advantageous*. The current actors, interests and structures will not disappear ‘by themselves’. Rather, an active phasing-out of unsustainable structures, institutions, infrastructures, etc. is just as important as an active phasing-in of innovations towards a sustainable development (cf. Fig. 2).

*‘The phasing-in and phasing-out processes occur simultaneously.
They are often fractured, surprising, wayward and have their own dynamics.
New actors come into play, incumbents put up resistance or
attempt to transform themselves in turn.
New coalitions and changing constellations of actors are on the agenda’*
(Bauriedl/Held/Kropp 2017: 6).

This differentiation brings essential questions for transformational processes into view, which are outside the frame when innovation processes alone are considered. The withdrawal from lignite in Germany is a prime example of phasing-out (SRU2017). It is virtually a classic example of the consequences of delaying and actively counteracting a phasing-out. This makes the transition more difficult and creates problems in shaping the phasing-out in a socially acceptable way.

The distinction between phasing-out and phasing-in is crucial with regard to natural gas as part of the fossil trio. In the context of the energy transition or transformation research towards sustainability, the idea often prevails that all fossil energies must be cut back and the energy system must be completely converted to renewable energies. However, this leaves essential questions unanswered, as shown by the example of gas: is the natural gas infrastructure to be completely written off (phasing-out)?⁵ Or can this infrastructure – possibly retrofitted to some degree – be used for a renewable energy system and thus become part of a phasing-in? This shows us that an understanding of the interaction between phasing-out and phasing-in can be productive for an acceptable and sweeping transformation towards sustainability. With regard to natural gas and renewable gas (including hydrogen), the question of whether it is possible to move from fossil natural gas to renewable sources is raised – metaphorically speaking, ‘new wine in old bottles’? This is not just a question confronting the shareholders in the natural gas economy; rather, this applies to all actors in the energy transition and raises questions such as the sector coupling of electricity and gas networks (Frontier economics/IAEW/FourManagement et al. 2017; *Agentur für erneuerbare Energien* [Renewable Energy Agency] 2018). These questions affect a central component of the energy transition with considerable spatial consequences, which is not yet in the focus of policy and planning. Furthermore, what about the phasing-out of other parts of fossil-based infrastructures, spatial and settlement structures and their utilisation for phasing-in?

4.3 Interactions between multifaceted processes

In addition to this first distinction between phasing-in and phasing-out, the analysis of transformational processes as a foundation for debates and activities to promote the Great Transformation can benefit by a further differentiation of the basic scheme. A proposal for discussion for this can be found in Figure 3.

⁵ This is no peripheral issue. In Germany alone, there are over 700,000km of natural gas pipelines, if micro-distribution to end consumers is taken into account.

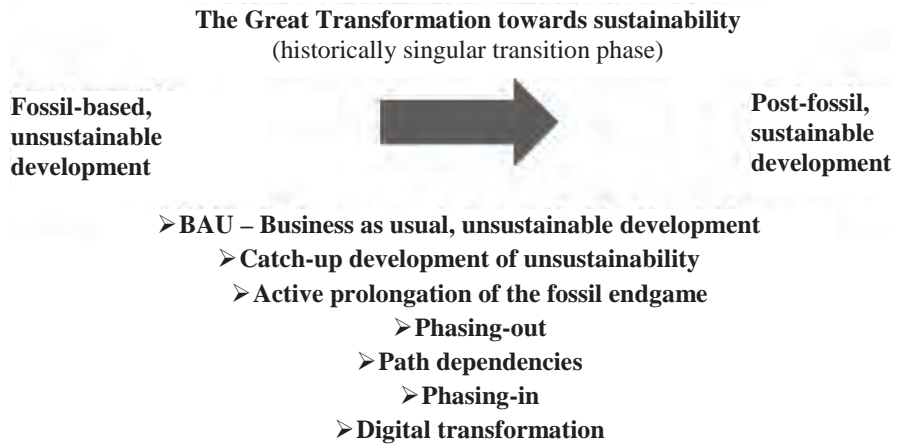


Fig. 3: The Great Transformation towards sustainability – differentiated scheme / Source: the author

- > *BAU*: The fundamental trend of *business as usual* towards unsustainability will not be broken suddenly (metaphorically ‘overnight’). Rather, the status quo worldwide generally carries on as before, even if radical changes loom: for example, when extreme weather conditions become more frequent in the process of climate change and become drastically perceptible, and the production of conventional petroleum has reached a plateau.
- > *Catch-up development of unsustainability*: In countries which are not yet as comprehensively fossil-based as the industrialised nations, the process of catch-up development of unsustainability is continuing, despite extreme problems such as large-scale air pollution, water scarcity and much more.
- > *Active prolongation of the fossil endgame*: It can be plausibly assumed that not all relevant actors in the previously dominant development model of unsustainable development (in simplified terms: *incumbents*) will simply write off their assets and vacate their previous basic position without complaint. It is equally unlikely that citizens will simply give up their habits and *vested interests* and stand up for the strengthening of the sustainability transformation as *citoyens*, independently of their personal interests. Rather, it should be expected that some actors will pursue an active prolongation of the fossil endgame. The corresponding changes to the law in the US, with the subsequent ramping-up of the production of unconventional petroleum via fracking technologies, are a striking example of this. This specific example alone changes the actual course and conditions of the energy transition, since it wastes valuable adjustment time. Worldwide. The transition becomes rougher (Hirsch/Bezdek/Wendling 2005).
- > *Phasing-out*: The significance of active phasing-out has already been explained.

- > *Path dependencies*: the consequences of the climate change caused thus far, fossil-based spatial and settlement structures, transport infrastructures, post-mining landscapes, but also institutions, methods of transport route planning and the prevailing transport policy in most countries, as well as fossil-based *mental models* can be very potent and multifaceted (Denzau/North 1994).
- > *Phasing-in*: This encompasses institutional, social and socio-technological innovations. A preeminent example would be the Renewable Energy Act (*Erneuerbare-Energien-Gesetz, EEG*) in Germany. It is equally important to disseminate positive examples from the time of predominantly fossil-based development and to make them contagious in a transformative way. This can also be understood as transformatively usable path dependencies. These are not innovations but rather the active dissemination of existing practices and structures. There are diverse examples at the city level (for less fossil-dependent urban structures on a human scale, cf. Gehl 2010). The advantage is that such examples are already visible and can be experienced as a nucleus for transitions.
- > *Digital transformation*: We, the people in industrialised nations, are currently experiencing the beginning of the end of the fossil-based world as we know it and which has decisively shaped previous developments towards unsustainability (modification of a song title by R.E.M. from 1987: *It's the end of the world as we know it*). At the same time, we are at the beginning of the digital transformation, which means that the Great Transformation towards sustainability is occurring under different conditions from those that would have applied without this digital transformation.

I have already indicated the large number of potential interactions between the various developments and influencing factors.

5 Themes and differentiations

5.1 Power, interests, actors, conflicts, justice

Stimulating niche innovations for renewable energies is one thing. The other, equally important thing is to destabilise the previous dominance of fossil energy and to actively enforce its dismantling. This is not a statement by critics of the MLP approach to sustainability transition management. Rather, it is the core message and analytic focus of one of the most influential representatives of this approach (Geels 2014). He accordingly believes that it is productive to introduce power and political economy into this approach.

This corresponds to the differentiation of the analytical scheme which I have proposed. At the same time, this shows that the different approaches are not necessarily contradictory; rather, they have different analytical focuses and can be further developed. Space-related transition research should, correspondingly, include power in its analyses to a greater degree (Truffer/Murphy/Raven 2015; cf. WBGU 2016a; see Fig. 4).

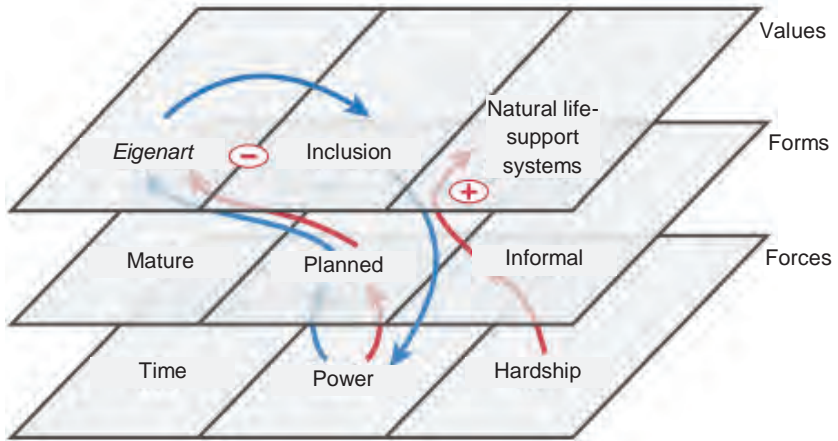


Fig. 4: Schematic diagram showing dominant global settlement patterns (forms), their drivers (forces) and their challenges in relation to the WBGU's 'normative compass' (values) / Source: WBGU 2016a: 5, 37

This does not lessen the importance of pioneers of change (Kristof 2010; WBGU 2011). However, an analysis of actors should count on a diversity of actors. For example, it should be expected that, on the one hand, influential actors will support and promote the energy transition to some degree, but on the other hand, they will also simultaneously slow it down and even partially thwart it. This could be metaphorically described as a kind of 'Bavarian oath'. These actors actively reframe the debate by asserting that 'The energy transition must retain security of supply and be affordable'. Thus, the energy transition is factually, and in some cases probably also intentionally, slowed down and capped. This is not simply a theoretical possibility; it is not difficult to attribute this to existing actors in reality.

Actors such as large businesses, for example, may fight actively for a prolongation of the fossil endgame; they may, at one and the same time, carry on with *business as usual* in some countries and participate in the development of renewable energy in other areas. This recalls the association with the Duke in Visconti's film *The Leopard*:

'Everything must change so that everything can remain the same'
(from the film based on Tomasi di Lampedusa's *The Leopard* 1959).

A simple subdivision into *incumbents* and sustainability pioneers does not do justice to this.

Given the radicality, reach and momentousness of a thorough transformation towards post-fossil, sustainable development, conflicts are unavoidable. The Great Transformation cannot be brought about by a single (miracle) instrument which is efficient on paper under *ceteris paribus* conditions and across all systems – changing 'everything'. In simplified terms, we might refer to this as emission certificates in an ideal world. An impartial analysis of the various interests in their complexity is much more useful.

The interests, in turn, are not fixed. An essential lever for the formation of a critical mass for components of the sustainability transformation may be, for example, that interest in innovations (for example, wind power) grows *rapidly enough* through participation in the corresponding cooperatives or revenues from shares, causing the balance of power to shift.

However, it can also be effective to actively disseminate a framing of freedom in the discourses circulating in society: the freedom from dependency on fossil energies. This can be used to shine a positive light on measures to limit climate change.

The Great Transformation towards sustainability does not come about of its own accord; it does not directly emerge from the results of scientific research and a 'rational' policy based on it. This cannot happen. Rather, scientific findings enter the crossfire between different interests, conflicts and escalating crises.

Anyone who seriously addresses the singularity of the Great Transformation towards sustainability in human history and understands its momentousness as being comparable with the Neolithic Revolution and the Industrial Revolution should not just speak generally of intergenerational and intragenerational justice. Rather, a transformation towards sustainability only progresses if the full momentousness of the justice question is taken seriously and, in so doing, the social and ecological sides are not separated but addressed in their interrelationship (WBGU 2016b; K.-W. Brand 2017, U. Brand 2016; Brie 2014). This is truly challenging.

5.2 Planning and controllability of transformation processes

'Great Transformation processes cannot be comprehensively planned. [...] However, it is possible to conceive transformations which contain elements which are shaped in an anticipatory, scientifically-supported way'
(Sturn 2017: 36).

In relation to spatial planning and spatial structuring, the shaping of landscapes and urban landscapes, questions of the extent to which transition processes can be planned and controlled on different scales are obviously raised. As stated, the MLP approach was originally designed for the management and micro-management of niche innovations. Given the momentousness of a fundamental reversal away from unsustainability towards sustainable development, this is discussed intensively (e.g. Stirling 2014, but see also representatives of the approach itself, e.g. Geels 2014).

A distinction must be made, put simply, between the management of individual socio-technological innovations on a small scale and the question of how the fundamental reorganisation of fossil-based unsustainability into post-fossil sustainable development can be planned and controlled. I regard the discussion about windows of oppor-

tunity and the connection between basic findings (e.g. on climate change) and the required discussions about normative specifications to be productive (Strunz 2017).

5.3 Energy transition, mobility transformation, raw material transformation – building blocks of the Great Transformation

Until this point, the main focus of my article has been on the subject in question: ‘the Great Transformation towards sustainability’. In the process, I have cited examples of various aspects of the nature of the Great Transformation.

Another approach would be to focus on specific building blocks of the Great Transformation towards sustainability. These components are, in turn, already powerful in a social, economic, political and cultural sense.

In my preliminary assessment, the Great Transformation towards sustainability began historically⁶ with the first steps towards an energy transition in the direction of an energy system based completely on renewable energy. It is therefore no coincidence that most of the research thus far has focused on questions about this part of the Great Transformation. Space-related transformation research is sorely needed here, since the departure from the fossil/nuclear energy regime towards renewable energy is directly reflected in space and in the landscape.

At the same time, this example demonstrates a core aspect of the Great Transformation: unsustainability cannot be perpetuated indefinitely. However, this does not result in an automatism in the direction of a very particular form of the energy transition as a component of transformation. For example, the mixture of centrally and decentrally produced electricity is by no means ‘given’, nor is the structure of the heating market. Likewise, the structure of the development path towards renewably produced hydrogen is also not ‘given’.

The mobility transformation (sometimes also described as the transport transformation, e.g. Agora Verkehrswende 2017; Held/Schindler 2012) comes somewhat later than the energy transition. The energy transition, after initial attempts, is now spreading worldwide as a concept and challenge for politics (*energy transition*). The mobility transformation is now gradually entering the public debate in Germany. This component of the Great Transformation not only faces technological challenges (which have thus far dominated policy); there are also fundamental spatial-temporal dimensions: speed, distance, space – and particularly the question of the allocation of public space and the shaping of urban landscapes, as well as infrastructures. With the notion of the *friction of distance* (also sometimes known as the *friction of space*: Rodrigue 2017) has provided an important concept for space-related transformation research on the mobility transformation.

6 Historical periods can only be constructed and such historical processes can only be dated with any certainty from a temporal distance.

Whereas energy as a prerequisite for economic activity and mobility as an essential prerequisite for economic activity and of ‘the good life’ have already attracted attention in relation to the Great Transformation, the material prerequisites have not yet been brought into the discourse to an extent that corresponds to their momentousness (not even in relation to the digital transformation; see section 6). This is related to conceptual and path-dependent effects: the ‘energy transition’ is immediately understandable, as is the ‘mobility transformation’. The ‘raw material transformation’, on the other hand, requires explanation, because the term is not necessarily intuitively comprehensible.

A starting point for the necessarily rapid initiation of this area of transformation is provided by metals. In a nutshell: *post-fossil is possible* and urgent. *Post-metal is not possible*; rather, metals are becoming even more important in the sustainability transformation and in the digital transformation (Exner/Held/Kümmerer 2016; Held/Schindler 2017; Held/Jenny/Hempel 2018).

The associated questions and problems are as similarly challenging for space-related transformation research as they are for the energy transition and the mobility transformation. This is particularly interesting for countries such as Germany, in which ore mining, smelting and metallurgy played a formative role for long periods of time, but where the metal deposits are now emptied and ore mining no longer takes place, or only to a minimal extent. Thus metals are now only directly visible in the landscape where they are actually being used. The landscapes here are connected with the landscapes in other places, where ore mining and the metal industry are operated on an increasingly large scale. Withdrawal from this, such as is urgently required in the case of lignite for climate protection reasons, is not generally possible here.⁷

6 Digital transformation and the Great Transformation towards sustainability

The digital transformation is developing in chronological parallel to the beginnings of the Great Transformation towards sustainability. This on its own, without taking into account reciprocal effects with the sustainability transformation, is massively changing time and space relations. Unfortunately, I cannot go into this further at this point.

The relationship with digitalisation or the digital transformation has been a subject of transformation research on sustainability for some years now. Usually, this focuses on certain aspects – for example, the potential of smart grids, an improvement in traffic flow management and the like. The possible advantages of the use of digitalisation for the sustainability transformation are particularly strongly emphasised (code word for this: smart, and in some cases also ‘intelligent’). As a possible counter-effect, reference is usually made to possible rebound effects (Lange/Santarius 2018). This view also prevails in the line of research which looks from the perspective of the digital transformation to possible connections with the sustainability transformation

7 For further building blocks of the Great Transformation towards sustainability, see Schneidewind (2018), who refers to them as arenas. In the field of agricultural transformation, there is a new biannual publication series: *Agricultural Transformation Review*

(e.g. Scholz 2016; Schieferdecker/Messner 2018; Scholz/Bartelsman/Diefenbach et al. 2018; WBGU 2018): in this view, digitalisation tends to be advantageous for sustainability transformation, while potential rebound effects must be kept as minimal as possible. This framing of the connection between the digital transformation and the sustainability transformation seems at first glance to be intuitive, since the digital world often appears to be virtual, entirely free from materials and consuming only minimal energy (key word: *intangibles*).

Occasional exceptions can be found, for example when the energy consumption of blockchain encryption technology becomes a topic of ad hoc public discussion. In applied research, partly together with actors from NGOs, the first publications have appeared which address the connection between the two transformations in a more systematic way (e.g. Iddri/FING/WWF France et al. 2018). These directly address energy and other resources as a prerequisite for digital technologies.

But even in these exceptions, the massive material dynamic set off by the digital transformation has not yet been addressed in all its momentousness: *digital transformation requires the functionalisation of the entire periodic table* (including around 75% metals and around 5% of semi-metals). Without the increasingly massive use of metals and semi-metals, *there would be no digitalisation*. The vast majority of metals used in digital devices are *dissipated* – dispersed and wasted, since the way they are mixed, often in small or very small quantities, virtually rules out recycling after use. They are used up and lost to humankind. This reveals a further fundamental component of the Great Transformation, which must be urgently analysed and actively addressed (on the relationship between the Great Transformation towards sustainability and digital transformation, see Held/Jenny/Hempel 2018: 232 et seq.).

7 Perspective – re-embedding the economy

Space, place, scale – it has become clear that the spatial focus can directly contribute to transformation research. If one enumerates the spatial perspective in relation to the energy transition, mobility transformation and the sustainable handling of metals as essential components of the Great Transformation, it becomes clear how essential this is. This involves nothing less than transformation from a fossil-based to a post-fossil configuration encompassing landscape, space and settlement structures, sealing and soil degradation, transport and other infrastructures. This is all extremely challenging for spatial planning, the shaping of the landscape, urban development, multi-level governance and much more.

In his analysis of the development of market society, Polanyi mapped out the *disembedding of the economy* from other parts of the living environment, society and culture as a major aspect of this Great Transformation. And, going beyond this, he already – in 1944! – identified the danger of the destruction of the ‘natural environment’ (Polanyi 1978 [1944]: 108 and other pages) as a consequence of this disembedding. Anyone studying the challenge of the Great Transformation towards sustainability which is facing us is advised to study Polanyi on *disembedding* and *re-embedding*. For more in-depth information, a biography of Polanyi is recommended (Dale 2016).

The Great Transformation towards sustainability does not simply require a lengthening of the prevailing development path using different means: ‘Fossil energies out – renewable energies in’, and otherwise a continuation of the control of nature, dissipation and waste. Rather, a fundamental re-embedding of the economy is needed. We already made this point in 1994 in our study of economists’ understanding of nature. The opening words of our article in full:

*‘What we are currently simultaneously experiencing,
and the subject of this book, are the
very beginnings of the next Great Transformation:
a developed market society must be further developed in a way
that permanently guarantees the ecological and social prerequisites
for economic activity;
or, to put it another way, that enables the emergence of a
new form of embedded economy’
(Biervert/Held 1994: 25; emphasis in the original).*

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THE ANTHROPOCENE AND THE GREAT TRANSFORMATION – PERSPECTIVES FOR CRITICAL GOVERNANCE AND TRANSFORMATION RESEARCH IN THE SPATIAL SCIENCES

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Abstract

This article critically examines the new guiding concept of transformation in the spatial sciences with regard to its underlying narrative – namely the Anthropocene. Without such an examination, spatial science research might contribute to apolitical, spatially undifferentiated and Eurocentric governance and transformation research. Hence, I propose to place political aspects and questions of power more firmly in the focus of theoretical, methodological and empirical interest and to take up a general perspective of inequality. Plurality and diversity (from a social and spatial perspective as well as with regard to knowledge production) therefore become the central transverse dimensions of governance and transformation research, which should essentially be reflexive.

Keywords

Epistemological orientation – problem framing – reflexivity – knowing and non-knowing – provincialising theories and practices

1 Introduction

Transformation has become a new guiding concept, in the spatial sciences as well as other disciplines, and influences the way we reflect on the (spatial) future and the shaping of it. This is reason enough for a critical reflection on the issue. In this article, I will predominantly focus on the Anthropocene as a central explanatory narrative, therefore leaving out other schools of transformation thought (cf. Schneidewind/Augenstein 2016).

The Anthropocene has been ‘gifted’ to us by geologists (cf. Latour 2014a: 15 with reference to anthropology) and is therefore based on specific epistemological premises. This epistemological orientation reveals a narrative with consequences for the understanding of transformation, including problem framing and identification, the research questions that are posed, the knowledge that is generated, and the options for shaping the transformation which are taken into consideration. Therefore, the present article will discuss which epistemologies, rationales and constellations of explanation guide the great transformation and the discussion of how it might be shaped. On this basis, we will address a few omissions in this account of knowledge and its blind spots. This visualisation of the absent (Arturo Escobar talks of a ‘sociology of absences’, *ibid.* 2016) is a necessary process of reflexivity in order to scope out the conditions and possibilities for shaping spatial transformation processes. The question is: whose ideas about the future find their way into the debate – not just the political debate, but also the (spatial) scientific one? In other words, which knowledge is produced and becomes universal knowledge? Whose needs are already marginalised today and with a view to future social conditions? Who has access to the centres of decision-making and who does not? According to this reading, the great transformation essentially raises political questions, and these cannot and should not be ignored by governance research in the spatial sciences.

The political sphere is the second area which I discuss in the present article. The questions here are what will be the object of negotiation and who will be involved as a political subject in the decision-making process (cf. Bröckling/Feustel 2010) – for example, in urban real laboratories which are discussed as an element of a transformative planning culture (Schneidewind 2014). It is also necessary to ask which areas of society are experiencing politicisation (or depoliticisation), and where resistance and conflicts exist. A knowledge of dissent is essential for governance and transformation research in the spatial sciences in order to recognise and scope out alternative spaces of thought and action.

2 The great transformation: contexts and analysis of the problem

2.1 The Anthropocene and planetary boundaries

The natural sciences have built up an enormous body of knowledge about global change in recent years through large-scale assessments such as the IPCC or the Millennium Ecosystem Assessment. They have successfully bundled major findings and combined them into overarching concepts. Prominent and broadly received

examples are the concepts of the Anthropocene and of planetary boundaries (Crutzen 2002; Steffen/Crutzen/McNeill 2007). These concepts attempt to address the interaction between social and natural processes.

The concept of the Anthropocene has become virtually indispensable to academic discourse since the turn of the millennium (cf. Fig. 1: Number of publications since 1999). But the term is present in public debate, too, and is taken up in exhibitions and in theatre productions. Originally, Paul Crutzen aimed to express the idea that the geological epoch of the post-Ice Age period (Holocene – literally ‘the completely new’) has been superseded and that we are now situated in the human era (Crutzen 2002). In this era, human beings have become a dimension which is relevant to the earth system, since it is no longer merely local and regional, but also global material cycles and exchange processes that are decisively influenced and changed by people. This basic idea has found its way into the concept of planetary boundaries, in which nine dimensions (e.g. climate change, land use change, fresh water) which are essential for socio-ecological stability were evaluated (Rockström 2009; Steffen/Richardson/Rockström et al. 2015).

The concepts of the Anthropocene and of planetary boundaries are closely interconnected with regard to their problem framing and interpretation and are used as a central reference in order to explain and legitimise the great transformation (WBGU [German Advisory Council on Global Change] 2011; Kersten 2014). Spatial and environmental governance plays an important role here: ‘Science assessments indicate that human activities are moving several of Earth’s sub-systems outside the range of natural variability typical for the previous 500,000 years. Human societies must now change course and steer away from critical tipping points in the Earth system that might lead to rapid and irreversible change. This requires fundamental reorientation and restructuring of national and international institutions toward more effective Earth system governance and planetary stewardship’ (Biermann/Abbott/Andresen et al. 2012: 1306). The explanatory context for the necessity of transformation can, therefore, be expressed as follows: the anthropogenic global environmental change and, in particular, the already exceeded or approaching tipping points make it necessary to navigate human-environment relations within planetary boundaries. This navigation is ultimately about collective decision-making (governance) and is directed towards sustainable futures. This means that the concepts from the natural sciences (Anthropocene, planetary boundaries) point to the political sphere. Thereby, the concept of the Anthropocene pulls people and society into earth system science – they are now no longer seen as external dimensions but as a constitutive element of socio-ecological systems.

Several scientists therefore refer to a ‘change of perspective’ and ‘epoch change’ (Jahn/Hummel/Schramm 2015: 92). Since then, the question has been discussed as to whether such a change of perspective is actually happening and whether, within this, the underlying problematic relations between nature and society, i.e. the causes of multiple crises, are taken into consideration (Brand 2016; Görg/Brand/Haberl et al. 2017; Jahn/Hummel/Schramm 2015).

2.2 Semantic shift or new figure of thought?

Is the concept of the Anthropocene therefore more than a semantic shift, namely a new figure of thought which affects the relationship between the sciences and the relationship between science and society/politics? This debate cannot be conducted in detail here (cf. for this Brondizio/O'Brien/Bai et al. 2015; Castree 2015; Jahn/Hummel/Schramm 2015; Kersten 2014), but a space of possibility opens up for the spatial sciences to contribute findings about the socio-spatial change, the change in spatial governance, about trends and design possibilities (and limits) and to signal their presence at conferences, in publications and in inter- and transdisciplinary research projects.

Even though the concept of the Anthropocene is controversial with regard to its epistemological premises, there is no doubt that the social and political challenges cannot be seen as separate from the ecological question. Rather, the multiple and overlapping crises demand an in-depth exploration of the question 'Where does nature end and society begin?' (Braun 2009: 20). The boundaries between nature and society were never clearly determined, nor were they undisputed (Descola 2013). This makes it all the more necessary to address the epistemological and ontological premises as well. In the words of Thomas Jahn: 'Globalisation, climate change, demographic change and environmental pollution are current examples of problems with a new type of structure: in them, social action and ecological effects are so closely connected that the previous seemingly reliable boundaries between society and nature are becoming increasingly blurred' (Jahn 2008: 25). Precisely because problematic situations manifest themselves in a spatially differentiated way and the transformative possibilities for shaping them are dependent on diverse contextual factors (e.g. questions of political legitimacy), the spatial sciences are called upon to explore the relationship between society, politics and space in a differentiated way and to illuminate the black box of navigation within planetary boundaries.

In so doing, the social dimension, as a still under-represented element in global change research, must be made visible in its spatial configurations. Being affected by environmental pollution, having access to resources or to affordable living space are reference points for the great transformation to a much lesser extent. Nonetheless, there are international assessments and reports on these aspects – for example, the World Social Science Reports, in which global environmental change was addressed in 2013 (UNESCO 2013) and inequality in 2016 (UNESCO 2016). These studies show that a mere description of scientific limits is not sufficient – as Kate Raworth showed with the image of the doughnut as a *safe and just operating space* (Raworth 2012). The limits of the earth system must be seen in relation to the social question and to its shaping by means of political economy. If this change in perspective is brought to fruition, it would inscribe a reflexive moment into the thought patterns in relation to the Anthropocene.

If the Anthropocene is therefore understood as a (demand for a) change in perspective, and if this involves a rethinking of relationships between society and nature, reflexivity is a major component of the concept. Kersten points out that the Anthropocene should be a reflexive concept anyway, since this new geological epoch is not

determined retrospectively (as is usual in geology) but firmly fixed on the present, and above all, the future. He explains that, for this reason, ‘in contrast to other geological eras, the Anthropocene cannot simply make do with a factual description; rather, it virtually automatically demands a reflexive concept of ethical principles and legal governance’ (Kersten 2014: 381). With this in mind, it is worth looking at the relationship between the Anthropocene and the great transformation.

For the Anthropocene, global environmental change is constitutive – whether it is climate change, the decline of biodiversity or the degradation of moors and wetlands. By contrast, the transformation discourse rather maps the tasks and conditions for shaping change (governance of transformation, governance for transformation). Thus, in simplified terms, one could say that the Anthropocene is originally more of a descriptive and analytical figure of thought, whereas transformation contains prescriptive elements: transformation – understood in the sustainability discourse as an intended transformation – is directed towards the future and its shaping; it must inevitably address normative elements and act in the political sphere.

However, the Anthropocene discourse very quickly departed from this original path of a stock-taking of scientific knowledge by addressing the above-mentioned navigation within planetary ‘crash barriers’ and the role of politics and governance, and not least by demanding a new ‘social contract for sustainability’. The identification of the problem primarily specifies implementation deficits, which are to be remedied by a more precise system understanding (more data and more precise data). But beyond this, new action-driving instruments and objectives are also being formed (e.g. the Sustainable Development Goals [SDG]): the planetary boundaries (PB) ‘framework is one step on a longer term evolution of scientific knowledge to inform and support global sustainability goals and pathways. This evolution is needed more than ever before; there are severe implementation gaps in many global environmental policies relating to the PB issues, where problematic trends are not being halted or reversed despite international consensus about the urgency of the problems’ (Steffen/Richardson/Rockström et al. 2015: 8). Given such a diagnostic framework, which lacks any deep exploration of the findings from the social and political sciences which indicate the causes of the multiple crises, there is a long way to go before the Anthropocene as a new figure of thought also reaches and transforms the epistemological basis of earth system sciences.

In this sense, a fundamental criticism of those who describe the Anthropocene as mere semantics is also that the solutions – once again – are seen in technological and/or management-oriented measures, and that the basis of knowledge and problem framing are not the subject of discussion and reflection (Manemann 2014: 37 et seq.).

3 The planetary perspective, world society and the political sphere

3.1 The global subject – depoliticising the debate

The Anthropocene and the metaphor of planetary boundaries demand action with great urgency at the global/planetary level. The global scale virtually inevitably

produces the demand for a great transformation. This great transformation, which is implemented by ‘humankind’ by means of a ‘new global social contract’, pursues the idea of carrying the ‘joint responsibility for the avoidance of dangerous climate change, and the aversion of other threats to humankind as part of the Earth system’ (WBGU 2011: 2). However, it is rightly pointed out that there is no ‘humankind’ as a whole (Latour 2014a; Bauriedl 2015), but rather that the socio-ecological crisis phenomena are characterised precisely by their extreme inequality with regard to effects and responsibility.

Within earth system sciences, too, criticism has been expressed of the construction of an exclusively global perspective, with the result that the planetary boundaries have been supplemented by regional boundaries (Dearing/Wang/Zhanget al. 2014). Nevertheless, there has as yet hardly been any opposition to the depoliticisation of the academic and public discourse: ‘A critique of societal domination, society’s domination over nature and a perspective of emancipation are largely absent’ (Brand 2016: 25). The criticism is therefore that more is being obscured than is being made visible. The world of the Anthropocene is chiefly characterised by inequality and fragmented developments which occur along different axes: between the Global North and Global South, between rural and urban areas and within increasingly fragmented cities, between those who consume a lot of resources and those who consume few, between those who participate in decisions and those who are affected by those decisions, and above all, between rich and poor.

What is the consequence of this? From the perspective of the spatial sciences, this points directly to the needed de-composition of the global, and to a differentiated view of the interaction between society, politics and space: ‘The notion of the Globe’ – as Latour stated in his Anthropocene lecture – ‘and any global thinking entail the immense danger of unifying too fast what should be composed instead’ (Kersten 2014: 394). Thus, although the global perspective is a strong metaphor, it leads to spatially undifferentiated and therefore questionable diagnoses (Gebhardt 2016), which have only very limited suitability when it comes to identifying options for shaping the transformation.

3.2 Inequality in the Anthropocene

It is precisely the visualisation and exploration of inequality and its spatial manifestation – and thus the adoption of a general inequality perspective in and towards the Anthropocene and transformative development paths – which, as scientific perspectives, must be incorporated and strengthened (as also stated by Görg/Brand/Haberl et al. 2017 with reference to the entire science of sustainability).

‘How fragile is the social architecture of our cities?’ This was the title of an expert report which appeared in mid-2018 and presented new data about how strongly segregated German cities currently are along social, ethnic and demographic lines (Helbig/Jähnen 2018). Alongside these socio-spatial relationships of inequality, there are also questions such as that of socio-ecological inequalities – for example with regard to access to water, energy or food – which have emerged and undergone

reification. Analyses show that these inequalities are often historically inscribed in the allocation of land and usage rights and thus refer to colonial power relations (Dietz 2018). When analysing the Anthropocene, which is often also paraphrased as 'the great acceleration', from the perspective of accelerated globalisation and neoliberalisation, it is all the more important to examine the colonial structures which have enabled an economic and social system based on resource extraction and growth.

However, it would be very incorrect to relocate this matrix of colonial power only to remote regions (the Global South) or to the past. Rather, a large number of studies show that 'our' cities in the Global North are also a product of these forces. The increasing inequality and fragmentation goes hand in hand with discursive practices of devaluation (for example, the term 'problem neighbourhood', which is often further characterised as having a 'high proportion of people with a migration background') and with specific planning activity practices through which this inequality is often perpetuated (Ha 2014).

3.3 Provincialising the Anthropocene

The colonial order has a long reach, since the 'ideas of the modern city [...] are closely connected with the formation of colonial cities in the course of colonialism' (Ha 2014: 31). Morrison argues in a similar way with regard to the Anthropocene: 'the concept hides a disturbing extension of colonial discourse into a postcolonial world' (Morrison 2015: 76). Reflexive research considers this interconnection – as does critical urban research, using post-colonial approaches or (urban) political ecology – and then critically goes against the grain of its own assumptions and conceptions. However, these critical perspectives are almost nowhere to be found in the report by the German Advisory Council on Global Change on the transformative power of cities or in the report on the social contract, as has already been discussed in detail elsewhere (Bauriedl 2015; Bruns/Gerend 2018).

But if we then discuss global spatial development trends and the great transformation (which is also global) with a very narrow frame of reference for knowledge production, what can we see, recognise or know about the dynamics between nature and society in the Anthropocene and how they can be shaped? Very little. Our first task is therefore to acknowledge our lack of knowledge in order to be able to adopt a reflexive research position and to critically examine our own orthodoxies. This includes reflexivity with regard to the Eurocentrism which is inscribed into the Anthropocene (Morrison 2015) and which restricts our framework of thought and action. Chakrabarty talks in this context of the necessity of provincialising Europe (Chakrabarty 2009) in order to enable other regions and societies to have an independent historiography, interpretational sovereignty and knowledge production which is not centred on Europe. Recent urban geographical work takes this up and uses it to generate a contextual, situated understanding of the city (Lawhon/Ernstson/Silver 2014). This also permits other ideas to emerge of what a city is, could or should be. This epistemological expansion is described by Escobar as a pluriverse, which is contrasted with the singular universe (Escobar 2016) and which permits new, not yet imagined futures.

4 Future, shaping, participation

Future ideas which depart from the path of ‘continuing as things are’ emerge particularly clearly when it comes to dissent, conflict and resistance. In the energy, transport or agricultural transition, in debates about the right to the city or resistance against (control over) infrastructures or property investments, different ideas emerge about futures and development paths. Just by taking a glance at the petitions for referendums that have been submitted in Berlin in recent years and at the referendums that have taken place, one can see how controversial almost all areas of the provision of public services are: water, energy, rent/housing and mobility/bicycles were and are situated in the public discourse and have been politicised by these initiatives. The referendum about the remunicipalisation of Berlin’s energy networks may serve as a good example of this, because without the initiative for a referendum, the topic and thus the possibility of changing the previous development path would probably have remained invisible and undiscussed. However, the great transformation is not directionless, but rather – despite all the indeterminacy of the perspective being aimed at – directed towards a sustainable future. After all, the discussion is not about whether a transformation (in the sense of change) is taking place, but rather ‘in which direction and under what kind of logic and rationales’ (Brand 2016: 25). The spatial sciences should therefore study these discussions, resistances and conflicts carefully and examine previously unquestioned orthodoxies.

With the question of who is involved in the development of future ideas and the specific shaping of them, we will briefly address the aspect of participation – a topic which has unlimited relevance in the spatial sciences and planning practice. The socio-ecological transformation, which was described at the start as a normative project, would be well advised to think more critically about participation – which is usually reinforced by the argument of the co-production of knowledge – than is sometimes the case. Transformation, understood as an intended system change, will not be able to be characterised by win-win situations and broad acceptance – at least not if the basic relationships between nature and society are to be rethought and reshaped. Within critical governance and transformation research in the spatial sciences, this orthodoxy should also be questioned, as has already been noted by Ullrich Brand, since it is still the case that: ‘Most contributions argue for a transformation that is widely accepted, inclusive and legitimate, which should occur through well-informed and transparent decision-making’ (Brand 2016: 24). In this sense, participation would be more likely to have the role of addressing transformation as an emancipatory project (cf. Penderis 2012; Brand 2016).

Within this framework, it is also important to take a critical look at newer participatory, transdisciplinary instruments and approaches – including, for example, real laboratories. It is precisely in hyperdiverse urban boroughs (Tasan-Kok/van Kempen/Mike et al. 2014) that such quasi-formal formats are characterised more by processes of exclusion and only address a fraction of the population. From a methodological point of view, this entails enormous problems if the intended aim is collective knowledge production and its results are to be subsequently translated into specific tasks related to shaping change.

5 Conclusions

If the Anthropocene is understood as a gift from earth system scientists to academia, and therefore also to the spatial sciences, we should thank them in the form of research contributions which cultivate a reflexive approach to supposedly universal knowledge and orthodoxies. The concept of the Anthropocene may initially be interpreted only as a semantic shift, and possibly also as a further depoliticisation, which blurs the view of the structural obstacles to the great transformation and the possibilities for shaping it, but at the same time it is also an encouragement to participate in these discussions more actively than before in order to generate an equally powerful counter-discourse. (O'Brien 2012). In this sense, the discourse seems to me to be immensely useful for one's own positioning and reflection on this.

I would like to end this article with the quotation with which I also ended the presentation on which it is based:

'The [...] understanding of the world is much broader than the Western understanding of the world. This means that the transformation of the world, and the transitions to the pluriverse [...] might happen (indeed, are happening) along pathways that might be unthinkable from the perspective of Eurocentric theories'
(Escobar 2016: 16).

6 Acknowledgements

The present article is the written version of a presentation given in June 2018 at the TRUST Doctoral Colloquium. I pointed out in the introduction to that presentation that research is not only a reflexive but also a dialogical process. For this reason, I made reference to esteemed colleagues with whom I have discussed the Anthropocene, space and transformation: I presented a few preliminary thoughts with Markus Hesse at the Dortmund planning conference on the great transformation. I presented an explicitly decolonial perspective on the promise of the transformative power of cities with Jennifer Gerend (Bruns/Gerend 2018) and discussed this intensively with my entire working group at the Summer University on Decolonizing Urbanism. Finally, I adopted the notion and formulation of 'critically going against the grain' from Daniela Gottschlich, whose research greatly inspires me.

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Jana Kühl

PRACTICES AND INFRASTRUCTURES FOR SUFFICIENCY-ORIENTED LIFESTYLES

Contents

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Abstract

Limiting the anthropogenic environmental impact as part of the ‘great transformation’ is one of the central challenges of our time. However, ambitions to broaden sustainable ways of living are at odds with the consumeristic self-image of Western societies. In order to initiate a transformation, practices of sufficiency, which can already be found in nascent forms, can be used as exemplars for shaping social innovation processes. Based on alternative concepts of housing and living, resource-saving lifestyles which diverge from established ways of living can be identified. These can lead to mental infrastructures that motivate alternative lifestyles, as well as the need for infrastructures that enable sufficiency.

Keywords

Sufficiency – sustainable lifestyles – social innovation – everyday practices – go-along

1 Introduction

Containing climate change is one of the central debates of our time. However, this debate scarcely seems to have any impact on lifestyles in our society. Whether it is frequent meat consumption, frequent car journeys and flights or a generally constant compulsion to consume, activities with climate-changing and environmentally damaging impacts are usually a normal part of the daily lives of those who can afford them. By contrast, a sustainable lifestyle on the part of mainstream society is precisely what is needed in order to minimise environmentally damaging and climate-changing anthropogenic influences (WBGU 2011: 84). The concept of sufficiency can provide an orientation to promote appropriate lifestyles. Sufficiency is an approach and solution based on predominantly Western-oriented sustainability strategies which have arisen as a continuation of the Brundtland report (WCED 1991). The approach

gives substance to the normative aspect of sustainable lifestyles by emphasising responsible consumption as a necessary measure for climate protection, and provides a guideline for putting this into practice. The aim of sufficiency is to consume no more than necessary and to refrain from straining the environment and its natural resources in avoidable ways (Sachs 2015). While these aims are at odds with Western consumer societies, niches are frequently formed in which largely sufficient lifestyles are practised. They provide ideas and role models which can help others to imagine a sufficiency-oriented lifestyle. They can also stimulate social innovation processes in which both society's image of itself and everyday life are transformed in favour of more environmentally compatible lifestyles.

This article aims to contribute to the discussion of transformation research by addressing the notion of sufficiency in the context of the 'great transformation' according to the German Advisory Council on Global Change (*Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen, WBGU*). First, the notion of a post-growth society will be used to expand the aims of social transformation. On this basis, the concept of sufficiency indicates lifestyles that are aspired to as part of a social transformation and shows how sufficiency, as a social innovation, can be disseminated. To this end, sufficiency-oriented lifestyles will be proposed as exemplars of alternative practices, and a research design to identify these practices and use them as a stimulus for social innovation will be outlined.

2 Social transformation – context and aims

In the social sciences discourse on climate change, the work of the German Advisory Council on Global Change is particularly relevant in the German context. Its statements demonstrate that a drastic reduction of climate-influencing emissions is necessary in order to limit the negative effects of climate change and to protect the natural basis of human life. Crucial climate-changing factors are anthropogenic emissions which are continually increasing due to a resource-intensive economic system and way of life. In order to reduce these influences to the necessary extent, we not only need technological climate change measures but, above all, economic and social change. As a result, the German Advisory Council on Global Change is calling for a 'great transformation' to a climate-friendly society (WBGU 2011: 420). The transformation is described as a great transformation because it attempts to change global trends and aims at a new form of anthropogenic activity consisting of a decarbonised and resource-efficient (global) economy and society (WBGU 2011: 87). This requires a 'comprehensive change which envisages the restructuring of national economies and the global economy in order to avoid irreversible damage to the earth system, as well as to ecosystems and their effects on humankind' (WBGU 2011: 417). The addressees are predominantly Western industrialised countries. The lifestyles in such countries here leads to above-average consumption of resources in global terms, as well as an extreme strain on the environment which is largely at the expense of countries of production and resource exploitation outside the Western world. The German Advisory Council on Global Change (2011) calls for a socially just and ecologically responsible handling of natural resources and for the preservation of the aspects of nature which form the foundation for the life of humankind. It declares

social change to be a necessity which affects everyone. Transformation refers here to a socio-ecological transformation which pursues socially fair and ecologically sustainable economic systems and lifestyles (Schiemann/Wilmsen 2017: 8). In order to achieve this, 'not only must production and consumption patterns change, but also incentive systems, institutions, normative maxims and academic disciplines (first and foremost economics)' (WBGU 2011: 98). Thus, a transformation can only take place in the interaction between technological innovations and economic, socio-cultural and political changes, which lead to new practices as well as to new infrastructural and institutional frameworks of action. While it is largely accepted that a transformation is needed, there is disagreement in the scientific discourse about how such a transformation should take place. It is decisive for the success of a transformation that societies take active responsibility for sustainable economic systems and lifestyles (WBGU 2011: 84). Currently, however, it seems that a departure from consumer society and its growth characteristics is being pursued neither socially nor politically, with the result that there is no impetus towards active change (vgl. Welzer 2011). The German Advisory Council on Global Change (2011: 84) does identify a change in worldwide values in favour of sustainability and environmental protection. Likewise, surveys by the German Environment Agency (*Umweltbundesamt*, UBA) identify a growing environmental awareness in the German context (*BMUB* [Federal Ministry for the Environment, Nature Conservation and Nuclear Safety]/UBA 2017). However, this is not generally reflected in an environmentally aware lifestyle. The desired transformation necessitates changes to routines, which are usually difficult to make (vgl. John 2013). It requires changing resource-intensive consumer behaviour, which entails limiting the conveniences which are based on consumer goods and material prosperity. However, knowledge of the 'right' action, on its own, does not seem to generate sufficient pressure to act. These changes seem uncomfortable and will presumably only be implemented by the majority if individual threats can be averted and there is a discernible individual incentive for doing so (e.g. for the enactment of one's own lifestyle and the acquisition of social capital), or if changes become necessary due to the behavioural expectations of one's own social reference groups and ordinances. Psychological and anthropological research predominantly deals with questions of individual behavioural change (vgl. u.a. Hübner 2012), whereas spatial planning and sociological spatial research are focused more on considering social and political processes and the action-relevant contexts of a transformation.

In current Western society, climate protection achievements can already be identified, such as the use of renewable energy. Changes in social consumer practices can also be observed, such as a growing market for fair trade and organic products (Wenzel/Kirig/Rauch 2008). However, these individual adaptations do not constitute a comprehensive solution. The consumption of sustainable products, for example, can partially limit consumption-driven environmental damage. However, the causes of ecological problems – the pursuit of growth on the part of capitalist economic systems and a social striving for happiness, self-worth and satisfaction by means of consumption and always wanting more – remain intact (cf. Paech 2016). Even the strategy of the German Advisory Council on Global Change seems to persist in the logic of this consumerism. It propagates the consumption of sustainable products which create a 'moral added value', as well as 'the (self-)awareness of doing something useful and good for the environment and posterity and of being recognised by others for this' (WBGU 2011:

274). Here, satisfaction ('moral added value', 'something useful and good') and social recognition ('(self-)awareness', 'being recognised') are pushed via consumption, thus suggesting a partial modification of consumption habits, but not a transformation towards a consistently resource-saving, environmentally friendly and socially responsible lifestyle. Accordingly, critics see the necessity not of a transformation but of a fundamental transition in the sense of overcoming capitalist economic and social systems and the associated social relationships with nature (Brand 2014; cf. e.g. Jonas 2017). Approaches to a post-materialistic society offer indications of how to overcome this path dependency on a capitalist logic.

3 On the path towards a post-materialistic society

In many respects, the lifestyles that are common in society are guided by socially shared ideas of a good life. A good life refers here to a successful or satisfying way of shaping your life, and is expressed in personal happiness in the sense of fulfilment. At the same time, the good life is understood as 'an action, an activity guided by reason and feeling' (WBGU 2011: 84). How a good life is shaped can vary greatly depending on attitudes, value systems and convictions. Moral principles also serve as guidelines and boundaries within which the aspiration towards a good life is shaped (vgl. Ott/Voget 2013). In Western consumer societies, the good life is predominantly defined by material prosperity; this goes hand in hand with a social status which is expressed in material terms. Here, 'activity' is directed by individual utility, as well as by the aspiration to increase personal happiness by means of consumer goods (vgl. Haubl 2009). In contrast to this, the aim of a resource-saving and environmentally compatible economic system and way of life can be thought of as a post-materialistic attitude which highlights alternative paths to thinking in terms of capitalist growth.

The concept of post-materialism originates in Inglehart (1977) and stands for a value system which departs from a consumer orientation and the striving for material wealth. Fromm (1976) speaks in a similar way about a post-materialistic lifestyle. This and its underlying values form the core of a post-growth economy. They formulate an economic system which does without growth and which strains natural resources as little as possible (Jackson 2009; Schulz 2012; Paech 2016). At the same time, it proposes an understanding of a good life which is based on findings from happiness research. According to this, an accumulation of material prosperity does not, per se, lead to an increase in personal satisfaction (Haubl 2009: 4 f.). Consumer society is an affluent society in which the majority possess more than is necessary and new consumer needs are permanently being suggested (Paech 2016: 110 f.). Following this suggestion, members of a consumer society invest their individual resources in gainful employment in order to be able to afford consumer goods and thus create fulfilment. However, fulfilment remains elusive as long as other consumer goods remain unattained, and with them unfulfilled promises of the attainment of social status, happiness and satisfaction (Haubl 2009: 5 f.). Even more income is needed in order to acquire these. At the same time, business optimisation processes mean that more tasks often have to be performed in working life, resulting in time pressure and a pressure to perform which results in overstraining (Böhle 2018: 77 et seq.; Haubl/Hausinger/Voß 2013). This strain exacerbates symptoms such as frustration, but also depression

and burnout, stress-related health problems, and social tensions and resentment. Gainful employment therefore becomes more of a physical and psychological burden rather than resulting in prosperity (Best/Hanke/Richters 2013: 2). Stengel (2011: 16) describes this as a ‘pathology of modernity’. A post-materialistic way of life aims to break through this cycle and locates fulfilment precisely in freedom from consumption and possessions. Accordingly, freedom from superfluous consumption enables freedom from the unsatisfying search for fulfilment through material goods and, at the same time, lessens the dependency on earnings. Instead, capacities for self-realisation are opened up by shaping a lifestyle with as much freedom as possible. Here, self-worth and social status are measured not by possessions but by immaterial wealth such as social relationships, self-efficacy and deceleration, freely available time and leisure for personal development (time sovereignty) (Paech 2016: 126). Equally, fewer possessions liberate people from burdens and the fear of material loss. To paraphrase Fromm (1976), fulfilment lies not in ‘having’ but in ‘being’ – being liberated from material possessions and status symbols.

The German Advisory Council on Global Change also cites the ideal of a good life which is oriented towards post-materialistic values: ‘It is not solely or predominantly based on a large number of material goods, on conveniences or pleasures, but on the fulfilment of humankind in a comprehensive sense which is beneficial to fellow humans and the environment. This includes self-development, i.e. the development of the possibilities available to a person, as well as public spirit, the assumption of responsibility for the general good, and a range of principles of justice. “Good living” is generally dependent on the fulfilment of certain basic needs, and also on the existence of an individual’s space for manoeuvre and options which must be secured by material standards. Beyond this – and across cultures – immaterial factors play a role in the pursuit of happiness, such as acknowledgement by others, embedding in communities and networks of various, but above all familial, types, but also the fulfilment of aesthetic and hedonistic pleasures’ (WBGU 2011: 85). A social transformation can therefore be guided by an image of the good life which is oriented towards a post-materialistic value system. According to this argument, the concept of sufficiency can highlight how this vision can be transferred to lifestyles in society.

4 Sufficiency and social transformation

Sufficiency (Latin *sufficere* = to suffice) refers to using natural resources in moderation by means of a modest, less materialistically oriented lifestyle (cf. Kleinhüchelkotten 2005). The concept originates in the sustainability strategy triad, according to which the interaction between sufficiency, efficiency and consistency leads to the implementation of sustainability goals (Huber 1995). Efficiency in this context means an increase in resource productivity. Consistency aims at the use of more nature-compatible technologies and substances, as well as the optimisation of material flows in production, in order to reduce negative environmental influences. Sufficiency, consistency and efficiency are used above all in the context of economic interests, in order to decouple economic growth from resource consumption and emissions and to enable ecologically friendly growth (Huber 2000). Sufficiency serves here as a complement and corrective to the effects of consistency and efficiency. In contrast,

approaches which promote a post-growth economy emphasise that economic growth is not compatible with the requirements of climate protection (Linz 2002; Paech 2005). Resource consumption and the emissions caused by production and consumption practices are increasing globally to a greater extent than they can be reduced by measures taken within the efficiency and consistency strategy (Stengel 2011: 134). Thus, sustainable development within the natural limits of growth can only be achieved by a consistent saving of resources (cf. Schiemann/Wilmsen 2017). Following this, sufficiency is emphasised as the prerequisite for the achievement of ecological goals, and as a contribution to the promotion of global distributive justice. 'The criticised efficiency principle can be countered by the concept of sufficiency, i.e. the question of how (particularly in the "Global North") material consumption can be reduced without negatively impacting people's satisfaction or well-being, and at the same time contributing to a fairer resource distribution to improve living conditions in economically disadvantaged population groups and regions' (Schulz 2012: 266). Here, sufficiency encompasses two things: 'In the narrower understanding, it forms the counterpart to efficiency, is directed towards a lower consumption of resources and is therefore quantitative in nature. The broader understanding is directed towards a new sense of prosperity and to the cultural change which is both its prerequisite and its result' (Linz 2002: 13). Sufficiency is also seen as a macro-social task: 'It addresses the insight and behaviour of individuals, groups, bodies and institutions. It affects political planning as much as the action of individuals' (Linz 2002: 12). Sufficiency is not explicitly mentioned in the strategies of the German Advisory Council on Global Change, although an ecologically responsible, resource-saving way of life is among the core objectives of transformation. If sufficiency is understood to be a concept that not only demands sustainable lifestyles but also realises them in practice, it can be used in pursuit of bringing a social transformation to fruition.

Practising sufficiency requires a voluntary restraint which is guided by a sense of responsibility for nature and the environment and is based on a post-materialistic understanding of prosperity and quality of life (Ott/Voget 2013). The concept therefore converges with the voluntary simplicity movement (*voluntary simplicity*) (cf. e.g. Elgin/Mitchell 1977). Without wishing to operationalise sufficiency (cf. Kleinhüchelkotten 2005), sufficiency means 'avoiding or reducing particularly resource-intensive types of goods (e.g. TV, meat), doing with less in terms of size, functions and convenience (a smaller flat, a car without air conditioning), replacing goods with qualitatively different ones (bicycle instead of car), extending the operating life of products, using products less frequently (e.g. of electrical appliances), making or producing things on one's own or sharing use' (Fischer/Gießhammer 2013: 9, Herv. i. Orig.). However, at least one question remains largely unanswered: How can this way of life become established? Critics designate sufficiency, in the sense of post-materialism, as idealistic and not feasible (Linz 2002); they argue that it is human nature to strive for more (Lütge 2013). The guiding principle of dematerialising one's lifestyle is interpreted as a restriction which entails a loss of the existing standard of living (Kleinhüchelkotten 2005: 56 f.). In today's society, consuming less and having fewer consumer goods is also regarded as a social decline (Linz 2002: 8). Proposals for ecologically responsible practices are scorned as 'eco-dictatorships' and rejected, particularly by political conservatives and economical liberals (cf. Adler/Schachtschneider 2010). Anyone who practises sufficiency in a society oriented towards

consumption and status acquisition breaks with the social mainstream and provokes social exclusion (Jackson 2009). Overcoming this consumerism within society means an 'inner reversal' of the existing logic of action and therefore a rethinking which is tantamount to a cultural rupture (Best/Hanke/Richters 2013: 107). Approaches to this might be to de-legitimise the established logic of consumerism and to overcome a 'mental, habitual and emotional attachment' to the established behavioural patterns of consumer society (Welzer 2011: 34). Such a transformation requires 'new structures that provide capabilities for people to flourish, and particularly to participate fully in society, in less materialistic ways' (Jackson 2011: 161). This realisation, in turn, leads to a search for ways to implement this change. According to the German Advisory Council on Global Change, for social change to happen, 'suitable narratives of change should be developed, so that these can be fed them into everyday discourse through creative forms of knowledge communication, and develop further scope there' (WBGU 2011: 24). This task seems complex: 'The daily opened journal of all the available things forms a self-evident universe which is difficult to narrate against, particularly because the majority of mental infrastructures are in fact not reflexive, not a question of choice or decision and certainly not an offer, but simply a massive pre-existing world into which one is born and the history of which one constantly continues to tell through one's own biography, one's values, consumer decisions and career' (Welzer 2011: 32). According to this view, the dissemination of sufficiency requires narratives with the quality of a mission statement by outlining a desirable antithesis to the pursuit of consumerism and showing an alternative direction of development. However, in order to break up established modes of action along these lines, these narratives must also be translated into actual lifestyles. The consideration of sufficiency as a social innovation can be discussed as an approach to this.

5 Shaping sufficiency as a social innovation

Social innovations are viewed, alongside technological innovations, as the main path towards a transformation (WBGU 2011: 23). They encompass 'new ways of achieving goals, and in particular new organisational forms, new regulations, new lifestyles which alter the direction of social change, which solve problems better than earlier practices, and which are therefore worth being imitated and institutionalised' (Zapf 1994: 33). The process of social innovation goes hand in hand with restructuring, re-organisation or even re-creation, which is conceived, negotiated and adopted in social processes and is ultimately reflected in a reconfiguration of social practices (Howaldt/Schwarz 2010: 89). However, this reconfiguration cannot be achieved solely by a growing environmental awareness (cf. section 2). Knowledge of the 'right' way to act reaches 'only the cognitive part of our orientation apparatus; the far greater share of our orientations, which is organised by routines, interpretive patterns and unconscious references – in short, by habit – remains completely unaffected by this' (Welzer 2011: 38). Accordingly, social innovations only take place by changing those habitual orientations which implicitly guide social practices (Howaldt/Schwarz 2017: 240). According to Welzer, (2011) these habitual orientations can be described as mental infrastructures. They are the reflection of social disposition and value systems as well as cultural contexts, and instruct routines, habits, and perceptual and interpretive patterns (Welzer 2011: 30). In order to stimulate social innovation towards a sufficien-

cy-directed lifestyle, specific orientations for this must therefore be initiated. But how can this work?

Social innovations are social processes which occur as a change in specific social practices (Howaldt/Schwarz 2017). These practices may be guided in a meaningful way by specific orientations of mental infrastructures. At the same time, mental infrastructures themselves are formed, disseminated and reproduced in social practices. In order to change mental infrastructures, practices which serve as exemplars for the practices of others must therefore change (Welzer 2011: 39). Schwarz/Howaldt/Kopp (2015) refer here to social innovations by means of alternation between inventions (new practices) and emulation. In the conceptualisation of social transformation processes, the exemplar function intended for emulation is held by the pioneers (WBGU 2011: 256 ff.). Pioneers are individuals or small groups who initiate and shape changes by rethinking existing conditions and trying out alternatives. They also participate in the dissemination of new ideas (WBGU 2011: 419). Subcultural groups which pursue alternative living concepts in social and spatial niches and thereby practise aspects of sufficiency may be regarded as such pioneers (Adler 2016: 16). They are not only crucial players who 'can plausibly demonstrate the limits of the established social concept (in this case, an economic system largely based on the use of fossil fuels, known as the high carbon economy) and have at their disposal (attractive) guiding principles (narratives) towards which social change can be oriented' (WBGU 2011: 90). Their practices are exemplary on an abstractly meaningful level, and could be described as action-driving mental infrastructures in the narrower sense. In their activities, they demonstrate certain motivations and moral guidelines which can be adapted by others. Thus, for example, a visibly responsible relationship with the environment may be taken as a moral benchmark for the orientation of social lifestyles. Their efficiency, their zeal and ultimately their ability to make a successful (alternative) lifestyle concept visible can also help to exemplify a lifestyle geared towards sufficiency in a way that appears feasible and desirable. Thus, through exemplars for a fulfilling way of life, sufficiency can be liberated from its associations with restriction and sacrifice (Best/Hanke/Richters 2013: 8). Furthermore, they have developed expertise about how sufficiency can be put into practice, and therefore provide orientation for realising sufficiency-orientated lifestyle. (Adler 2016: 4). Bringing these practices to fruition, in turn, requires not just expertise, motivation and moral guiding principles but also appropriate conditions for action. Here, the experiences of the pioneers enable conclusions to be drawn regarding institutional infrastructures as formal frameworks which enable sufficiency and offer options for acting in different ways.

Based on these conceptual assumptions, the shaping of social innovation processes can be understood as the task of shaping social desires and practical abilities. This can in turn be transferred to the shaping of infrastructures. Infrastructures refer, in this context, to 'the entirety of material, institutional and personal facilities and circumstances which are available to the collaborative economy (companies, households, authorities)' (Frey 2005: 469). Infrastructures shape functions in the social and economic interest. In this capacity, they also contribute to the 'practical ability' to live a sufficiency-oriented lifestyle. Social innovations take place within particular material and institutional framework conditions, which open up a space of

opportunities with regard to social practices. Among these, infrastructures which offer a type of physical use and other tools or aids enable or facilitate sufficiency-oriented lifestyles (Shove/Pantzar/Watson 2012: 121). These infrastructures can also invite people to adapt to a sustainable lifestyle. For example, the expansion of cycling highways as a transport infrastructure both enables and recommends fast cycling on new routes. Likewise, cycling highways structure the possibilities of cycling and exclude other mobility practices such as personal car use. At the same time, the creation of these infrastructures is a formal recognition of the value of cycling and emphasises it symbolically. Just like material infrastructures, institutionalised regulations such as ordinances, requirements and prohibitions can promote, demand and socially legitimise the dissemination of sufficiency. Taking a further look at how infrastructures work, the shaping of 'desires' can be substantiated with the aid of orientations and patterns of meaning for mental infrastructures. Mental infrastructures enable certain practices by first making them conceivable and then meaningfully legitimising them. They structure practices along socially shared orientations and imply that particular practices are desirable or appropriate. This structuring and orientation capacity of mental infrastructures is inspired by role models of successful sufficiency-based lifestyles; these role models can also be used for strategic social dissemination. At the same time, an ability requires the adaptation of practical expertise in order to realise a lifestyle geared towards sufficiency, which can also succeed by means of practical role models.

6 Empirical focus

Role models which inspire social innovation towards sufficiency-oriented lifestyles demonstrate specific practices in which sufficiency can be observed and thus practically imitated (Howaldt/Schwarz 2017: 241). According to a broad understanding, those practices which save resources or replace them by more environmentally compatible solutions can be understood as sufficiency-oriented lifestyles. These practices are a result of practical learning processes about how sufficiency can be realised. The experiences gained here become visible through empirical observation and therefore enable social adaptation processes (Schwarz/Howaldt/Kopp 2015). In the process, sufficiency touches on a change in all areas of life, such as leisure time, working life, goods provision, diet, energy usage, mobility and housing (Howaldt/Schwarz 2017: 241). For an empirical observation of these practices, the housing situation could be selected as the starting point for various other aspects of life. This is usually where the course of practical life begins, which means that practices from different areas of life can often be traced back to the housing situation. At the same time, the housing situation itself forms the centre of local living environments in which alternative practices can be implemented (Best/Hanke/Richters 2013: 112). In order to identify sufficiency-oriented lifestyles, it is appropriate to choose local living environments which can be described as places of specific or real utopias of post-materialistic societies (Howaldt/Schwarz 2017: 243). This means places in which lifestyles are practised which, at least in part, defy consumerism and in which fewer material resources are used. Alternative housing initiatives can be suggested hypothetically as places of lived utopias for this purpose. They represent stereotypes of an alternative way of life which must then be empirically verified. The selection of

typical housing initiatives serves as a heuristic in order to seek out sufficiency-oriented practices and lifestyles. These should reveal possibilities for social adaptation and enable conclusions to be drawn about infrastructures which can promote sufficiency. Equally, the selected forms of housing and lifestyles make the spatially structured conditionality of sufficiency in practice tangible. Specifically, housing initiatives are considered whose initiators pursue shared socio-ecological objectives and exercise practical social/system criticism. It is assumed that people who choose such forms of housing at least partially share socio-ecological ideals as an action-driving orientation, while the form of housing and lifestyle implies a more moderate use of natural resources. The heuristic types of housing initiatives are characterised as follows:

- > In the 'socio-ecological cooperative' type, settlements which are ecologically constructed and cooperatively organised serve as indicators of socio-ecologically aligned ways of life which are realised in an institutionalised context. These include ideal and typical cooperative settlements in apartment buildings which adhere to ecological building standards and have joint use of gardens and usable space. They provide material arrangements and social settings for a potentially ecologically responsible way of life. Equally, institutionalisation as a cooperative as well as the practice of a solidarity-based sliding scale of rents indicate a sense of social responsibility and a departure from capitalist logic.
- > The 'alternative housing' type considers initiatives and projects which exist without legal legitimation, are tolerated, and/or temporarily granted legal permission. The peculiarity of this type is that the chosen form of housing embodies a protest against the capitalist economic system and practises initiatives for affordable housing. The participants thus practise alternative ways of living which are differentiated from the social mainstream. Characteristic of this is a simple life which results in reduced consumption of resources in comparison with the societal average. As an indication of this, the examined forms of housing are only partially connected to the public supply infrastructures (especially electricity and water). The technological devices such as household appliances and entertainment electronics are also below the societal average.
- > The 'opt-out' type considers provisionally and autonomously created informal accommodation as an indicator of alternative ways of life. This includes secluded, isolated dwellings with a simple standard of fittings, whose inhabitants are typically described as persons who opt out, reject the usual employment patterns of capitalist consumer society, and attempt to practise alternative life strategies. Ideally/typically, they pursue a life without regular financial income, restricted to a minimum of material furnishings. This type is primarily located in non-German countries in Southern Europe and South-East Asia.

Places constructed in this way serve as the basis for ethnographical *go-alongs* (Kusenbach 2003; Kühl 2016). Inhabitants of these places are potential pioneers of sufficiency who are accompanied by others who seek to get to know their lifestyle and thus to identify mental, material and institutional infrastructures which promote sufficiency. Table 1 operationalises the sought-after indicators in promoting sufficiency.

	Object	Aim	Empirical view	Structural level
Desire	Mental infrastructures	Identification of activity-driving orientations	Convictions Motivations Emotions	Lifestyle
Ability		Practical knowledge transfer	Visible know-how	
	Material infrastructures	Creation of beneficial usage options	Materially conveyed possibilities	Living environments
	Institutional infrastructures	Impetus from incentives and constraints	Regulations and ordinances	Binding frameworks

Table 1: Empirical indications – the options for shaping sufficiency-based lifestyles /Source: the author

In the observed practice of the accompanied pioneers, orientations which drive action are identified which provide indications of mental infrastructures which can bring a changed way of life to fruition. These include convictions, motivations and emotions which show how a ‘desire’ can be stimulated. Likewise, the practices of the pioneers constitute performative role models for the reorientation of routines, as well as for the adaptation of practical know-how as to how sufficiency can be lived out. Alongside these, the material infrastructures which enable sufficient practices are demonstrated. This can also indicate the institutional frameworks which enable and legitimise sufficiency. Using this insight into the infrastructures underlying the desire for and ability to live in a sufficiency-oriented way, alternatives to the mainstream of consumer societies can be revealed. It is also possible to determine what hinders sufficiency. The objective is not so much to name specific practices of sufficiency as to raise awareness of alternative ideas and to demonstrate options and possibilities as to how they can be adapted to everyday life.

7 Conclusions and outlook

The approach described here illuminates possibilities for the strategic implementation of a social transformation based on the sufficiency principle. Specifically, the observation of existing practices of sufficiency-oriented lifestyles can be used to formulate political programmes and spatial planning measures which provide an impetus to change social practices by means of the strategic shaping of suitable infrastructures. At the same time, the aim should be to soften social consumerist self-images. Many approaches which are pursued in the context of a transformation start with a small change, for example when projects are tested locally to sound out the

potential for their dissemination. On the other hand, few approaches and initiatives aim to change existing social systems and the self-images and practices established in them (Howaldt/Schwarz 2017: 243). This, however, is precisely what seems to be necessary in order to overcome the trajectory of non-sustainable lifestyles. Some authors, such as Jonas (2017), go a step further and demand a redefinition of the anthropocentric human/environment relationship as the starting point for social change. The discussion of strategies and solutions for this is largely still in its infancy. The approach presented here can help to identify role models for unconventional ways of living which can be used to develop ideas of what a sufficiency-oriented lifestyle actually looks like. It is precisely possibilities for overcoming the mainstream in favour of post-materialistic ways of thinking and acting that are sought, in which the environment is treated as an object of protection.

The extent to which post-materialistic ways of thinking and acting are disseminated is subject to social negotiations. It was not possible to consider this aspect in this article, but it is of central importance for the dissemination of such alternative lifestyles. For example, it should be asked how a practice directed towards sufficiency can achieve the same normality which is inherent in currently established practices (Link 2013; Jaeggi 2014). Decisive for this are, in particular, coalitions of interests, power relations and regimes which enforce social structures and create patterns of meaning which drive actions. Thus, the self-image of a largely non-sustainable lifestyle must firstly be overcome in order to establish sufficiency. In the process, mental and material infrastructures offer the potential for revealing – in addition to objective arguments – emotional incentives and practical possibilities for sustainable lifestyles. However, change will be unlikely to succeed without a ‘policy of sufficiency’ which provides the institutional and infrastructural framework necessary for this (Best/Hanke/Richters 2013: 110 ff.).

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Jessica Baier

FROM A MATERIALLY PRODUCED TO A SOCIALLY CONSTITUTED SPACE: A PROPOSAL FOR A NEW RESEARCH PERSPECTIVE ON PUBLIC SERVICE PROVISION AND INFRASTRUCTURES IN RURAL AREAS BASED ON A RELATIONAL THEORY OF SPACE

Contents

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Abstract

This article uses research in relation to the provision of public services and infrastructures to support the thesis that primarily one particular perspective on space – namely a material or quantifying perspective – is reflected in current empirical research. The article thus proposes the use of the concept of relational space by Martina Löw (2001) in empirical research to improve our empirical understanding of the space relevant for local people. To conclude, potential insights gained are outlined on the basis of the conceptualisation of a study of private colleges in rural areas in Germany.

Keywords

Public service provision – social infrastructure – rural areas – relational space – private colleges

1 Introduction

The traditional concept of public service provision in the sense of a comprehensive state responsibility for the provision of services for the common good which are essential for life (Einig 2008: 17; Knorr 2005: 35) is currently being turned upside

down, particularly due to changes in society and the processes associated with these. A successive reconceptualisation based on the model of the state as guarantor (Schuppert 2001: 219 et seq. and Schuppert 2005: 11 et seq. after Einig 2008: 17), which is no longer responsible for actually providing but merely for guaranteeing services (Hoffman-Riem 2001 after Einig 2008: 17), thus makes research on this subject relevant both for the spatial sciences and the social sciences.

The present paper puts forward the thesis that primarily one particular perspective on space influences current research on the provision of public services and infrastructure and/or the guaranteeing of infrastructural services. By expanding the focus of the conception of space to include a relational understanding (Löw 2001) with socio-spatial structures, people and goods can be viewed within empirical research both in their materiality and in their social relationships to each other. This spatial understanding also allows empirical research on the provision of public services and infrastructures to provide action-relevant knowledge (e.g. about people's needs or the shaping of ways of life in a given locale). This type of knowledge generation can particularly enrich research on functionally peripheral, rural areas, which, in view of the social change processes, face particular challenges with regard to the provision of public services and the guaranteeing of infrastructure (cf. e.g. ARL 2016 and Kersten/Neu/Vogel 2012).

By conceptualising a current study by the author on private colleges, this paper shows how a relational concept of space can allow the spatial structures which characterise rural areas to be empirically captured in their heterogeneity. Its intention is therefore primarily to introduce a research strategy which demonstrates a new perspective.

By way of introduction to the topic, a brief, general overview of the social change processes with regard to their significance for the provision of public services and the associated understanding of infrastructure will be provided at first. In a next step, the reciprocity of spatial and social dimensions of a changing society will be demonstrated. Particular attention will be given to the challenges which occur in the provision or guaranteeing of infrastructural services in rural areas in the context of social change.¹

After setting out the challenges to the provision of infrastructures in rural areas, the article will address the phenomenon of private colleges and the associated potential for rural locations. It will be shown that the qualitative impact in these locations, or in other words the impacts which are not quantifiable, have thus far been relatively neglected in empirical research, where a material, quantifying perspective on space and the spatial provision of infrastructure largely prevails.

The article thus derives the plausibility of an expanded perspective on the conception of space within empirical research. The relational understanding of space put forward by Martina Löw (2001) will then be introduced and explained for the conceptualisation of a study of private colleges in rural areas. This new perspective leads to an ap-

1 This article aims to address the research literature which correspondingly supports the thesis set out here. It is neither possible nor intended to reproduce the discourse on the provision of public services and infrastructure in functionally peripheral rural areas in full at this point.

plication section outlining the potential of the insights gained from this relational understanding of space, particularly for research in rural areas in the context of the current challenges of social change.

1.1 Overview: public service provision and the associated understanding of infrastructure in the context of social change

The transition from an agro-industrial society brought with it social, economic and demographic changes (Arbo/Benneworth 2007: 10 as well as van Laak 1999). The provision of public services by means of a comprehensive development of infrastructure (Forsthooff 1938) came onto the political agenda with the aim of reducing the unemployment caused by this transition, strengthening the welfare state and reforming the industrial sector in order to promote employment and prosperity. Spatial planning and development was accordingly pursued strategically in order to promote social and economic development in structurally weak areas (Barlösius 2006; Arbo/Benneworth 2007: 10 et seq.). As an instrument of development policy and ultimately for the stimulation of employment and the economy, primarily large, central infrastructural buildings were erected (van Laak 2006: 170 et seq.). The concept of infrastructures therefore developed closely with that of public service provision, which comprised administrations' legally secured participation in infrastructural and other services which were to be provided by the state (van Laak 1999, 2006: 175; Knorr 2005; Barlösius 2006).

A combination of social and spatial development therefore resulted from the intention of supporting social change through the spatial provision of local public infrastructure, as well as the development and expansion of infrastructural facilities. Thus, the creation of spatially standardised infrastructure was governed by the ideas of equal opportunities to participate in society, the complete integration of all people in society and the equivalence of living conditions, which were implemented by means of this infrastructure (Barlösius/Neu 2007 and Barlösius 2016). In addition, infrastructures constituted an effective means for using and ordering public space by shortening time and space and by functioning as mediating object-based systems between people and nature (van Laak 1999, 2006: 167 et seq.; Barlösius 2016: 207).

The discussion within the spatial sciences identifies the turning point in the development presented here as the early 1980s. This was the first time since the efforts at reform that economic stagnation and inflation set in and the underlying development strategy became inadequate. According to this view, the change from an industrial to a service and then to a knowledge society, driven by technological and economic globalisation, reduced the relevance of many industries and led to people being displaced from the labour market because their qualifications were becoming obsolete (Arbo/Benneworth 2007: 12 et seq.; Kersten/Neu/Vogel 2012: 9 et seq.). Together with demographic change, macrosocial developments effected changes, both to the demands for the provision of public services by the welfare state and with regard to their financial feasibility; these changes still affect the need for infrastruc-

tures and the associated services today.² In this context, a distinction is made between qualitative, quantitative and spatial structural change in the need for infrastructures. The first of these results from the increase in the proportion of old people in the population at the same time as a reduction in the proportion of young people, whereas the quantitative change results from the overall decline in the population, decreasing settlement densities and fewer employed people (Einig 2008: 25). Spatial change in relation to these needs, on the other hand, relates to safeguarding basic provision of public services across the board, which is increasingly difficult to implement (ibid.).

2 The reciprocity of the spatial and social dimensions of a changing society and their challenges for functionally peripheral rural areas

As shown in the overview, investment in the development and expansion of infrastructure for large-scale spatial organisation brought with it an economic and social upgrading. The underlying strategy of the provision of public services was based on the assumption of constant economic prosperity and a growing society. However, it also became clear that the development strategy was becoming less and less appropriate, since these assumptions were no longer a given, or were only so to a much lesser extent.

Currently, spatial development in Germany is characterised ‘[...] by a juxtaposition of demographically and economically growing, shrinking and stagnating spaces’ (ARL 2016: 4). Whereas infrastructures in structurally weak, sparsely populated and functionally peripheral spaces are losing their economic viability (Kersten/Neu/Vogel 2012: 10 et seq.), the utilisation rate in other areas may already be above capacity (ARL 2016: 4). The maintenance of services to be provided in the sense of public service provision by the welfare state is being renegotiated in the process. There are discussions about what constitutes an acceptable minimum quality of public services which is offered at socially acceptable prices, comprehensively and within an acceptable distance of people (ARL 2016: 2 et seq. and Einig 2008: 25 et seq.). Acceptability is derived from the central-place theory (Christaller 1933), which is intended to guarantee comprehensive basic provision and, beyond this, the provision of goods for a higher level of or more specialist needs in some places (Einig 2008: 27 et seq.).

Thus, the provision of public services, understood as the safeguarding of basic needs and creating the possibilities for a self-sufficient life (ARL 2016: 2 et seq.), changes in its conception from a state of comprehensive infrastructural provision to a task which must be fulfilled by the ‘triad of three service principles’ (ibid.: 3 et seq.) of the market, the transfer and reciprocity between state actors, the economy and civil society. Although this strategy seems suitable for meeting the challenges of social change

2 However, it should also be noted at this point that this reflects the discourse in the spatial sciences. In parallel to this, for example in the social sciences, there are interpretations which link the departure from the principles of the welfare state in the provision of public services to changes in the political agenda, which are legitimated by the transition to a knowledge society (cf. e.g. Barlösius/Neu 2007).

with regard to financial sustainability and the utilisation of infrastructural facilities at the macro level, it results in social inequalities for the actors, social groups and individuals at the micro level, which are reflected in their specific life opportunities and possibilities.

This is the case, for example, when the opportunities for participating in society which should enable all citizens access 'to desirable goods such as jobs, education and health' (Barlösius/Neu 2007: 82) are called into question in these structurally weak, sparsely populated and functionally peripheral areas (ARL 2016: 6; Barlösius 2006: 17). This subsequently results in a form of social – namely territorial – inequality for those affected, which reduces their life opportunities (Barlösius/Neu 2007: 82 et seq. and Barlösius 2006.) In spatial planning, this is referred to as vulnerability, i.e. the vulnerability of individuals and social groups in relation to specific environmental influences. Individuals are regarded as vulnerable to particular environmental influences if they are unable to sufficiently cope with the deterioration of those influences (cf. Bolte/Bunge/Hornberg et al. 2012; Köckler/Hornberg 2012). For example, if an individual's functionally peripheral, rural place of residence, which they are unable to leave (e.g. for financial or social reasons), results in systematically less favourable access opportunities to adequate education or other infrastructural services, this has a negative effect on their life opportunities and they are socio-structurally disadvantaged. Accordingly, it is precisely at the micro level of individuals that the reciprocity of the spatial and social dimensions of social change processes becomes tangible.

The fact that access to desirable goods such as education is not just central in the context of the knowledge society but also a prerequisite for many other economic and social processes – including in rural areas – is demonstrated, for example, by the increasing number of private providers in the education sector. In the following section, the article will look at the specific example of private colleges in rural areas.

3 Private colleges in rural areas

Private colleges in rural areas present an interesting empirical phenomenon. With reference to section 70 of the German Higher Education Framework Act (*Hochschulrahmengesetz, HRG*), the German Science Council (*Wissenschaftsrat, WR*) defines them as a subgroup of non-state universities. These are defined as universities which are not sponsored by a federal state (*WR* 2012: 14 et seq.). Private colleges are specifically defined here as '[...] all non-state universities which are operated privately in the narrower sense' (*ibid.*). They are characterised by a comparatively compressed offer of (predominantly) fundamental degree courses, as well as mostly dual or part-time training oriented towards the regional labour market (Frank/Hieronimus/Killius et al. 2010: 6 et seq.). The different educational tasks of colleges range from the academisation of former apprenticeship-based vocations to distance learning or online degrees for target groups with a particular need for flexibility, to the provision of practically oriented degree courses with the possibility of immediately joining a company which partners with the college (*ibid.*). The first colleges were founded in the 1990s, hence they are a comparatively new phenomenon,

but their increasing presence throughout Germany means that privately operated colleges can no longer be considered a peripheral phenomenon (Frank/Hieronimus/Killius et al. 2010: 6). In its list, which is updated daily, the German Rectors' Conference (*Hochschulrektorenkonferenz, HRK*) currently counts 116 officially recognised colleges and universities which are operated privately in Germany (*HRK* 2018b). Of these, eight private universities of applied sciences³, with a total of approximately 5,800 enrolled students, are located in Lower Saxony.⁴

In the research on the provision of public services and infrastructures, private colleges are noteworthy, particularly in view of heterogeneous socio-demographic developments in rural areas and the challenges to the provision of infrastructure outlined above. Thus, it may be precisely private institutions which can guarantee opportunities for participation in social life, communication and access to desirable goods (cf. Barlösius/Neu 2007 and Barlösius 2006), such as to education or the labour market, in structurally weak, sparsely populated and functionally peripheral areas.

Because of their financing structure, organisation and the nature of what they offer, private colleges can select their location independently of spatial planning logic such as the central-place theory (Christaller 1933). For example, in Lower Saxony it can be observed that private colleges – similarly to their state counterparts, universities of applied sciences – are increasingly choosing locations outside the large university towns and in rural areas. Thus, it is precisely these colleges which can contribute to spatial structuring and social participation in those areas in which investment in state (social) infrastructural facilities is increasingly at risk due to spatial planning logic. For example, they do this by offering training and education outside the state-funded structures and, in the process, involve regional stakeholders (e.g. companies by means of partnerships in dual work/study courses). This enables local young people to have access to an academic education, and young people come to the college location who would otherwise have chosen a different place to study.

There has thus far been very little empirical research on private colleges. Existing studies usually have an exploratory character. For this reason, the following remarks are related to colleges in Germany and to their locations and their impact on their locations. Academic discourse in this area has focused primarily on regional economic effects, e.g. knowledge and personnel transfer, start-ups and spillover effects (e.g. Thierstein/Wilhelm 2000 and Back/Fürst 2011). In addition, there are a number of research papers on the effects of private colleges on the stability of the regional economy, locations as places of residence and their image as a knowledge region (e.g. Stoetzer/Krähmer 2007; Fritsch 2009). On this basis, statements about the social effects of colleges largely refer to structural data about their location (e.g. Kriegesmann/Böttcher 2012; Fischer/Wilhelm 2001). Thus, studies look at, for example, the rejuvenating potential that students have for the population structure of their

3 Unlike universities of applied sciences or colleges, there are no private full-range universities in the federal state of Lower Saxony.

4 As of the winter semester 2015/2016, less the students of the Municipal University for Administration (*Kommunale Hochschule für Verwaltung*) (MWK [Ministry for Science and Culture of Lower Saxony] 2018).

location or emphasise how college graduates who stay on after their studies have a positive effect on purchasing power, the workforce, the utilisation of infrastructures and avoiding high vacancy rates (see also OECD 2007).

Empirical research on location impacts has thus far been characterised by an overwhelmingly quantifying perspective, which is usually oriented towards materiality. When such research focuses on rural areas, the plausibility of expanding this perspective becomes clear; research from this perspective tends, particularly in rural areas, to emphasise deficits and shortcomings, because it is oriented towards a schema which relies primarily on key figures and measurable quantities. Or, to put it another way: in functionally peripheral, rural areas, in the worst case this perspective brings precisely those elements into focus which are declining, deficient or no longer in existence. Consequently, it would be productive for empirical research to take up a perspective which enables rural areas to be captured in a way that steers the focus towards available resources and spatial structures, or to features which distinguish them in their heterogeneity.

3.1 Conclusion: a change of perspective from a materially produced space to a socially constituted, relational space

The relational understanding of space proposed by Martina Löw (2001) is useful here. It enables the focus to be shifted to the process of constituting space and to those people who live locally, use the space every day and (re)produce it in their activities. Thus, empirical research can be decoupled from distinctions based on schemas such as 'existing resources – non-existent resources', and goods, structures, connections and cooperation initiatives enter the picture which are available locally and which characterise the area for local people (Löw 2001: 130 et seq.).

Such an expanded research perspective is not only useful and enriching but possibly also necessary. In section 2, the present article outlined an interpretation according to which processes of social change have spatial and social dimensions which stand in a reciprocal relationship to each other. In view of this, it is conversely downright implausible to apply a theoretical concept which is unable to incorporate social structures and the perspective of local people to such empirical research.

The further process and the potential insights to be gained with the relational theory of space as a new perspective in empirical research on the provision of public services and infrastructures in rural areas will be presented in the following section, based on the conceptualisation of a current study by the author on private colleges in rural areas.

4 Conceptualising the study of the social constitution of space at private colleges in rural areas

In the qualitative research project on private colleges in rural areas of Lower Saxony, local processes in relation to the social constitution of space which are localised

around the private college as a spatial crystallisation or anchor point are captured empirically. The focus here is exclusively on those people, goods and structures which are present locally and viewed as having relevance for the constitution of space. In order to take these into consideration and embark on the research without pre-set theoretical criteria, the study draws on the relational understanding of space put forward by Martina Löw.

4.1 The relational theory of space according to Löw

In Martina Löw's *Raumsoziologie* [Spatial Sociology] (2001), space is captured empirically as an arrangement of social goods and people in the context of everyday activity (cf. Löw 2001: 158 et seq.). People are understood to be those who actively constitute space as actors. This arrangement is a social process which can be differentiated analytically into two different activities: spacing as an action and dimension of spatial constitution, and synthesis as an aspect of order or structural dimension of the constitution of space (cf. Löw 2001: 158 et seq.). Both activities are always connected in practice, so that action and structure, or spacing and synthesis, relate to each other recursively in everyday activity.

Space thus constitutes an arrangement of social goods and people which are placed or positioned within the spacing. These people and social goods can be localised primarily by their material characteristics in certain places in geographical space. Placings or positionings in the context of everyday activity are, additionally, always carried out in relation to other placings (ibid.). For example, the placing of a social good always addresses its relation to another social good. However, the arrangements which occur in this way can only be understood if the symbolic component of the arranged people and social goods (e.g. their significance or the purpose of their placement) is understood. The meaningful capturing of people and social goods in their arrangement is designated accordingly as synthesis. Within the framework of this synthesis, impressions are consolidated within the perception. Thus, people and social goods placed within the spacing are meaningfully captured in their significance together with the places in which they are placed, and within the synthesis they are connected with each other so that they are no longer just placed objects (cf. ibid.: 195 et seq.). The way in which placed social goods and people are perceived in their specific arrangements and connected to space is socially pre-structured by institutionalised processes of perception, recollection or imagination.

5 Insights gained through the relational perspective

Viewed from this relational perspective, space becomes a network of dynamic social interconnections between people, and of the places and social goods relevant for them. By capturing, in particular, those people who live locally as constitutive elements of their space, their individual relevance becomes comparatively more visible. The relational theory of space thus opens up a view of a socially constituted space which possesses specific, material points of reference and which also has socio-cultural significance. This object of research then allows us not only to generate

action-relevant knowledge about how people constitute their individual space but also to show that spatial structures manifest themselves as social structures and can be empirically depicted as such. This knowledge might provide a helpful addition to the existing stock of knowledge from the quantifying perspective and about materially produced spaces.

The conceptualisation of the study on private colleges also reveals aspects which can contribute to a relational perspective on space for the purposes of empirical research and which are also relevant beyond the specific context of this project (e.g. for research on the provision of public services and infrastructures).

For example, through a relational understanding of space, the study can focus specifically on the (college) space in which people meet each other in their everyday activities and in which they will connect with each other in future. Thus, the study decouples from the (comparatively conservative) conceptual understanding of (college) space which can or should primarily be planned, managed or changed on an overarching level, and creates possibilities for incorporating individual relevance into empirical research.

In addition, the research design enables all constitutions of space relating to the private college to be included in the study. This also includes those which, because of their inconstant nature, would be very difficult to represent in other analyses. An example might be students who do not live permanently or temporarily (e.g. in student accommodation) at the place of study and who are not considering living there after completing their studies. For them, the private college with its educational programme provides the only anchor point to the rural college location. Outside the obligatory lectures or classes, they are unlikely to be found at the location. From a quantifying or material perspective, the question is raised as to what benefit their absence has in relation to the use of housing space, the rejuvenating potential or the use of the leisure and job opportunities for the college location, and whether they can or should even be recorded at all in this context. However, from the relational perspective on space, these students also constitute a space by being active at the college location, for example by attending lectures, using the canteen, the library or public transport, or simply by representing the connecting link within the partnership between the private college and a regional company. This constitution of space presumably has no less relevant a social (location) impact than that of the students who live at the location of study and can be assessed by the material or quantifying perspective with regard to their impacts, for example on purchasing power and avoiding high rates of vacancy (see section 3 of this article).

6 Summary

Within the field of research on the provision of public services and infrastructures, this article has been working on the thesis that primarily one particular perspective in relation to space is reflected in current empirical research. It therefore proposed the relational concept of space by Martina Löw (2001) for empirical research to expand the current state of research in this area.

To this end, it first set out the challenges facing the provision or guaranteeing of infrastructural services in rural areas. In this context, private colleges in rural areas were presented as a comparatively new empirical phenomenon, and the (social) possibilities that they present for rural locations were considered. As spatially relevant empirical research has hitherto largely adopted a material and quantifying perspective, the relational concept of space (Löw 2001) was introduced to expand this.

By conceptualising a current study by the author about private colleges in rural areas, it was then illustrated how the relational understanding of space can capture rural areas with their existing resources and spatial structures and in all of their heterogeneity. This also enables the empirical depiction of a socially constituted space, which nonetheless possesses specific, material points of reference and reveals socio-structural significance. Thus, the study presented will be in a position to focus precisely on the space in which people meet each other in their everyday activities and in which they will connect with each other in future. The study thus decouples from the (comparatively conservative) conceptual understanding of a space which is primarily planned, managed or changed on an overarching level, and creates possibilities for incorporating individual relevance into empirical research.

In addition, the research design enables inconstant constitutions of space, which are very difficult to depict in other analyses, to be included in the study. From the relational perspective on space, every individual constitutes space in their everyday local activities. It is not important here whether they fulfil traditional, measurable indicators, but rather that they contribute to spatial structuring and social participation through their activities.

For reasons of practical relevance and the currency of the topic, the thesis developed in this article has been illustrated using research on the provision of public services and infrastructure but could, in principle, be applied to other fields of research which have a spatial reference. With regard to rural areas in general, however, it can be stated that the change⁵ in perspective from the materially produced or quantitatively measurable space to the relational perspective shifts the focus to the social processes by which space is constituted – i.e. people as constitutive elements. Thus, rural areas can be depicted in terms of what characterises them for the people who live there. This insight is particularly relevant for research on rural areas, regardless of the research field.

⁵ At this point, however, it should be emphasised that the shift towards a relational perspective promoted by the current article is intended explicitly as a change in the sense of taking up a supplementary, alternative perspective.

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TOWARD A COMPREHENSIVE MEASURE OF SOCIO-CULTURAL DIVERSITY: THE CASE OF GERMANY*

Contents

- 1 Introduction: Socio-cultural diversity and economic prosperity
 - 2 Associations as a proxy for socio-cultural diversity
 - 3 Results and discussion
 - 4 Conclusion and setting an agenda for future research
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Abstract

The positive impact of socio-cultural diversity on innovation and economic prosperity has been widely discussed. Yet, there is a lack of a clear quantitative indicator of socio-cultural diversity. Most empirical works are limited to small case studies that follow various methods. This gap in the literature calls for a comprehensive measure whereby researchers could assess and compare diversity across cities and regions at the national level. Building on a unique database of registered associations (in German: *eingetragene Vereine*), this study provides a hierarchical categorization of associations based on their field of activities. Applying the Shannon entropy index, the socio-cultural diversity of German regions is measured. The findings indicate a disparity between East and West Germany, reflecting the path-dependent nature of historical events. This article sets an agenda for future research.

Keywords

Socio-cultural diversity – associations – innovation – German regions

1 Introduction: Socio-cultural diversity and economic prosperity

The impact of human communities on individuals has been a field of interest among sociologists and economists for a long time. This topic is of particular significance because socio-economical trajectories are, to a certain extent, sub-products of the socio-cultural portfolios of cities and regions (Florida 2002). Building on Jacobs' seminal work (1970), Bettencourt et al. (2014) argue that diversity plays a crucial role in terms of individual productivity and the economic performance of cities. Diversity also facilitates innovation and technological change because it triggers 'creative destruction' and changes economic structures from within (Tzeng 2014).

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Recent empirical work indicates that diversity creates more potential growth paths for local economies because industries can more easily diversify through ‘related and unrelated varieties’ (Frenken et al. 2007). Also, diverse regions include various sectors and industries. This multiplicity paves the way for creating economic landscapes, which are more resilient to exogenous crises. Thus, there is an increasing need to understand how socio-cultural diversity and its complexity facilitate or hinder economic performance (Uzzi and Spiro 2005). Lastly, diversity contributes to entrepreneurship as *‘entrepreneurs [...] are in the best position to discover the domains of R&D and innovation in which a region is likely to excel given its existing capabilities and productive assets’* (Foray et al. 2011: 7). In this light, diversity provides more opportunities for recombining actual knowledge and materials in order to trigger entrepreneurial activities (Foray et al. 2011) and innovation (Weitzman 1998) and thus to add to the current economic portfolios of cities and regions.

Socio-cultural diversity takes different forms, which is also highlighted in many qualitative studies (see Table 1). However, this variety does not translate to the quantitative empirical literature, which is dominated by two rather similar indicators, namely: immigration and ethnicity.

The present study seeks to add to this literature by presenting an alternative yet complementary indicator of socio-cultural diversity, which is based on detailed information of associations. It extends the commonly used indicator of association-based social capital by van Deth et al. (2016) approximating the diversity of formalized social activities in regions. Hence, this sheds light on another dimension of socio-cultural diversity. It is available for all regions in a country and for different moments in time. Accordingly, it allows the study of potential spatial interdependencies of socio-cultural diversity, its relation with other socio-economic characteristics of regions, and its development over time, all of which have received little attention so far.

Study	Focus	Indicator	Result
Florida (2002)	US Cities	The number of gays, immigrants and bohemians	Positive correlation between tolerance, diversity, creativity, and prosperity in cities.
Gianmarco et al. (2004)	US Cities	Foreign-born citizens	Positive correlation between the number of foreign-born citizens and increase in wages and in the rental price of housing.
Suedekum et al. (2014)	German labor market	Foreign workers	Positive impact of cultural diversity on native workers’ wages and local productivity.

Vermeulen et al. (2012)	Amsterdam neighborhoods	Ethnic diversity	Different effect of ethnic diversity on the homogeneous (more individual) and heterogeneous social networks.
Lee (2010)	53 English cities	Migrants and ethnic diversity	Positive impact of both indicators on city growth. Positive impact of the number of migrants on employment growth.
Sandoval (2013)	Chicago neighborhoods	Racial diversity	Negative correlation between racial diversity and segregation.
Walks & Maaranen (2013)	Toronto, Montreal and Vancouver	Social mix, ethnic diversity and immigrant concentration	Potential positive impact of declining levels of social mix and ethnic diversity on gentrification and inequality.
Nathan (2014)	Patents in the UK	Minority ethnic inventors	Positive impact of minority ethnic inventors on the number of individual patents and potential multiplier effects.
Nathan (2016)	Firm-level data in the UK	Ethnic diversity	Positive diversity-performance links for larger, knowledge-intensive firms, and positive firm-city interactions.
Study	Focus	Indicator	Result
Lee (2015)	UK small and medium-sized enterprises	Migrant business owners or partners	Positive impact of a greater share of migrant owners or partners on introducing new products and processes.
Cooke & Kemeny (2018)	Employer – employee dataset	Immigrant diversity	A direct relation between immigrant diversity and higher wages for workers involving high levels of innovation.

Nathan and Lee (2013)	Firm-level data in London businesses	Migrant managers	Positive impact of diverse management on innovation and entrepreneurship.
Rodríguez-Pose & von Berlepsch (2015)	American cities	Population diversity	Population diversity plays a crucial role in the prosperity of American cities in the long run.

Table 1: Brief overview of key empirical studies of social diversity in urban and regional studies

2 Associations as a proxy for socio-cultural diversity

Registered associations¹ serve as organizations where participants collaborate based on common interests and/or similar goals. In this paper, we use a database of registered associations² as a basis for designing a comprehensive measure of socio-cultural diversity. Between 2012 and 2016 Stifterverband collected data on 668,011 registered associations from local courts in Germany (Priemer et al. 2017). This database includes the full names of associations, their geographical location (address), the district court at which they registered, the date of registration, and, if available, the date of dissolution. In 2016, there were 597,388 active associations and 70,623 dissolved associations. Based on the provided addresses, we assigned NUTS3 classification codes³. For 99% (592,164) of associations this was successful, the rest were removed from the data. Figure 1 demonstrates the number of registered associations in relation to the number of inhabitants in the regions.

1 In German, *eingetragene Vereine*.
2 In this study, we assume that associations are of equal size and homogenous in structure because no data in relation to these factors are provided.
3 *Nomenclature des unités territoriales statistiques* (The Nomenclature of Territorial Units for Statistics).

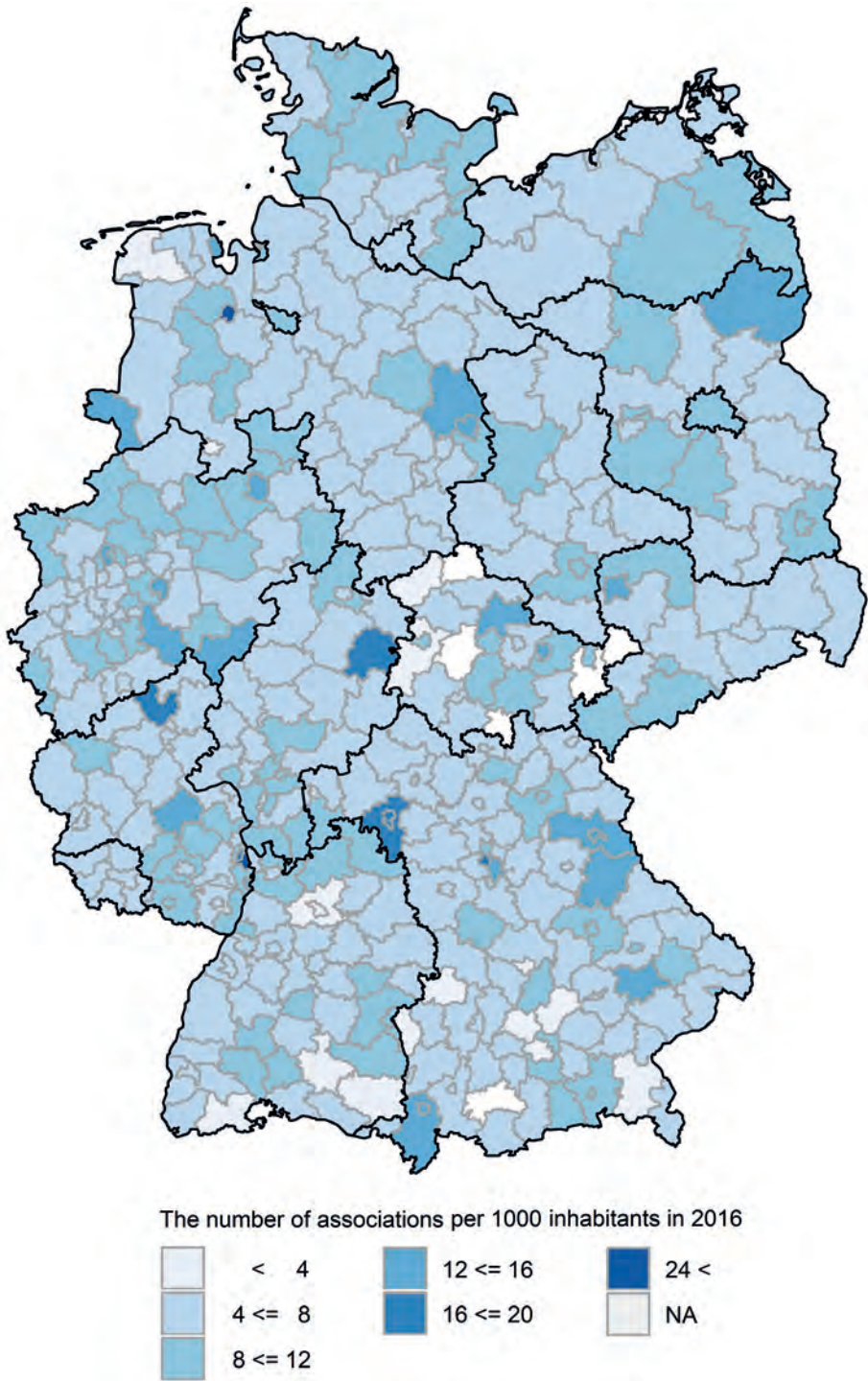


Figure 1: The number of associations per one thousand inhabitants in 2016 (based on Priemer et al. 2017).

In addition to geolocating the associations, the names of the associations are thematically classified. For this, a thematic-hierarchical classification is developed based on the words contained in the 668,011 names of the associations. Firstly, we remove single words in the names that do not contain information for a thematic classification (e.g., ‘associations’) or have merely grammatical functions (e.g., ‘the’). Secondly, to reduce the complexity of the task, the list of relevant words is limited to those that occur in at least two different names. This method helps us to narrow down the number of words from 40,000 to about 8,000. Thirdly, elaborating on ZiviZ (2013), these 8,000 words are grouped thematically, providing 16 thematic groups: (1) economy and business related, (2) social services, (3) sponsoring foundations, (4) research and education, (5) healthcare, (6) social and community, (7) belief, (8) culture and media, (9) sport, (10) music, (11) leisure and socializing, (12) spatial reference, (13) age specific, (14) gender-specific, (15) nature and environment, and (16) others. The 16 main categories are further disaggregated over four hierarchical levels and 817 subcategories (hereafter classes). For example, the word ‘fishing group’ falls into the class ‘fishing’, this belongs to the category ‘outdoor’, which falls under the overall theme of ‘hunting sports’, whose main category is ‘sport’. In case of multiple matches, several classes are assigned to an association. In total, 78.4% of all associations are related to at least one thematic category, i.e. 129,032 associations are characterized either exclusively by words that cannot be classified thematically (e.g., ‘Red-White Erfurt⁴’), or words that do not occur in any other association’s name.

To measure diversity, we use the Shannon (1948) entropy index, which originally comes from information theory and measures the degree of entropy in communication. This index has been implemented as a measure of diversity in a wide range of disciplines ranging from biology to economics (Vozna 2016). Since regions include a various number of associations, it is worth mentioning that the measure needs to be modified in order to provide the ‘effective number’ of associations. Thus, we use the exponentiated form of the measure to express ‘real’ diversity (Jost 2006). Equation 1 represents the measure of socio-cultural diversity, where S_i represents the share of associations active in the i th class in a given region.

$$\exp\left(\sum_{i=0}^n S_i \ln\left(\frac{1}{S_i}\right)\right) \quad (1)$$

3 Results and discussion

Figure 2 summarizes the statistical features of the measure of socio-cultural diversity for German regions. While the statistical distribution of this measure resembles a normal distribution (with a slight positive value of kurtosis and skewness), the geographical distribution of the measure is strongly uneven. Population-rich regions such as Stuttgart, Munich, Berlin, Hamburg, the Rhine-Ruhr and the Rhine-Main areas show a high degree of diversity, whereas in particular central and eastern regions are found to be least diverse. Intuitively, this pattern follows the population distribution of

4 ‘Erfurt’ is the just the name of the city where the association is located.

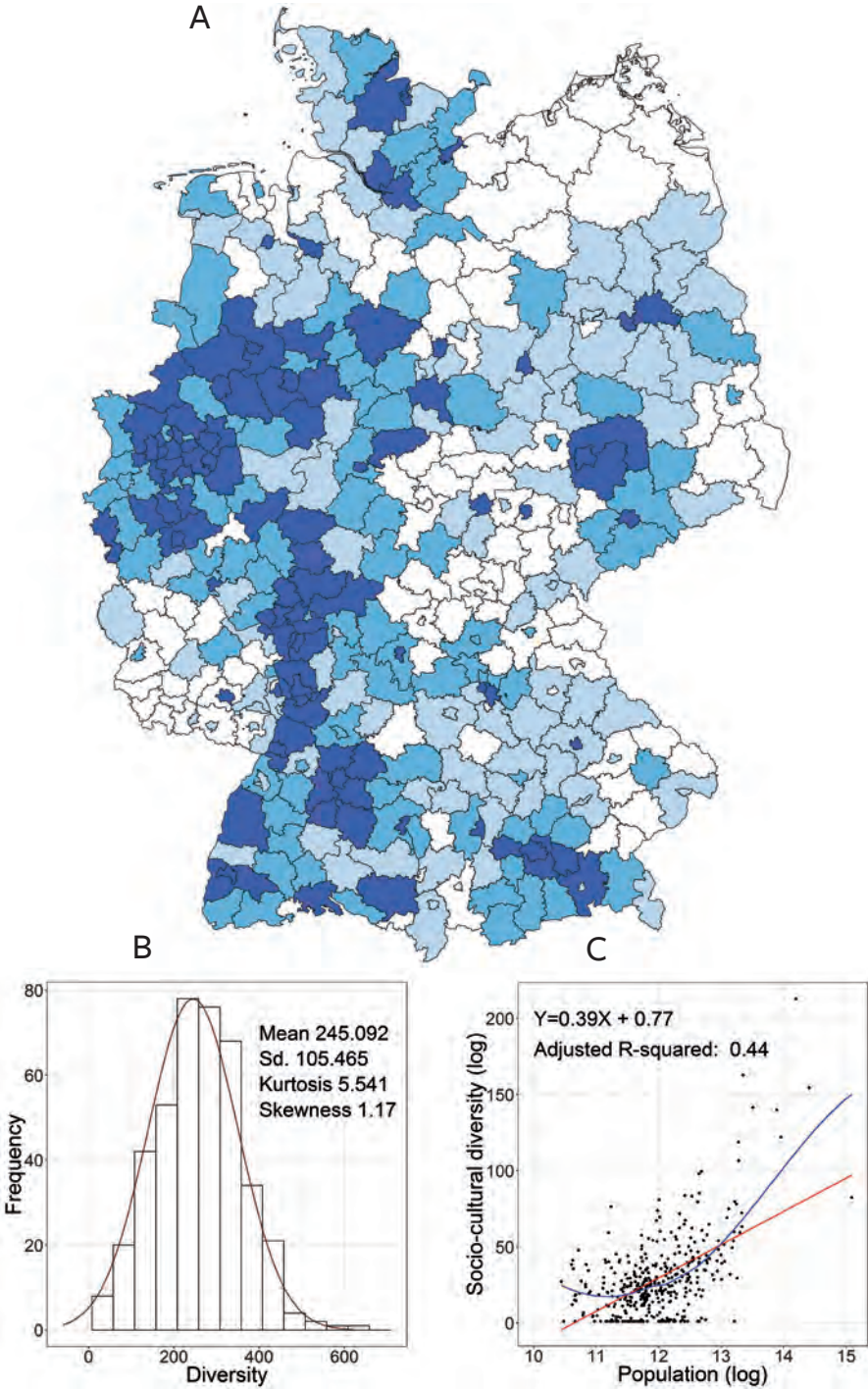


Figure 2: Socio-cultural diversity in German regions where darker colors represent a higher degree of diversity (Panel A), the statistical distribution of the diversity measure across regions (Panel B), and the positive correlation of population and socio-cultural diversity (Panel C) in 2016.

Germany, where larger cities (in terms of population) include a higher number of associations, which also translates into variation in the topics of associations and, hence, into a higher degree of socio-cultural diversity. Yet, Figure 2 (Panel C) demonstrates that the interplay between region size and diversity is more complex. This finding challenges the results of the study by Bettencourt et al. (2007), which suggest above-linear scaling relations for most socio-economic measures at the city level. The nonlinear (blue) fitted line in the regression model indicates that the degree of socio-cultural diversity grows at a faster rate than population (as a proxy of the size of regions) when the size of regions goes beyond a certain threshold. Future empirical studies need to address this issue in order to assimilate the interplay between diversity and population and its critical thresholds.

Our results hint at differences between East and West Germany that are also observed by other socio-economic measures (e.g., see BMWi 2015). We therefore take a closer look at the degree of regional diversity in relation to regions' geographical location and historical background. The database provides the possibility to measure the diversity of German regions over the last 50 years, as we know the dates of associations' registration and deregistration. Empirically, we use a two-tailed t-test⁵ to probe into the relation between diversity and a region's location in East or West Germany. In other words, similar values of t-test (an overlap of the corresponding confidence intervals) imply that regions in East and West Germany have a rather similar degree of diversity. An increase in the dissimilarity of coefficients represents a growing East-West disparity, i.e. regions with higher socio-cultural diversity tend to be in East or in West Germany. Figure 3 (Panel A) shows a significant difference in the degree of diversity between the eastern and western parts of Germany (p-value indicates statistical significance in all years), implying that most diverse regions are located in West Germany. The difference is relatively small in magnitude in the 1950s. Interestingly, the magnitude increases over time, hinting at the impact of various events and changes in association density and the relative diversity of regions. The highest disparity between East and West Germany is observed in the years before the fall of the Berlin Wall. In the early 1990s, the number of associations (Panel B) increases, leading to a sudden increase in the value of coefficients related to East Germany. We also observe a strong increase in association registrations in East Germany in this time. There might be two explanations for this. It may reflect a convergence of East Germany to West German structures. Alternatively, the increase might be due to the re-registration of associations that already existed in East Germany before the reunification. However, the latter effect should be concentrated in 1990 and 1991 while the strong growth seems to extend beyond these years. Future research needs to take a closer look at this issue.

After the fall of the Wall, the number of classes in both parts of the country converges, whereas there is still a large gap between the numbers of associations. This effect might correlate with a lower degree of 'personal initiative' in East Germany, rooted deeply in the cultural differences (Frese et al. 1996), or a slow change in social behavior after the reunification of Germany (Brosig-Koch et al. 2011). Clearly, this needs to be addressed in more depth by future research.

5 A parametric method for examining the difference in the means of two populations.

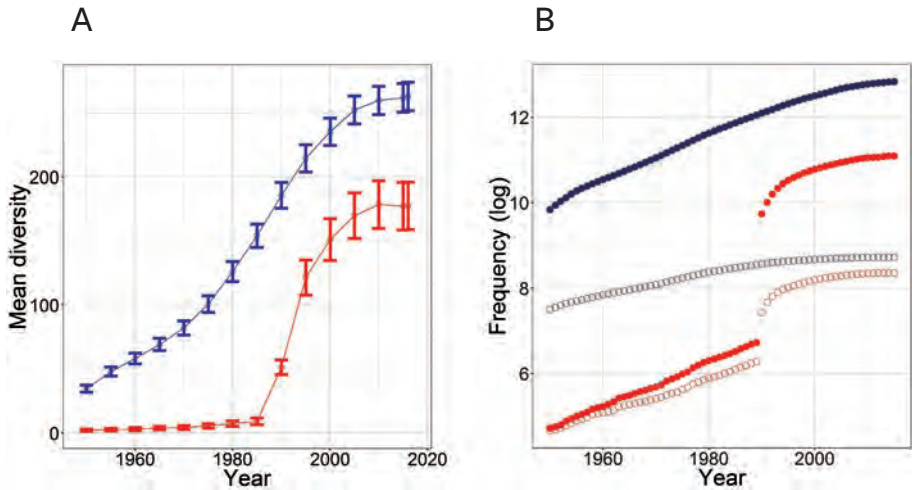


Figure 3: Mean diversity and corresponding 95% confidence intervals for the socio-cultural diversity of German regions (Panel A), and the number of associations (solid circles) and classes (circles) (Panel B) in East (red) and West (blue) Germany over time.

4 Conclusion and setting an agenda for future research

The impact of socio-cultural diversity on the economic performance of cities and regions has been acknowledged in various studies (see Table 1). While studying socio-cultural diversity is of great interest, there are still few quantitative measures that represent the breadth of socio-cultural diversity. In this study, we used a novel database of German associations covering more than 50 years of data. We applied simple text mining techniques and the Shannon entropy index to create and assess the diversity of the socio-cultural portfolios of German regions. Our results indicate that the degree of socio-cultural diversity follows the distribution of population in Germany in general; however it is also characterized by a strong East-West disparity. Lastly, the findings show that socio-cultural diversity and its geographic distribution have a temporal dimension, which we showed to be in part related to distinct developments in East and West Germany.

While the results contribute to our understanding of how German regions differ in terms of socio-cultural diversity, much remains to be done. Firstly, associations vary in terms of size, homogeneity and the geographical distributions of their members. Thus, data on these variables need to be collected in order to enable researchers to track the impact of associations at the regional levels. Secondly, diversity is closely related to socio-economic development and innovation (Florida 2002). Thus, a body of research should be devoted to this issue and systematically investigating whether a higher degree of diversity contributes to innovative activities at the city and regional level. Thirdly, immigration is known to foster socio-cultural diversity (Rodríguez-Pose and Berlepsch 2014, 2015). This calls for investigations of how different waves of immigration to (and from) Germany have influenced the socio-cultural diversity of

German cities. Fourthly, regions benefit greatly from gaining skilled labor, graduates and star scientists (see, for instance, Buenstorf et al. 2016). To date, the driving forces behind the immigration of skilled labor have not been very well understood. However, Florida (2002) emphasizes the attracting role of socially and culturally diverse regional atmospheres. Using the measure developed in this paper, future studies can investigate whether there is a significant correlation between inter-regional labor mobility and the socio-cultural portfolios of regions. Lastly, our results indicate that socio-cultural diversity sublinearly grows with the size (in terms of population) of regions. This is in line with the ‘the universal laws of growth, innovation, [and] sustainability’ (West 2017). Positioning this study in a wider context of scaling literature provides fruitful insights into how socio-cultural diversity correlates with other factors, providing an analytical framework for policymakers.

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Elena-F. Schlich

SPATIAL PROXIMITY AND HOW TO SHAPE IT: AN EMPIRICAL CASE STUDY OF SELECTED GERMAN TECHNOLOGY PARKS

Contents

- 1 Spatial proximity as a driver of innovation
 - 2 Technology parks as an instrument to promote innovation
 - 3 Methodology
 - 4 Technology parks of the 1980s and 1990s
 - 4.1 Changing approaches to shaping spatial proximity and initial assumptions regarding their effects
 - 4.2 Impact on the innovation process of the companies based on site
 - 5 Conclusions
- References

Abstract

The three interrelated factors of knowledge, learning and innovation are regarded as the key components of the knowledge economy (OECD 1996). In the past decades, attempts have been made to describe the systematic impact and correlation of these three factors by means of various concepts in connection with innovation theory. The spatial proximity of the respective bearers of knowledge in relation to each other was initially identified as an important aspect of the innovation process. Yet spatial proximity alone is not enough. Its innovation-promoting effects can only be realised in combination with other forms of proximity and physical spatial design features. Through this understanding of the underlying innovation theory, it was hoped that it would be possible to influence the innovation process, a possibility that is of particular importance for economic policy in connection with the construction of local knowledge infrastructures. Technology parks (TPs) bear witness to how insights into innovation theory have evolved. Hence, this article briefly outlines the development of the TP concept and examines the innovation-promoting effects it generates through the specific way in which it shapes spatial proximity. As illustrated by three case studies, the TP concept is adaptable to the innovation-promoting needs of organisations based on site. However, the analyses show that not all the measures and instruments actually benefit on-site knowledge networking as an innovation-promoting activity.

Keywords

Innovation process – knowledge – spatial proximity – knowledge transfer – technology parks

1 Spatial proximity as a driver of innovation

Before examining the current state of knowledge regarding innovation theory, it is useful to look at the history of its origins. There are two concepts for explaining innovation processes that stand out in the scientific debate. One of the first concepts to emerge was the linear innovation model, which was soon criticised for its inadequate alignment with the structural requirements of knowledge networking (Kline/Rosenberg 1986: 285). What drew the most criticism was its assumption that the process was linear. In response to this criticism, the subsequent chain-linked model was devised, which interprets the innovation process in a much more multifaceted manner, particularly by including feedback structures (cf. Kline/Rosenberg 1986: 285 et seq.). Although each of the two concepts addresses the process of knowledge production and its interorganisational transfer according to a different system, both approaches combine interorganisational knowledge transfer with the aspect of the physical spatial proximity between the respective bearers of knowledge.

The recognition that physical spatial proximity is an important component of knowledge transfer, and thus of the innovation process, is not new. It was already pointed out by Hayek (1945) that thematic and problem-specific knowledge is shared between numerous stakeholders and first has to be consolidated through interaction aided by spatial proximity. Today, physical proximity has not lost any of its importance in this respect. On the contrary, it is becoming more and more indispensable in the face of increasing specialisation and accelerated product cycles (Maskell/Malmberg 1999). Even so, when it comes to innovation theory, there is consensus within the scientific community that although physical proximity can be important for a successful innovation process, it is not the only prerequisite. In this sense, it hinges on the 'right' combination of physical proximity and other forms of proximity, in other words cognitive, organisational (Rallet/Torre 1999) and social proximity between stakeholders (cf. Boschma 2005). Cognitive proximity can arise through the use of the same technologies and process flows, while organisational and social proximity can result from a shared past, for example through former colleagues (cf. Granovetter 1973; Ter Wal/Boschma 2009: 742).

As a basis for ensuring that spatial design principles promote networking by providing an effective combination of different forms of proximity, the urban agglomeration area is currently growing more important as a location for business and innovation in the transition towards a knowledge economy (cf. Siedentop 2008: 201; Brandt 2011: 165 et seq.). As discussed by Oldenburg (1989), among others, through his notion of *third places*, there are many factors that promote the innovation process and are generated by the social density of urban spaces. Aspects that are relevant for innovation and which promote networking manifest themselves through stronger, more evident synergy effects in urban spaces. At the same time, urban density enables regular face-to-face contact, which offers the opportunity to secure a knowledge advantage and build trust, which in turn can provide access to the implicit knowledge base of others (Kujath 2012: 219).

2 Technology parks as an instrument to promote innovation

Insights from innovation theory entered the sphere of economic policy in recent decades through the provision of local knowledge infrastructures. The objective was and is to foster spillover effects between science and business by creating spatial proximity, which in turn seeks to help knowledge-intensive companies generate, replicate and implement external knowledge bases. The technology park (TP) concept represents a special form of this knowledge infrastructure. Initially, it was based on the concept of linear knowledge transfer (section 1) and, as such, was criticised for its inadequate alignment with the structural requirements of knowledge networking (cf. Massey/Wield/Quintas 1992). In order to ensure a proper understanding of how the TP concept developed, it is important to start by laying the foundations for further analysis by providing a more detailed description of the traditional TP concept of the 1980s and 1990s. The TP concept can be defined by the following characteristics:

- > Direct spatial proximity to scientific organisations (universities, non-university research institutions)
- > Physical space reserved for knowledge-intensive businesses (research and development)
- > Integrated technology centre (business incubator)
- > Park management with the provision of certain services
- > Closed, mono-functional area, usually in an out-of-town or suburban location (cf. Quiehl 1995; Kühn 2003)

The search for an effective combination of spatial proximity and other forms of proximity is exemplified by the development of knowledge economy locations and, in particular, the traditional technology park. These concepts illustrate the first systematic and scientifically grounded steps taken towards an understanding of the innovation process, and also reflect the continuous knowledge gains regarding the factors that influence this process. In the specialist literature, a discussion is already underway both on the transition in general and on specific measures to adapt the traditional technology park so as to promote knowledge networking between organisations based on site (cf. Annerstedt 2006).

In this context, Allen (2007) focuses in detail on the functional change of the TP concept through his elaboration of the generational concept. (see Table 1). According to this concept, the change in technology parks is interpreted as an ever growing expansion of both the range of services and support on offer and the physical design of the TPs themselves. Accordingly, the first generation of TPs was based on what was initially the 'simple' provision of land and space reserved for certain sectors. By focusing on a certain sector, cognitive proximity can be actively steered in order to maximise synergy effects (Boschma 2005). The first generation was expanded in the second generation through an expanded range of services provided by the park management. These services focused more on systematic, actively promoted net-

working between the on-site organisations through a wide variety of formats for thematic and problem-based networks and events. At the same time, this development reflects the philosophy of innovation underlying the TP concept – away from the ‘science push’ in the sense of a linear innovation process and towards the ‘market pull’ in the sense of the chain-linked model – since each stakeholder is equally considered a knowledge provider and a knowledge user (Annerstedt 2006: 286 et seq.; section 1). Within the third and most recent generation, Allen (2007) highlights another expansion, namely the design of the physical TP space in such a way as to promote communication and thus networking in a passive sense. The assumption here is that the integration of mixed-use structures within the park boosts the potential for encounters between stakeholders on site, which in turn can lead to collaboration on innovations (cf. van Winden 2010; Charles 2015). It is particularly this third generation that is currently reflected in the numerous development concepts for technology parks, and is associated with current developments regarding the reurbanisation of knowledge-intensive activities (cf. section 1).

Third TP generation	+	+	Additional measures to promote networking in the form of measures/ instruments for designing the physical TP space; the TP space as a passive instrument for networking
Second TP generation	+	Additional measures to promote networking in the form of thematic and problem-specific events formats, including TP management as an active ‘networker’	
First TP generation	The provision of space, (sector-specific) selection of park members, first initiatives to promote networking between science and business		

Table 1: The generational concept of the technology park / source: the author after Allen 2007; EC 2013: 37 et seq.

It remains unclear to what extent these approaches contribute to an understanding of the innovation process. Any inferred assumptions regarding their effect on the innovation capabilities of on-site organisations are based on normative arguments, although the a priori expectation is that there are positive repercussions on interorganisational knowledge networking and thus on the innovation capabilities of organisations based on site. Given such implicit assumptions, this development has far-reaching implications, particularly for economic policy decisions regarding the conceptualisation and implementation of knowledge infrastructures such as TPs (cf. Hofmann 1995). On the other hand, the efficient conceptualisation and development of locations for the knowledge economy require an understanding of the effects of the measures undertaken to promote innovation, analysed in the specific context of the technology park. To date, however, such measures have not been identified and categorised in order to enable a systematic cause and effect analysis. Against this background, the present analysis will focus on technology parks of the 1980s and 1990s in Germany, and aims to consider two interrelated research gaps, which have not yet been adequately clarified. Firstly, there is a need to clarify the extent to which German technology parks are impacted by the measures undertaken to promote the innovation process. Secondly, the causal relationship between the measures and knowledge networking among on-site organisations also remains unclarified (van de Klundert/van Winden 2008: 6). Accordingly, the aim is to analyse the functional change of technology parks in the light of their spatial and functional design and the networking structures of organisations based on site, as well as the mutual influence of both aspects.

3 Methodology

The TP concept is analysed through a comparative case study as the overarching research design. On the basis of three case studies, the changes in how spatial proximity is designed, and the resulting effects on interorganisational knowledge networking between on-site organisations, are highlighted and compared. The three case studies in question – the Berlin Adlershof Technology Park (*Technologiepark Berlin Adlershof*), the Dortmund Technology Park (*TechnologiePark Dortmund, TPDO*) and the Heidelberg Technology Park (*Technologiepark Heidelberg, TPHD*) – were selected according to predetermined criteria in line with the characteristics defined in section 2.

In order to identify the measures associated with the spatial and functional change in the technology parks, seven to eight interviews with experts were carried out for each case study. The information obtained was deepened through studying the existing literature, expert reports and the author's own contributions to brochures and journals. For the purposes of this research project, experts are defined as people who are connected with the relevant case study and thus have privileged access to knowledge concerning the TP in question. For each case study, ten interviews were held with representatives of the enterprises on site. On the basis of these interviews, the networking-promoting effects of the design features of each TP were then analysed.

4 Technology parks of the 1980s and 1990s

4.1 Changing approaches to shaping spatial proximity and initial assumptions regarding their effects

The analysis of each case study and their subsequent comparison showed that, in terms of their developments, there were commonalities with the previously discussed generational model (section 2). All three case studies showed that, right from the start, the focus was on the active management of spatial proximity in particular. This can be seen as the basis for the exchange of knowledge, which in turn promotes innovation (section 1). At the same time, the organisational and social proximity of on-site organisations is promoted by generating spin-offs and start-ups of scientific organisations based on site. The various forms of proximity thus created were supplemented during the course of further developments, as reflected by the second generation of TPs (see section 2), through a wide range of networks aimed at promoting networking as well as event formats in all three cases studies (see Table 2).

	Case study-specific instruments / measures
Adlershof TP	Preservation of existing/historically evolved networks and inclusion of new stakeholders, events, networks (local, regional), conferences, seminars by WISTA GmbH (management) and on-site organisations (local, regional orientation); international TP partnerships
TPDO	Events, workshops, seminars, networks (local and regional) by TZDO GmbH (management) and other on-site organisations; transfer institution of the TU Dortmund University; minimal international orientation/partnerships
TPHD	Introduction of associated membership of the TPHD; events, networks (local, regional), conferences, seminars by TPHD GmbH (management) and scientific organisations, transfer institutions of the University of Heidelberg and non-university research institutions; expansion of international TP partnerships

Table 2: Overview of additional support initiatives for the three case studies as represented by the second generation / source: the author

It is particularly the measures and instruments of the second generation, and the associated active promotion of knowledge networking, that are confirmed by experts as having the potential to promote networking: ‘[...] You still need someone to **make sure that networking is actually functioning**, because **it won’t work on its own**’ (ExpertB2 2017).

At the same time, the third generation is characterised by the establishment of physical, urban design features (section 2) in the sense that there is an integration of mixed-use functions. Here, however, there are striking differences in terms of the application of these design features in the three case studies. While at the TPDO and the TPHD, the additional design features were only available as mixed-use facilities during break times, TP Adlershof is characterised by a true urbanisation of the location. This manifests itself in an integration of the residential use function, an expanded infrastructure for the retail trade, food and service providers, and can be equated with the networking-promoting function of *third places* (section 1). The networking-promoting properties theoretically ascribed to the third generation (section 2) are substantiated by the experts in this case study in particular: ‘[...] *this exchange of tacit knowledge, this meeting in third places, in any places of communication, and spatial proximity, they’re all extremely important here at this location [...]*’ (ExpertB5 2017). In this sense, according to the experts interviewed, the assumed networking-promoting effects of the additional measures and instruments also apply to the three case studies.

4.2 Impact on the innovation process of the companies based on site

From the perspective of companies based on site, some of the design initiatives specific to each case study show a tendency to have opposing effects. First of all, it can be confirmed that active management of the respective forms of proximity in line with the first generation of TPs does promote networking within the TP, although in addition to fundamental cognitive proximity, it is particularly organisational proximity that contributes to long-term interorganisational networking (see Table 3).

However, there is much criticism of the measures and instruments used to actively manage proximity, in the sense of combining the respective forms of proximity in order to promote interorganisational knowledge networking on the ground (see Table 4).

	Adlershof TP	TPDO	TPHD
Organisational proximity (first generation)	‘The trigger was the proximity to the Ferdinand Braun Institute, that’s very clear, and it’s what we needed at the time, and we still need it now. ’ (CompanyB8 2018)	‘[...] what we’ve always done all these years , it was also, of course, ultimately about maintaining our proximity to the University of Dortmund here, all these years [...].’ (CompanyD1 2017)	‘Well, there are lots of people who in some way or other still belong to the company, or where services are rendered as part of a sort of insiders’ network. ’ (CompanyH9 2017)

Table 3: Emphasis of the networking-promoting function of organisational proximity / source: the author

At the same time, the additional physical/spatial design measures have some surprising effects in terms of promoting networking among organisations based on site. While the addition of mixed-use functions in the form of conventional canteens for break-time purposes is perceived to promote networking within the TPDO and the TPHD, there is a tendency towards the opposite effect at the Adlershof TP in particular. This is attributed to the pronounced urbanisation of this particular location: *'Meeting places are always restaurants or cafés [...], and the most important meeting place, namely **the company canteen**, which we used to have, has now gone. It's where the institutes and companies **all met**. You could also have a chat with people at lunchtime. That's not even possible anymore. [...] So now you go to the Rudower Chaussee, there's a Kaufland [supermarket] and a Chinese place there, and so that's where you go to eat. Just up here there's a Greek place; sometimes people go there to eat [...] but they're **small pubs** – you can't sit around **chatting** for ages because there are a hundred other people standing there waiting, and they all want to get something to eat too. **So it doesn't exist anymore, this type of encounter**' (CompanyB1 2018).* In this sense, therefore, the small-scale structures modelled on those in an urban setting and used in many mixed-use facilities tend to have a counterproductive rather than a beneficial effect for companies on site.

	Adlershof TP	TPDO	TPHD
Assessment of measures for actively managing forms of proximity (second generation)	'I don't need a technology park operator , who has another ten people sitting around doing nothing but organising how I can create synergies here. It doesn't work , it's just not effective . You can see that here really clearly: events are organised where companies are supposed to meet to create synergies.' (CompanyB1 2018)	'I don't get anything out of these imposed networks.' (CompanyD4 2017)	'I reckon [...] for a lot of things, including this networking concept – I'd say that on a small scale, it just doesn't exist , but of course it's what the technology parks always like to advertise, this idea [...]. But I don't think it has any impact at all in practice.' (CompanyH8 2017)

Table 4: Statements by company representatives on the effectiveness of the active promotion of networking / source: the author

5 Conclusions

A change in the TP concept was identified in the German TPs of the 1980s and 1990s. While at the start, the aim was active management of spatial proximity in combination with other forms of proximity, today the focus is more on the spatial design of the TP site to support interorganisational knowledge networking in a passive manner. The predominantly positive assumptions expressed in the specialist literature and by the experts regarding the impact of generation-specific measures and instruments cannot be entirely confirmed in view of the statements made by the company representatives.

It is particularly the active management of cognitive proximity in combination with physical proximity, as practised by the first generation of TPs, that can be seen as the centrepiece of the German TP concept and the foundation of interorganisational knowledge networking for organisations based on site. Accordingly, companies have the opportunity to find potential collaborators in direct proximity. Active support measures in the form of events and networks in line with the second TP generation, however, have sometimes proved to be intrusive and are largely avoided by on-site organisations, or seen as unhelpful.

By contrast, the many additional spatial design measures aimed at promoting interorganisational knowledge networking in a passive manner need to be aligned with the specific needs of the organisations based on site. In this context, it is not the aforementioned urban design features that promote networking, but rather conventional structures in the form of spacious canteens, which prove compatible with the mono-functional, work-oriented structure of TPs.

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Leonie Tuitjer

DOING RESEARCH IN THE GLOBAL SOUTH – EXPLORING RESEARCH ETHICS AND THEIR TRANSFORMATIVE POTENTIAL

Contents

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Abstract

At the conference on ‘Spatial Transformation: Processes, Concepts and Research Designs’, a number of local and regional case studies from spatial research were presented alongside research papers about transformation processes conducted in the so-called Global South. This short article offers a reflection on the role of research ethics and their potentially transformative power within such contexts. First, the article argues that within research projects conducted by researchers from the so-called Global North in the Global South, a critical self-reflection of ones’ own position is necessary, as the researcher will inevitably be confronted with various ethical, logistical, and political challenges. Second, it is argued that it is precisely these challenges that enable critical self-reflection and the development of a transformative potential at the personal, institutional, project and output level. Research on spatial transformations may benefit from such *ethico-political* moments as those proposed by the social scientist Vinay Gidwani to achieve a deeper level of ethical self-reflection and perhaps a transformation on the level of knowledge production.

Keywords

Research ethics – transformative potential – Global South – power relations

1 Introduction

‘No geographer should travel South without careful deliberation of what it means to be a “privileged western researcher” in a postcolonial field’
(Griffiths 2017: 2).

The realisation that research is not neutral and that science is located in a context of social power relations is probably one of the most important insights of current social

research. For example, the connections between science and (the abuse of) power during the Second World War are indisputable. In this case, the production of knowledge – justified by ideology – was placed above basic ethical principle of human dignity. In more recent times, too, power has repeatedly been abused in the name of research, as in the case of the dubious series of tests on HIV positive patients in the US (von Unger 2014: 19). Because of these incidents, various disciplines, particularly in Anglo-Saxon countries, have imposed strict ethical rules which are monitored in the corresponding institutionalised committees. The research principle of ‘informed consent’ (ibid.), which guarantees that participation in research projects is voluntary and on the basis of the most comprehensive information possible, forms an important core component of research ethics, which in some countries (e.g. the UK) also has a clear legal dimension.

Alongside these important, legally defined principles of research ethics, this article also addresses a somewhat different form of research ethics, which sees itself primarily as serving the objective of (self-)reflection as good scientific practice. This is because critical reflection on social power relations is particularly powerful not just within human medicine or psychology, where test series and experiments can have direct physical consequences for the participants, but also within the social sciences and humanities, which require a careful reflection on ethical norms and principles in order to protect research participants from negative consequences. I will therefore be speaking in this article of reflexive research ethics which goes beyond purely legal questions and demands critical self-reflection in the tradition of post-colonial studies. Particularly in contexts in which Western researchers conduct research in the so-called Global South (referred to below simply as the Global South), questions of research ethics are particularly acute due to historical dependencies and repression (e.g. colonialism) which have repercussions to this day.

At this juncture, it should be pointed out that the chosen term ‘Global South’ is controversial. Firstly, the term does not reflect the actual geographical circumstances by which global differences (e.g. economic, social, political) manifest themselves. Secondly, the term originates in a problematic, binary division of the world into a ‘Global North’ and a ‘Global South’. This dichotomous thinking inevitably emphasises the differences between global regions instead of considering their commonalities. Furthermore, a binary division leaves almost no room for nuanced observations (Korf/Rothfuß 2016: 164).

Nevertheless, the term is used to a great extent in social sciences research (and also within critical discussions and in the programme of the conference on which this article is based). The urban geographer Colin McFarlane (2010) described his unease with the term, but still ascertained that the categories ‘Global South’ / ‘Global North’ were to a certain extent ‘stubborn’ (McFarlane 2010: 728). Despite their controversial nature, these terms remain anchored in parlance and are helpful in communicating content – albeit in an abridged form – to non-experts. The stubbornness of these categories is probably also based on the lack of alternatives. The controversial terms are used here for two reasons. Firstly, there are no convincing alternative terms which are less politicising. Older terms such as ‘developing country’ or ‘third world’ are both historically and politically charged. A manner of speaking which refers only to ‘regional

differences’ remains too vague and general and, furthermore, can conceal inequalities and historical developments rather than identifying them. Secondly, this article aims precisely to strengthen reflection about the difficult research conditions in ‘non-Western’ countries, which are often influenced by colonialism. In public and academic discourse, these complex historical interrelationships are often associated with the term ‘Global South’, and this convention – which, as mentioned above, is problematic – is followed here for greater ease of understanding. In this case, too, references to purely ‘regional’ configurations might be more likely to conceal power relations than to address them. However, the author is aware of the problems with the term, even though she is not able to offer a more suitable one at this point.

Since Edward Said’s analysis of the knowledge and power relations between Western and non-Western cultures, it has been undisputed that scholars in the humanities and cultural studies, but also geographers and ethnologists, function as important accomplices in upholding power structures. In *Orientalism* (1979), Said examined various disciplines and their methods with regard to their contribution to the production and upholding of social power structures in the colonial era. The *postcolonial turn* (Berndt/Pütz 2007; Young 2012), which was characterised by Said and subsequently developed in various ways, produced important reflexive impulses for the humanities and social sciences. Research is understood to be part of the *postcolonial turn* if it examines the after-effects of the colonial era from a cultural or social sciences perspective. Here, it is important to show the intensity with which the colonial past continues to have an impact, both in former colonies and in the centres of the various colonial empires. Particularly in geography, as one of the oldest spatial sciences, the *postcolonial turn* encompasses a critical examination of the colonial roots of the subject, since geographers, with their work in dating and mapping, were at the head of colonial research enterprises in the name of the various colonial empires (Livingstone 1992: 170; Griffiths 2017: 4).

This essay offers a brief reflection on the special challenges of the work and research undertaken by academics from the Global North in the Global South. The focus is on whether and how stricter, more self-critical reflection and research ethics can be seen as forms of transformative potential within the political economy of research. Particularly in moments of rupture and challenges in the research process, it is important to develop an ethico-political position. It is precisely in this development of a position that I see the transformative potential of research ethics, which can unfold at the institutional, personal, project and output level.

2 The political economy of knowledge

‘[It is within] capitalist circuits of knowledge, where those who control means of production – credentialized northern researchers – profit most heavily’
(Gidwani 2008: 236).

The US social scientist Vinay Gidwani, who works in the tradition of political ecology and deals in particular with India's colonial past and the post-colonial after-effects of this era, ascertained self-critically that academic work in the Global South is embedded in a series of inequalities which mostly favour the researchers from the Global North. According to the author, research, just like all other economic value creation chains, is embedded in a political economy of spatial inequality. In order for knowledge to be identified as a usable good, according to Gidwani, an international translation and transport process for the raw data is required in order to assign them a value as knowledge products: 'To count as "knowledge", information must be moved from the peripheries to a metropolitan location and be given recognizable form within prevailing disciplinary protocols and debates' (Gidwani 2008: 236). Raw data must, therefore, not just be translated into science or academic knowledge by methodological and theoretical processes but also be transported from their local context to privileged locations of knowledge production in order to achieve visibility and thus an economic value within the political economy of global knowledge production.

A similar argument can also be found in Griffiths' reflection about the continuing supremacy of Western research institutions: 'We cannot claim to have made a committed attempt to provincialise Europe in the processes of knowledge production' (Griffiths 2017: 5). The European, Australian and North American university landscape today remains the undisputed centre of knowledge production (in the social and spatial sciences). Theories and methods that are formed here, in particular, continue to have a dominant status and are essential in the process of translation of information into scientific output. According to Gidwani, the transport paths of this information or raw data from the Global South to the university metropolises of the Global North have proven historically to be extremely stable and confirm the geographic inequalities already criticised by Said in the context of colonial knowledge production. Accordingly, a reflection on questions of research ethics is necessary, particularly in post-colonial contexts and in research situations in the Global South, in which socio-economic inequalities between researchers and research participants have historical roots.

What possibilities do we, as researchers, now have to locate ourselves critically in this political economy of knowledge production? Which moments within field research can help us to initiate a more self-critical reflection and to address the power relations on which our research is so often based, and perhaps even to change them?

2.1 The *ethico-political* moment of field research

If field research in the Global South is therefore characterised by an unequal political economy, Gidwani also shows that these processes never run smoothly or without complications. It is precisely in these frictions, challenges and ruptures that Gidwani sees the decisive moment of the 'ethicopolitical' (Gidwani 2008: 236), which can present an opportunity for critical self-reflection and therefore also for a potential transformation of the unequal relationships: 'The ethicopolitical marks zones of liminality where the prior certitudes of theories and methodologies are confronted by demands that cannot be anticipated or resolved a priori. As scholars we encounter the

liminal at various junctures: when formulating a research problem, during fieldwork, and when translating field research into written products' (Gidwani 2008: 236). It is therefore precisely these zones of ambiguity and indeterminacy in which Gidwani sees the potential of giving ethical reflections a political dimension.

In Gidwani's example, the author searched in vain for access to an archive in India for his research about the complex and often contradictory emergence of an Indian working class during the British colonial period. The rejection and denial of access to the archive which he experienced provoked one of the ruptures and pressure points in Gidwani's research which were necessary for ethico-political reflection. Although this refusal initially brought about a crisis in his research work and jeopardised the whole research project – and thus ultimately also the academic value creation chain – the moment was nonetheless significant for critical self-reflection about his own demands, expectations and positioning in the research context (Gidwani 2008: 237).

This frustration within the research project brought the first real opportunity to reflect on his own position and on others' perceptions of it. His own self-image as a critical social scientist with the expectation of honouring the Indian working class through his own research was productively shaken by the rejecting attitude of the archive employee. This *ethico-political* moment enabled both global and local power relations to be experienced afresh and to therefore become the object of reflection. Gidwani's further analysis of the situation makes it clear that it was only at this point that he was able to experience a deeper understanding of local hierarchies and historical injuries, not only theoretically but also emotionally/affectively. His own research was strongly influenced by this.

Ethico-political moments, then, seem to happen precisely when researchers are faced with complex challenges of location and encounter intersectionally situated people in their research projects. It would not be at all correct or useful to describe all research projects in the Global South as *researching down*, in which power structures are structured in a one-sided, hierarchical manner (Sekuler 2014: 91). That is made clear here: 'Travelling South and doing ethnography now means, rightly, engagement with complex (and sometimes contradictory) perspectives on privilege and difference' (Griffiths 2017: 4). As in the example mentioned, difference and privileges are not static but rather context-dependent and dynamic. At this point, it is important to emphasise that the intention is not to question Gidwani's relative position of privilege, but to consider the importance of developing a differentiated understanding of power and hierarchies in the research context. The binary division into Global South/Global North, as already explained in the introduction, should not keep academics from reflecting intersectionally on social positions. Thus, developing an ethical position within this complex process of situatedness can indeed also take on a political dimension. But how do these moments help to transform our research? What potential can research ethics offer in such complex situations?

2.2 Exploring research ethics and their transformative potential

In the following, three levels will be briefly outlined in which ethical reflections can contribute to a transformation of the research process. These reflections will be concretised by three personal experiences which became *ethico-political* moments during my own field research for my doctorate work in Bangkok.

My PhD thesis investigated how people in Bangkok experience climate changes and the adaptation strategies that they develop. It was particularly relevant for me to take a differentiated look at the small-scale, temporary movement and flight patterns with which Bangkok's cosmopolitan inhabitants reacted to the floods in 2011. Local contexts, social networks, socio-economic positions, historical urban development and infrastructure, as well as the relationship between city inhabitants and political institutions played a decisive role here. In the course of this research project, I spent six months in the Thai capital and conducted over 30 qualitative interviews with various urban residents (urban refugees from Sri Lanka, residents of informal canal settlements, environmental activists, UN employees, employees of the municipal and national government, and academics), ethnographic observations and what were known as *walk-along interviews*. The complexity of the different positions of the research participants became clear here.

As well as the challenge of dealing appropriately with the heterogeneity of the research participants, von Unger emphasised: 'Questions of research ethics are an immanent component of empirical research practice and are raised in all phases of the research process – from the choice of topic and objective to the study design, access to the field, the data capture and evaluation process, up to questions of publication and the application of research results' (von Unger 2014: 16). Similarly to Gidwani, then, von Unger emphasises that questions of research ethics repeatedly crop up in the research process and cannot be conclusively settled in advance. The examples from my own research also occurred at different points in the research process.

Particularly in Anglo-Saxon countries, research ethics are regulated by ethics committees, as mentioned previously. These institutional mechanisms certainly cannot replace ethical reflection during field work, and they cannot cover all the challenges in advance; however, they do help to prepare for difficult situations and to develop a feeling for the types of inequality between researchers and participants that may occur and how they might be solved. An ethics commission thus stimulates one's own process of reflexivity and supports this by encouraging researchers to address questions of difference, privileges, vulnerability and inequality even before beginning their field work (von Unger/Narimani/M'Bayo 2014: 12).

As shown in the example above, these reflections encompass much more than the researcher's own research process. Ecological consequences also had to be considered, which argues for a holistic view of academic research as part of a political economy of knowledge production. Accordingly, research is not only rarely value-neutral but also rarely CO₂-neutral. Ethical responsibility for one's own research therefore also extends to this level, which goes far beyond one's own research horizon.

The institutional level

The ethics committee at the University of Durham in England, where I did my doctorate, not only raised questions before my research journey concerning the research participants, my personal situatedness and the ethical challenges of the methods I had selected (interviews, ethnographic observations), but also demanded an assessment of the ecological consequences of my working methods. Flights, paper consumption, and local transport options were discussed. In this instance, research ethics therefore referred not just to responsible interaction with other people, but also with the planet. I was prepared for this reflection in the methodology courses in my Masters programme, which had embedded research ethics as a central component of the teaching content. While we attended courses on topics such as ethnography as well as on qualitative and quantitative research methods during the three trimesters of the Masters programme, all these courses contained a reflection on the ethical challenges of the individual methods. The Thai state also demanded an application and ethical reflections on my research before I was allowed to work in Bangkok.

My PhD project was also subjected to an ethical review by the Thai state, which has an interest in the protection of its population and resources. However, the military coup of 2014 and the continuing human rights violations (Chachavalpongpun 2014; Farrelly 2016) made this condition an ethical challenge. On the one hand, I felt that it was legitimate for the Thai authorities to demand my research application. The form I had to fill out made it clear that the state's predominant concern was protection against biopiracy in the name of research, since the conditions were considerably stricter for teams working in the natural sciences. On the other hand, I felt obliged to exercise particular caution when citing organisations and persons whom I wanted to interview, since I wanted to protect the right to anonymity of my research participants in all cases. Research projects can thus lead to reflections about political realities and authoritarian regimes, even if the actual object of the research is something else. Even in this case, an ethical positioning is also inevitably political and necessary.

To summarise, this example addresses various dimensions in which reflection should be understood to be part of research ethics which can achieve a transformative potential at the institutional level. In order to encourage students and young researchers towards self-critical reflection on their work and towards a positioning in the research field (regardless of whether this is in the Global South, among international elites or even in other (spatial/social) peripheries), increasing the share of this subject in methodological teaching surely makes sense. Furthermore, at the institutional level, reflection on the introduction of ethics committees would set a helpful impulse for the continued promotion of a broader dialogue about the (social) responsibility of research. At the same time, however, it should be borne in mind that this form of institutionalised control can constitute a problem if democratic principles and rules of play are not observed.

The personal/project level

During my field research, I was initially very concerned that, because of my 'outsider role', I could run the risk of (mis)representing research participants, of not completely understanding local contexts, and of speaking for or even about the 'Other' in my research without letting them speak for themselves in sufficient detail. It was all the more important to me to repeatedly seek out essential commonalities between the participants and myself during the interviews and ethnographic observations, and thus to gradually find a position in which I was less conscious of differences than motivated by commonalities. In this *ethico-political* learning process, it was indeed possible to approach the ideal of doing research at the level of equals. In such moments, the (real and sometimes perhaps only imagined) differences between me and the research participants disappeared, and the process of research automatically became much more dialogical and participatory than I had hoped for at the start. This not only resulted in a personal transformation but also enriched the project with new dimensions.

The institutional level also produces transformations on the personal and project level. Reflexivity at the cognitive level is often discussed in methodological literature against the academic background of securing methods. Reflexivity is seen here as an important epistemological basis for further cognitive processes (von Unger 2014: 24) and is therefore significant for the merit and quality of the results. Accordingly, the task of research ethics and of a reflexive attitude at this cognitive level would be primarily to enable and enrich findings in the social sciences (ibid.). This is undoubtedly an important element of qualitative research in the social sciences.

However, the transformative potential of reflexive research ethics is not just understood here at the cognitive level described but also includes affective and emotional components of personal development. In the above-mentioned example, this emotional/affective transformation was evident, for example, when initially presumed differences between research participants and the researcher were overcome and a common understanding of similarities and connection was possible. In this context, reflexive research ethics encompasses a continuous examination of the categories and assumptions which determine our research, but also our everyday orientations. Dichotomies between the self/other, Global North/Global South can be rethought through this reflexivity and may be overcome. Particularly for subsequent research projects, such experiences can be enriching and also contribute on a personal level to a deeper understanding (and potential countering) of hierarchies.

At the personal/project level, the transformative potential of reflexive research ethics therefore consists of an ideally continuous process of critical self-questioning and the continuing willingness to learn lessons from this for new research paths.

Output level

At this point, I can only report of personal failure due to my own expectations. During my field research, I attempted to develop alternative output formats; because of the limited time in the field and the lack of institutional affiliation, however, this was almost impossible. Particularly during the research visits to informal canal settlements in Bangkok, because of language barriers (I was dependent on the assistance of translators), it was extremely difficult to document joint results in a way that would have enriched the community in a meaningful way. During my field research, I was also working as a volunteer for six months with a group of refugees from Sri Lanka and Pakistan and was able to recruit friends here to take over my role as English teacher before my departure. Although this would probably not be evaluated as an ‘output’ in the strictly academic sense, this form of continuity creation may perhaps be evaluated as an attempt in which I, as a researcher, was able to give something back to the participants.

The third and last selected level, the output level, once again makes the opportunities and challenges of a transformative research aspiration particularly clear. Short stays in the field, inadequate institutional support and connection with the research participants, and diverse financial constraints, in addition to personal limitations, can make it harder to enable creative forms for the results at the output level. In particular, the ideal of enabling research participants to partake in an added value through their own work often seems impossible.

Although, as described above, this ideal is therefore often difficult to achieve, it is precisely the participatory and creative research methods which sometimes lead to forms of academic output which can supplement or even replace traditional academic articles. In the programme of the conference on which this article is based, ‘Spatial transformation: processes, strategies and research design’, there were a few papers which used the form of a research laboratory, for example. The aim of a research laboratory is to test new methods and approaches in a creative and experimentally open way. Kagan/Hauerwaas/Holzetal. (2018) see these real laboratories as important *spaces of possibility* for learning from and with each other. At these spaces of possibility, new visions for a shared future can be tested (Kagan/Hauerwaas/Holz et al. 2018: 42). Particularly in countries of the Global South, such a method can be useful in order to avoid research hierarchies and make the research results directly accessible to the participants.

Such a change in the academic output can, in some cases, also contribute to transforming the political economy of science addressed by Gidwani. He himself writes on this topic: ‘The researcher may start to ask what it would mean to write with a primary commitment to extra-academic social use-values that diverge from – even actively reject – the circuits of exchange and academic reward’ (Gidwani 2008: 237 et seq.). Particularly in the case of research in the Global South, outputs that

are not subject to a strict academic form may therefore be a lot more meaningful than an article in a journal which is difficult to access (and may also be difficult to understand).

3 Conclusions

Alongside institutionally protected norms of research ethics such as informed consent, ethical reflections in the research process also seem to be indispensable in a research context in which academics from the Global North are active in the Global South. Historical and continuing inequalities and privileges require a sensitive handling of differences and a careful seeking out of commonalities. Reflexive research ethics which confronts the complexity of the intersectional situatedness of research participants and researchers can provide an important contribution to this.

It seems useful to me in this context to take up the idea of ethico-political moments and processes in research. It is precisely at these points of rupture that the critical juxtapositions and frictions may occur which are necessary in order to become aware of the further transformative potential of research ethics. An ethical position here is more of a continual process, since self-reflection means continual work and is not definitively achievable from the outset. Particularly with regard to the conference programme on which this volume of the ARL Publication Series is based, research ethics can make a contribution to 'transformative research which is oriented towards specific social problems and offers participation opportunities for the most diverse stakeholders' (see the ARL/TRUST conference programme online), by enriching precisely this transformative research to include an ethico-political element of critical self-reflection. In specific terms, this means both cultivating a high level of self-reflection and developing a critical eye for intersectional differences – and commonalities.

Finally, it should be pointed out that many of the statements made and examples selected here may conceal the fact that researchers from the Global North are equally situated in intersectionally differentiated positions. The increasing neoliberalisation of the Western research landscape means that, in particular, doctoral students and postdocs who are not yet established may find themselves in precarious employment situations which are not given differentiated consideration here. Research is rarely equipped with the resources for which the researchers would wish. Stipends may end prematurely, funding cannot be raised, or resources are cut. These are all components which considerably impede one's own positioning within the political economy of knowledge production and in some cases impede the feasibility (particularly at the output level) of certain ethically desirable methods and principles. A reflection of one's own positioning in the research context therefore includes a critical exploration of the circumstances, practical constraints, institutional requirements and hindrances which are also (re)produced in the Global North and should also become the object of transformation and rethinking here.

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Andreas Eberth

INCUMBENT UPGRADING IN NAIROBI'S SLUMS: HOW YOUNG PEOPLE CONTRIBUTE TO LOCAL SPATIAL TRANSFORMATION

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Abstract

This article summarises the results and findings of a study of young people in the slums of Nairobi based on participatory research methods. The study investigated the engagement of these young people, as a civil society that is growing in strength, and their contribution to a spatial transformation of the district in question.

Keywords

Slum upgrading – governance – civil society – spatial transformation – Nairobi

1 Introduction

This article, which is based on the results of an empirical study, considers the extent to which young people in the slums¹ of Nairobi contribute as active civil society stakeholders to the development of their urban district. It shows, on the one hand, that they compensate for the frequent lack of top-down measures on the part of policymakers and urban planning through bottom-up projects. On the other hand, it clearly illustrates that planning must take local initiatives seriously and integrate them in a participatory manner into slum upgrading programmes. If the slum is understood as a space of opportunity for stakeholders in civil society, the planning instruments for upgrading the building structures in these areas can achieve a considerably more sustainable effect (cf. Reicher 2017: 235; *WBGU* [German Advisory Council on Global Change] 2016: 348).

¹ On the concept of the 'slum', see Nuissl/Heinrichs 2015; Wehrhahn 2014.

2 Methodology

A study was carried out with 15 youth groups (so-called community-based organisations) in the slum area of Korogocho in north-east Nairobi (Kenya).

- > The study was based on the following research questions:
- > How do young people living in Korogocho construct the area they live in as a *place*?

For more details, see Hernandez/Hidalgo/Ruiz (2014); Rudersdorf (2016). All the study participants were 15 to 24 years old at the time of the study, and all were born and raised in Korogocho.

Based on a method known as reflexive photography (see Dirksmeier 2013; Eberth 2018; Rose 2016: 324 et seq.), they were given the following task: take up to three photos of things, places or people that are important in your everyday life. The participants then took photos over the course of one hour, and were not accompanied by the researcher during the task. This was followed by a reflexive, quasi-narrative interview, during which they explained the significance of their chosen images. According to this method, discussion arises not from predetermined key questions, but purely from the subjects of the photographs. The data in the form of images and text generated in this way were then structured according to their contents and evaluated by means of qualitative content analysis (see Kuckartz 2016). A detailed account of the research design and evaluation can be found in Eberth (2019).

3 Results and findings of the empirical study

The appropriation and construction of space by the young participants in the study in Korogocho can be summarised by the following key points: Community and identification with the spatial environment as a place prove to be important factors. From the sense of place arises an engagement with the community and the social space, which can be described as *incumbent upgrading*, a 'development from within' (Wehrhahn 2014: 11). Such phenomena are not specific to Korogocho, but are occurring more and more in the cities of Sub-Saharan Africa: 'Cities in Africa are full of initiatives that create, despite all obstacles, social spaces that emancipate from all the constraints of an oppressive political climate' (Förster 2013: 246). Such initiatives allow people to react constructively to challenges such as unemployment. 'What is surprising, however, is the ability of unemployed youth to cope with the crisis through innovation and creativity' (Sana 2016: 150). This empirical study illustrates some of the strategies that young people develop in order to deal in a solution-oriented manner with their life circumstances, described by Olang Sana as a 'crisis' (ibid.) (see Eberth 2017a).

3.1 Identification and a sense of place

Various studies indicate that identification with the spatial environment – a *sense of place* – is often more pronounced in urban districts characterised by a relatively low average income than in other urban neighbourhoods (Hartshorn 1980: 198). Everyday ‘geography-making’ is characterised by certain actions resulting from intentions (Werlen 2010: 256). In this process, even though the surrounding space does not directly determine people’s actions, the intention that triggers those actions sometimes arises from a sense of place : ‘The places to which we are most attached are literally fields of care, settings in which we have had a multiplicity of experiences and which call forth an entire complex of affections and responses. But to care for a place involves more than having a concern for it that is based on certain past experiences and future expectations – there is also a real responsibility and respect for that place, both for itself and for what it is to yourself and to others. There is, in fact, a complete commitment to that place, a commitment that is as profound as any that a person can make’ (Relph 1976: 38). It is also clear, then, that the social space of Korogocho is constructed as a *place*. The principles of social space orientation are thus clearly apparent in the results of this survey (Thiesen 2016: 34).

3.2 Significance and influence of the neighbourhood as a social group or community

The surveys show that social networks among the residents of Korogocho can be considered extremely significant and make an essential contribution to a sense of identity with the place as a home. Given the spatial relevance of groups formed particularly by young people, they can also be described as social geographical groups, since they ‘establish similar behavioural patterns and represent similar spaces for action as they carry out the basic functions of their existence, and thus develop similar spatial relevance. In other words they are – as an aggregate – spatially relevant in a group- and function-specific manner’ (Broll/Egner/Leser et al. 2017: 856). David Ley points out the significance of ‘minority groups [because they] substantiate the importance of informal sources in dealing with varied urban problems’ (1983: 193). As shown by the results of this empirical study, that statement is certainly true, since the local youth groups are indeed able to develop constructive solutions to existing grievances. What is interesting is that, compared with the overall population of Nairobi, the slum population cannot actually be defined as a ‘minority group’, since it accounts for considerably more than half of the total population and therefore forms the majority of the urban population (UN Habitat 2014: 165). According to David Ley, it is the specific characteristics of urban life that explain how communities are able to develop the corresponding skills: ‘Because of the social nature of urban life, it is not surprising that problems are often solved in community. Social networks are often the most important single channel for resolving typical urban problems, such as finding employment or accommodation, and the most important source of support in difficulty and crisis’ (1983: 204; see also Lourenco-Lindell 2002: 30). Peter Dirksmeier emphasises similar aspects as contemporary features of urbanity in countries of the so-called Global South. He sees an economic importance in the place where people live, describing it as a source ‘for generating information and

associated possibilities for earning money' (2018: 12). The high population density is not at all a negative factor here; on the contrary, it is to be understood precisely as a potential that can be used constructively: 'People in the Global South are so attracted to the big cities precisely because the presence of millions of other people generates possibilities, despite increased competition, for their own life and even survival' (ibid.). He describes the associated multitude of options as '[...] an essential reference point for the urban' (ibid.). This phenomenon, whereby the residents of cities in the so-called Global South shape their own living environment or urban district, can be described as 'peripheral urbanisation' (ibid.). The fact that these *bottom-up* strategies really can have a major impact, and that transformation processes can be shaped in a constructive manner, is also emphasised by Doreen Massey, who explains that the shaping of cities is particularly dependent on the resourcefulness of their residents (1999: 164). In this context, the actions of the Korogocho youth groups presented here can be defined as a *bottom-up* strategy. As such, it is a development strategy that hinges on the active participation of people on the ground. The fact that this is not a phenomenon specific to Korogocho, and that the results also apply to the slums of Nairobi in general, is borne out by comparable studies showing that only two out of ten young people in the slums of Nairobi are *not* involved in youth groups or income-generating activities (Sana 2016: 151). Hence, these bottom-up projects clearly do lead to an empowerment of the civil population, and enable people to participate in and contribute to the shaping process: the '[...] empowerment paradigm argues that the biggest asset a poor community has is its stock of social capital, which allows it to carry out collective actions on the basis of solidarity. Social capital is best enhanced through collective actions that address the physical well-being of the participating individuals (and households)' (Pieterse 2014: 206 et seq.). The German Advisory Council on Global Change even goes as far as to describe such civil-society groups in slum areas as 'change agents' (2016: 312), and sees them as a transformative power. Achille Mbembe perceives the relatively young metropolises on the African continent as the source of 'unprecedented forms of a new African urban culture' (2016: 223).

The results presented here suggest a need to analyse the importance of the relationship between the individual and the household. In terms of livelihood strategies, the household is defined as a decisive category. As practised by Malte Steinbrink and Hannah Niedenführ (2017: 53) in connection with translocal phenomena, it may be necessary to modify the definition of the household as a result of the research findings presented here. It is as if the term needs to be set free from the confines of its own 'four walls' (ibid.). In the context of translocal households, this refers in particular to its disconnection from a specific place; what it means for this study is that the function of a household is ascribed to the youth groups. Hence, the household is to be understood as comprising not (only) the members of a family or relatives. Rather, it can also include other social attachments and networks, in this case the youth groups. Malte Steinbrink and Hannah Niedenführ (ibid.) refer to interaction, cooperation and sharing as important characteristics of a household, which is much better defined as a 'householding' community, whose members coordinate their activities of consumption, reproduction and use of resources over a long period of time. Accordingly, the members of a household do not necessarily have to live together' (ibid.). In an expanded sense, household functions are carried out not only by the

youth group, but also by the community, since the youth groups are very closely integrated into the network of the community and thus also into the network with other youth groups. All in all, it is clear that there are strong local social networks in the form of ‘informal social safety nets, which can be relied on as a coping strategy in times of crisis’ (ibid.: 65). Close social relationships can thus be seen as the most important coping strategy, proving indispensable for survival in a difficult economic environment with a challenging infrastructure.

Seen in a critical light, the results may also indicate the rise of ‘soft’ neoliberalism. This is associated with a shift in the ‘responsibility for services and facilities of the welfare state onto citizens, and is generally not accompanied by an increase in resources, influence or power. Moreover, contrary to the widely touted guiding principle of cooperation, there is actually increased competition between groups in civil society, for example for government subsidies’ (Rosol/Dzudzek 2014: 214). Although the results of the study clearly point to the potential of the youth’s own initiative and bottom-up engagement, local forms of governance must always be critically assessed, so that the cooperation of local stakeholder groups really does evolve ‘for the good of the city’ (Sack 2014: 92) and so that social conflicts are mediated rather than exacerbated (ibid.).

4 Critical excursus: Urbanity as a manifestation of capitalism?

‘Only the proletariat can invest its social and political activity in realising an urban society. Only it can revive the meaning of productive and creative activity by destroying the ideology of consumption. It is able to spawn a new form of humanism, which differs from the old, liberal form of humanism that is coming to an end: namely that of the urban dweller, through whom and for whom the city and living in the city has come to mean creation, appropriation and use value (as opposed to exchange value), and who thus takes advantage of all the resources provided by science, art, technology and the domination of the materials of nature for this purpose’ (Lefebvre 2016: 198).

It may be open to debate whether and to what extent the population of Korogocho can be described as a ‘proletariat’. Even so, there are clear parallels between this section of the population and the historical definition of the concept. As shown by this study, spatial appropriation by young people leads to the emergence of a certain form of urban everyday culture. With reference to the debate on the significance of slums as areas of squalor with few prospects (e.g. Davis 2011) or, on the contrary, as places of arrival offering opportunities (e.g. Saunders 2011), this study highlights the potential of these urban districts, which are more than just places of arrival, having now become home to whole generations of people. If one takes a systematically critical look, however, it must also be stated that in the wake of this urbanisation of lifestyle, a capitalist economic and societal model seems to be manifesting and imposing itself. While a subsistence economy and trade by barter are still conceivable in rural areas, these options no longer exist in the city. This is borne out by the examples of activities of young people in Korogocho, as described in this article: even if a community aspect is clearly identifiable and the importance of social net-

works is noteworthy, the focus is always on generating a monetary income too. This is not in itself objectionable – for young people it is simply necessary for their own survival – but it also goes to show that ‘urbanisation’, by definition, means that capitalism can scarcely be evaded in an urban context. Achille Mbembe comments on this as follows: ‘Systems of solidarity now coexist with often brutal market conditions’ (2016: 267). Timothy J. Clark, a British art historian, examined the relevance of this observation for Paris in the late 19th century, commenting: ‘The city was the *sign* of capital’ (1984: 69, emphasis in original).² He reduces culture to a mere side effect and describes the power of material values, capital and social status. Although he concentrates on more affluent sections of the population, whereas this article focuses on low-income groups, there is still a discernible connection. Even so, it remains to be seen – and will need to be researched over the coming years – how the residents of Korogocho will deal with the potentials and risks of their situation. An orientation towards material values is counteracted by a civil society that is strong or growing in strength, and stands up for common interests (Eberth 2016).

5 Implications for spatial planning and urban development

As underlined by Henri Lefebvre, planning must be oriented towards the needs of society (2016: 199). He states that for this to happen, there has to be a ‘science of the city’ (ibid.: 196) to research ‘relationships and connections in urban life’ (ibid.). There is a risk that growing institutionalisation will eliminate the truly urban, he says. In his view, the urban is notably ‘the creation of authentic social groups’ (ibid.: 141). This phenomenon can be clearly observed in Korogocho. In what was initially an unplanned, informal settled area, it is precisely the activity of social groups that accounts for the special value of this slum as a social space and, in this sense, it can be seen as a form of true urbanity, since: ‘the *urban* is [...] the creation of the urban dwellers, without it being imposed on them as a system, like a book that has already been written’ (Lefebvre 2016: 105; emphasis in original). Projects planned on a top-down basis for slum upgrading in Nairobi, as practised in Kibera and Mathare North 4A in particular, are the clearest possible example of a loss of urban life (see Konukiewitz/Djafari 2001; Schramm 2009; Eberth 2017b: 176 et seq.). In order to avoid failure and to implement constructive urban (district) development processes, Jennifer Robinson (2006: 256) calls for new forms of governance that make use of existing dynamics. Birgit Obrist firms up this idea, and also associates it with the participation of *communities*: ‘Planned change means creating awareness of the need for coherent and effective policy, adaptive management, efficient implementation, as well as an array of other interventions to respond to challenges in urban development, including community initiatives’ (2013: 10). Accordingly, it is precisely with respect to urban development processes and slum-dwelling communities, that she notes: ‘The demand – and the solution – must come from the bottom. The squatters [...] are the change agents of

2 The risk of an excessive influence of capitalism on African societies is also underlined by Achille Mbembe: ‘Money has become much more than before a factor that separates individuals from each other and the subject of intense conflict. A new economy of people has emerged based on the commodification of relationships, which have hitherto at least partially avoided the commodity form. An attachment to things and goods has taken root at the same time as the idea that everything can be bought and sold’ (2016: 232).

the cities“ (Neuwirth 2007: 79). In order for this to be achievable, a change of perspective is now required, and a reassessment of what is desirable in terms of urban structure. If the ‘city of short distances’ or a ‘life between houses’ (Gehl 2015: 32) are taken as the guiding principles for a sustainable and viable city (or urban development), then the structure of Korogocho and other slums in Nairobi can no longer be classified as problematic and ‘underdeveloped’ per se. On the contrary, some of the features of public life there can be seen as best practice examples of urban life. If there is to be an improvement in the wretched conditions, especially when it comes to sanitary facilities, it is particularly important to initiate sensitive urban renewal processes, which do not aim to remove all the structures that have evolved, but which instead build on the positive developments. This is the only way to avoid repeating the mistakes made in the cities of the so-called industrialised countries, particularly during the course of the 20th century. It is absolutely imperative, therefore, that active outdoor life, which contributes to the revitalisation of entire urban districts, be maintained and not determined or suppressed by passive building structures (ibid.: 251). This approach is in keeping with current observations, which praise the innovation-friendly milieu in Nairobi and the potential of its creative start-up scene (Kleis 2016). When structures that have evolved over time are destroyed, when corrugated iron huts are torn down and replaced by large apartment blocks, the result is that these measures determine not only established networks and market structures, but can also have a negative impact on creative milieus. The upgrading of infrastructure and improvements in the condition of buildings must therefore proceed with caution, so that the result is not a deterioration of the situation and exclusion.

6 Conclusions

It is clear that the younger generations living in the slums of Nairobi can be seen as creative and engaged stakeholders who contribute to the spatial transformation of their urban district. According to Ingrid Laurien, this is also significant for Nairobi as a whole: ‘The future of Nairobi lies in the slums and emerges from the slums’ (2018: 93). To conclude, this research project clearly illustrates the added value of participatory methods (see Unger 2014) and the potential of questions that are kept relatively open. In this respect, the spatial sciences should focus much more on carrying out interdisciplinary research projects and applying participatory methods in this context.

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Sebastian Purwins

DYNAMICS AND CONSEQUENCES: THE ECONOMIC/ ECOLOGICAL DOUBLE CRISIS IN CHINA AND THE BAUXITE-ALUMINIUM INDUSTRY IN GHANA

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Abstract

The economic/ecological double crisis has long since reached China. In order to stabilise the growing economy, access to new markets and resources is indispensable. At the same time, the associated environmental damage is steadily increasing, causing public pressure on the government in Beijing. This article argues that, in the sense of David Harvey (1982), crises are not solved, but rather spatially managed. Ghana as a market and the predominantly untapped bauxite reserves have aroused China's interest. In 2017, the two countries signed a Memorandum of Understanding concerning the development of an integrated bauxite-aluminium industry in Ghana. What may be interpreted as crisis management for China leads to an increased exploitation of natural resources in Ghana and to the problem of leaving this development path. Based on field research in March 2018 and intensive research on the literature, these dynamics and possible consequences are discussed here using the concept of the *spatial fix* and the *economic/ecological double crisis*.

Keywords

China – development path – spatial fix – Ghana – bauxite-aluminium industry

1 Introduction

In the past, the economic development of Ghana was characterised either as '*growth without development*' (Ayelazuno 2014: 95) or as '*progress and poverty at the same time*' (Obeng-Odoom 2014). However, the new government, elected in 2016, aims at comprehensive industrialisation in order to create growth and prosperity. Natural raw materials and their valorisation have central significance within this strategy: '*We have huge infrastructure needs in areas of roads, bridges, water, electricity, housing, hospitals and schools and the problem has always been where to find the money*'

(Akufo-Addo 2018). Although the susceptibility to crisis of such raw material-based development models is well-documented, Peters and Burchardt (2016) believe that a departure from raw material extractivism in the Global South is unlikely. For resource-rich African countries such as Ghana, the role of raw material supplier in a global economy seems to be manifesting itself. The reason given for this is that the economic structures usually have a one-sided orientation towards the exploration and mining of natural resources, and the lack of diversification of the economy blocks a change of direction towards other development paths in the medium term. In the process, the impression is created that, above all, the countries' own internal structures are inefficient and inadequate. External influences and systemic constraints are often disregarded. At the same time, since the financial crisis of 2008, increasing numbers of investors have concentrated on Africa in order to use the economic starting position as a *spatial fix* for capital (Ayers 2013; Klare 2012). Thus, Zhang (2017) interprets China's Belt and Road Initiative (BRI) as a *spatial fix* in order to manage the internal economic crisis tendencies. Meanwhile, China is not only facing the challenge of continuing to achieve high economic growth rates; at the same time, ecological problems are drastically increasing. This economic/ecological double crisis is becoming a challenge for the capitalist centres as well as for aspiring nations such as China. This article addresses the question of how far China's investment in the bauxite-aluminium industry in Ghana can be interpreted as managing its own double crisis. Here, it is argued in the spirit of David Harvey (1982) that crises are spatially managed or displaced, and resource-rich African countries such as Ghana continue to play an important role in this context as raw material suppliers and sales markets.

1.1 Structure and methodology

This article will firstly analyse the concepts of double crisis and *spatial fix* before explaining the dynamics in the bauxite-aluminium sector in more detail. The article will then address China's double crisis, discussing the extent to which Chinese investment in the development of a bauxite-aluminium industry in Ghana can be understood as a way of managing this crisis. Finally, the article offers a critical discussion of the dynamics and consequences of these phenomena. These findings are based on an intensive examination of the theoretical foundations, an appraisal and analysis of secondary data (media reports, political documents and reports by companies and NGOs), and field research in Ghana in March 2018. During the field research, the infrastructure of the bauxite-aluminium industry in Ghana was mapped. Free, informal conversations also took place. The persons interviewed were not brought into a traditional interview situation, such as in narrative interviews. Free conversations serve to generate contextual knowledge in order to make corresponding classifications when combined with secondary data; they are, therefore, only suitable as a supplementary method.

1.2 Theoretical background

The term 'crisis' is often used to characterise the current world situation. For example, Brand and Wissen write (BUKO [Federal Coordination of Internationalism] 2013:

2): *'The situation in Germany and internationally is characterised by various crises', and Machnig (2011: 19) also ascertains: 'Crisis is becoming the permanent category of modernity.'* However, the term 'crisis' is sometimes used arbitrarily and inconsistently in political, scientific and public discourse, according to Machnig (2011). Bader, Becker, Demirović et al. (2011), following other authors such as Altvater (2009), Brand (2009), Candeias (2009) and Wolf (2009), reject the limitation of the current constellation as a crisis dynamic of capitalism to the economic and financial crisis, and include other crises such as that of energy supply, climate or food supply. This so-called multiple crisis denotes four central crisis complexes: the crisis of finance-dominated accumulation; the socio-ecological crisis; permanent crises of reproduction; and the crisis of parliamentary democracy. The term 'multiple crisis' is sometimes used synonymously here, since the core aim is to search for connections between the individual crises and for system-dependent effects of their simultaneity. Ulrich Brand (2009) conceives the multiple crisis in a more differentiated way. For example, in the social field, he makes an additional distinction between forced migration, the crisis of gender relations or of hegemonic masculinity, as well as social integration. Klaus Dörre (2017) argues that the term 'multiple crisis' suggests that all areas are in crisis. However, this would mean losing the analytical sharpness of the concept. He defines (transformation) crises as a *'spatiotemporal hardening of disruptions, or more precisely, of the limits of capitalist accumulation, which constantly make themselves noticeable over the course of time but are now causing a social turning point, a fundamental decision-making situation'* (Dörre 2012: 2). At the same time, he argues that Europe is experiencing an economic/ecological crisis and that the economic and financial crisis can be described as a crucial turning point for this (Dörre 2017). Accordingly, in order to stabilise capitalist societies, increasing and repeated growth is needed in order to intermittently overcome the periodically occurring economic crises, but for which – in the Marxist sense – the sources of growth and prosperity, i.e. work and nature, must continue to be exploited. Economic growth as a strategy to overcome economic crises thus becomes the driving force of increasing ecological damage. The double crisis consequently describes the intersection of two lines of development: *'rapid and permanent economic growth on the one hand and accelerated energy and resource consumption as well as increasing emissions on the other'* (Dörre 2017: 3). Meanwhile, threshold countries such as China are now also massively affected by this double crisis and must grapple with it (Dörre 2018). The economic/ecological double crisis is managed using various strategies, although it should be emphasised that these are *'strategies without strategists behind them'* (Foucault 1978: 132) when speaking of crisis management. The consequences of this development are not necessarily congruent with the original strategic objectives pursued by the stakeholders. At the same time, as Dörre (2017) also emphasises, stakeholders have an influence on the system, and the systematic growth compulsion is not necessarily without an alternative.

In addition to the concept of double crisis, the theory of *spatial fix* also plays a major role in the argument of this article. For David Harvey (1997, 2003), one of the central problems of the capitalist economic system is the danger of over-accumulation, i.e. the accumulation of capital above the limit of profitable usability. In his seminal theory, Harvey assumes that the continuing reproduction of capitalism is essentially based on the possibility of shifting the necessarily occurring surpluses of investment-

seeking capital temporally or spatially (by means of geographic expansion and restructuring). He terms this the *spatial fix*. The term *fix* does not mean to set in place, but to repair or stabilise, in the original sense used by David Harvey (1982). He argues that the *fix*, i.e. the stabilisation of the inner crisis of the economy, takes place by means of the spatial expansion of economic networks, i.e. the colonisation of new markets. This also involves the question of whether perhaps new locations of raw materials and energy carriers can be identified which could lead to a price decline and therefore cheapen production, or whether new fields of capital accumulation are being opened up: for example by privatisation, the acquisition of natural resources, or the acquisition of knowledge and its transformation into a good (Harvey 2001; Harvey 2003; Wiegand 2013). Because of their unexploited raw material sources, the peripheral regions of global capitalism represent the greatest potential here. However, these conceptually produced regions are limited, and their resource potential means that they are correspondingly contested. In this context, the state plays a central role for Harvey. However, its relation to the economy remains undefined in his statements. Wolff (2016) argues that without a state as a political form which regulates the basic transport and ownership conditions, the capitalist production method is unthinkable; capital accumulation processes can only be realised by the state. Nevertheless, the state exhibits a so-called relative autonomy, both with regard to social classes and to the economy – relative because the state is structurally dependent on successful capital accumulation, since the tax revenues necessary for its existence can only be collected through this. It is therefore in the state's own interest to support the accumulation of capital by geopolitical initiatives (Wolff 2016).

In the following, these theoretical assumptions will now be connected with Chinese investment in Ghana's bauxite-aluminium industry. Knierzinger (2018) emphasises that research on African bauxite mining and its developments is rare. In his work, Knierzinger (2016) investigates mining in Guinea; for Ghana, however, there have hitherto only been predominantly historical studies which focus on bauxite and its role in the era of the country's independence. The present article, in contrast, attempts to classify the current dynamics using the theories described above.

2 Bauxite in Ghana

Bauxite is an aluminium ore which predominantly exists in a belt around the equator. It is currently the most important ore used for the commercial production of aluminium. In the tropics, bauxite occurs in horizontal layers a few metres underneath the earth's surface. These layers are mixed with further, different clay minerals, iron oxides and titanium oxides, which firstly have to be washed out for further processing. The material is then crushed in refineries and converted into aluminium using energy-intensive electrolysis (Knierzinger 2016). The most important bauxite mining areas in Africa are located in Guinea, Ghana and Sierra Leone. In 2014, Guinea, as the fourth-largest producer worldwide, produced 17.3 million tonnes of bauxite; Sierra Leone produced 1.16 million tonnes and Ghana approx. 837,000 tonnes (USGS 2016). Although Ghana possesses extensive reserves, the bauxite-aluminium industry is not very significant in terms of the national economy. The country exports cheap bauxite, imports aluminium oxide, processes this in a smelter and then in turn exports alu-

minium. This fragmented supply chain, which was established in the 1970s, was advantageous for the companies concerned, but was not in the economic interests of the country (Hart 1977). The insufficient energy supply for the smelter, as well as the outdated rail network, resulted in Western companies gradually withdrawing from this sector (Knierzinger 2018).

3 The development of an integrated bauxite-aluminium industry

In the context of Ghana's presidential elections in 2016, however, bauxite as a raw material greatly increased in significance. From then on, bauxite was not just to be extracted but also to be processed in Ghana. Export income from the aluminium could, in turn, fund social programmes such as schools, infrastructure or the water supply. The new president of Ghana emphasised: *'My government is going to implement an alternative financing module to leverage our bauxite reserves in particular to finance a major infrastructure programme across Ghana. This will probably be the largest infrastructure programme in Ghana's history without any addition to Ghana's debt stock'* (Akufo-Addo 2018). In June 2017, after extensive previous negotiations, Ghana signed a Memorandum of Understanding with the People's Republic of China, which provides for the development of a bauxite-aluminium industry by means of a US\$ 10 billion loan. The loan is provided by the Chinese Development Bank, and construction measures are carried out together with China Railway (Oxford Business Group 2018).

In March 2017, Ghana's finance minister published a six-point plan for the development of an integrated bauxite-aluminium industry. The plan includes the opening of new bauxite mines near Awaso, Nyinahin and Kyebi (cf. Fig. 1), the construction of refineries and the development of the corresponding infrastructures, such as an energy supply and the building of new transport routes (Ghana Ministry of Finance 2018). In addition, the aluminium smelter at Tema is to be expanded and an industrial park created for the further processing of aluminium (Oxford Business Group 2018). In July 2018, the government entered into a contract with the Chinese firm SinoHydro. The firm is investing US\$ 2 billion in the expansion of the infrastructure and, in return, will receive processed bauxite for the next 15 years. In return, the government will endeavour to develop refineries in order to process bauxite (Kpodo 2018).



Fig. 1: Infrastructure of the bauxite-aluminium industry in Ghana

In Ghana itself, the investment is intended to stimulate economic growth, particularly against the background of growing foreign debts. When the world market prices for raw materials fell drastically in 2013 and 2014, Ghana's GDP dwindled from US\$ 47.81 billion in 2013 to US\$ 38.62 billion in 2014 (Jones 2016). At the same time, its debt burden greatly increased, since the country increasingly had to take out loans. Measured against the GDP, the debt burden rose from 47.9% in 2012 to 73.4% in 2016 (Jones 2016). In addition, in view of its high debt burden and declining income from the export of raw materials, the state does not have much money available for infrastructural measures. In order to counter the growing debt burden, the government is aiming to generate higher tax income by means of more economic growth; in China, it has found an interested partner which can not only finance these projects but also use it as a way of managing its own crisis.

4 China and the double crisis

In the last few decades, the People's Republic of China has become known as the workbench of the world and has become embedded in a capitalist global economy. China's economic growth and current development are largely based on exports. For Lardy (2012) as well as Peck and Zhang (2013), the export sector is crucial for the country's economic stability. In 2017, with exports valued at around US\$ 2.26 trillion, China was the largest export country in the world, beating Germany (US\$ 1.44 trillion) and the US (US\$ 1.54 trillion) (Statista 2018). China predominantly exports computers, TVs and telephones, and imports oil, integrated circuits and iron ore. Carpintero, Murray and Bellver (2016) argue that, in the last few decades, the BRICS states have experienced high and accelerated economic growth, which goes hand in hand with increasing social inequality and ecological damage. In order to stabilise its national

economy in the long term, China is accordingly dependent on (1) raw materials for production and (2) sales markets to purchase the consumer goods. After the financial crisis of 2008, the Chinese government reacted to the drop in GDP with a recovery package of over US\$ 586 billion (Schmalz/Ebenau 2011). The Central Bank relaxed the issuing of loans and lowered the key interest rate by 1.8%; in addition, export tax was reduced and household goods such as televisions, refrigerators and mobile phones were subsidised in rural areas (Schüller 2009). In 2013, the Chinese government began its Belt and Road Initiative (BRI) in order to open up new markets and develop infrastructure. The BRI pursues the aim of connecting economic areas worldwide, and is geographically structured along various land and sea corridors (Silk Maritime Road). In the sense of David Harvey's *spatial fix*, the BRI can be understood as a '*displaced crisis of over-accumulation through geographical expansion*' (Sum 2017), since, as Schmalz (2018) argues, China is using these measures to try to avert a possible financial crisis, and its domestic policy has to cope with the increasing overcapacity of industry and a growing debt burden. Through the BRI, China exports its surplus through the expansion of infrastructure into other countries and supports economic growth at the same time. Thus, Ghana, too, is increasingly embedded in a '*China-based globalisation*' (Kanungo 2017) and, as a resource-rich country and rapidly growing sales market, attracts the interest of Chinese companies. The close interconnection of politics and the commercial sector in China enables targeted agreements to be made between the public administration and companies, as well as a joint approach in foreign markets. For Asche and Schüller (2008: 15), the impression of a comprehensive strategy for the economic provision of local public infrastructure for Africa is reinforced by the fact that '*the Chinese government formulates clear industrial policy objectives and deploys a mixture of market economy and interventionist instruments in order to achieve its objectives.*'

However, growing ecological risks are increasingly threatening the prosperity which China has created for itself. Seven of the ten cities with the highest air pollution in the world were in China in 2005. 60% of China's river systems are classified as Class IV and are considered unsuitable for human consumption (Schmalz/Ebenau 2011). According to Heberer and Rudolph (2010), over 750,000 people in China die each year from environmental pollution. Above all, the increasing air pollution is becoming a severe health risk for the population. Mortality in cities with heavy air pollution is 15 to 20% higher than in cities without heavy pollution (Bundschuh/Klingelhöfer 2013). The escalating environmental pollution has sporadically triggered environmental movements (Wen 2006), to which the government reacted in 2008 with a US\$ 600 billion environmental and climate protection package. This included reforestation and investment in renewable energies. As part of this, the environmental authority was also upgraded to a ministry of the environment (Schmalz/Ebenau 2011). At the National People's Congress in early March 2017 in Beijing, the incumbent prime minister of China, Li Keqiang, announced the Blue Sky programme to tackle environmental problems in industrial cities. Greenstone and Schwarz (2018) determined in a comprehensive analysis that China did indeed manage to significantly reduce the fine dust pollution by taking drastic measures. According to them, an action plan initiated by the government to reduce air pollution achieved a reduction in fine dust values by 32% between 2013 and 2017. They mainly attributed this to the fact that many factories were closed or partially had to cut back production. Particularly the heavy industry in

the north of the country, which is responsible for around 50% of fine dust pollution, was subjected to restrictions. Thus, in the winter months of 2017 and 2018, production in 28 aluminium smelters was reduced by 30% (Daly/Mason 2018; Liu/Zhang 2018).

Since 2013, China has been attempting to make e-mobility the future of the Chinese automotive industry (Merics 2014). By 2025, China aims to be the world market leader in medical technology, aircraft construction, the chip industry and electric mobility (Wübbeke/Meissner/Zenglein et al. 2016). Especially for aircraft construction and the production of particularly light electric cars, aluminium as a material is irreplaceable. While aluminium processing is to be further expanded within the country, its production is being partially relocated abroad. For example, numerous investments have been made in aluminium smelters or bauxite mining abroad, for example in Tajikistan¹ (US\$ 1.6 billion), Guinea² (bauxite-aluminium production

US\$ 2.8 billion), Iran³ (co-financing of an aluminium smelter), Jamaica⁴ (US\$ 2 billion), Indonesia⁵ (expansion of existing production) and Ghana (US\$ 10 billion). The high proportion of investment in Ghana is due to the fact that US companies are active in Guinea, for example. Conversely, China has been able to establish a monopoly position in bauxite mining in Ghana: the only stakeholders in the bauxite-aluminium industry are China and Ghana (through shares in the smelter). At the same time, this relocation also addresses the ecological crisis in China and thus also defuses public resistance against the government. This brings a double advantage, since both economic development and clean air seem equally feasible. The *dirty industries* are relocated to the peripheries, and the aluminium produced is needed for the production of electric vehicles, for example. In February 2018, Borton wrote an article entitled '*Blue Skies and a Booming Economy: China can have both*', which described how China is successfully averting the economic crisis while, at the same time, reducing air pollution in China's large cities to the satisfaction of the population. From a political/ecological point of view, however, there are justified doubts about this notion of a win-win situation: this apparent success is only based on spatially shifting the double crisis rather than on solving it.

5 Discussion

According to Dörre (2012), the economic/ecological double crisis only poses two genuine alternatives: either economic development becomes socially and ecologically sustainable, which also means robust and crisis-proof, or the forms of capitalism which have developed must converge with the still very vague guiding principle of steady state economies and enable stability despite a lack of growth. However, the

1 See Eurasianet 2017.

2 See Samb 2017.

3 See Onstad 2018.

4 See CGTN 2018.

5 See Xinhua Finance 2018.

simultaneous challenges result in ever new reproduction possibilities for capital. Firstly, the development of an industry is intended to generate growth, yet this growth should not be based on fossil fuels, since many African countries wish to bypass this fossil development level. Thus, alongside investment in industry and agriculture, environmental technologies and renewable energy also offer diverse investment possibilities for capital. For example, Ghana has been in possession of a second solar farm since 2016. Whereas the solar farm opened by the Volta River Authority in 2013 only generates 2 MW, the second, which is owned by the Xiaocheng Company, generates almost 20 MW (Kumi 2017). The possibilities for investment in green technologies, particularly in the energy sector, present a further means of binding capital in the sense of the *spatial fix*, while at the same time creating economic growth by generating energy. The provision of energy offers the prerequisites for further industrial growth. However, the energy sector in Ghana also shows that China is not the only stakeholder which is increasingly investing in this country. Currently, a third solar farm is in the final phase, which is built and owned by the British company Blue Energy. After its completion, this is to be the largest solar farm in Africa and the fourth largest in the world, generating 155 MW (Blue Energy 2015). Even though the focus of this article is on China, the very significant influence of other powers should not be forgotten. Brazil is active in Ghana with an investment volume of US\$ 200 million and is creating almost 9,000 affordable apartments near Accra with an affordable housing project (GTAI 2018). Carpintero, Murray and Bellver (2016: 218) state that Africa is becoming the contested territory between the old dominating capitalist centres and aspiring competitors such as the BRICS nations, and even describe Africa as '*the last frontier for international capital*': not least because Africa will soon be among the last low-wage regions, according to Paul Collier, the former Director of the Development Research department at the World Bank (2010). In the sense of the *spatial fix*, these peripheral regions of global capitalism present the greatest potential for stabilising manifestations of economic crisis. Thus, Carpintero, Murray and Bellver (2016: 200) characterise an increasingly identifiable development path for Africa, '*specialized in resource extraction and waste disposals from the rest of the world*'. This development – as this article argues – is not caused by inadequate economic diversification, but is above all the result of external forces which exert a strong influence for various reasons and are able to benefit from the specific baseline situation.

6 Conclusions

The present article has addressed the question of how far China's investment in the development of an integrated bauxite-aluminium industry in Ghana can be interpreted as crisis management, in order to offer a differentiated explanation of why there is continuing exploitation of the resources in the countries of the South and why it is increasingly difficult to leave this development path. Questions remain unanswered as to who benefits from this comprehensive investment and who loses, as well as the ecological consequences it entails. However, many of these questions cannot yet be satisfactorily answered. Carpintero, Murray and Bellver (2016) argue that the growing influence of China in Africa and its possible effects are being increasingly appraised in the media, as well as in the academic community. However, particularly given that Harvey and Nak-chung (2017: 253) describe the current investment in Africa as '*the*

latest and biggest spatial fix by neoliberal capitalism', the focus should rather be on the critical questioning of unequal developments and asymmetries.

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RURAL AREAS IN TRANSITION – VILLAGE DEVELOPMENT IN THE LIGHT OF NEW STRUCTURES OF RESPONSIBILITY

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Abstract

This article focuses on the challenges of rural areas, the formative power of citizens and the funding programme for village development in Lower Saxony. The article elaborates the importance of collective responsibility in villages by means of cooperation between local political representatives, the administration and village residents in their various functions. It points out the need for further research on the assumption of responsibility; using the example of the funding programme for village development in Lower Saxony, the article pursues options for methodically supporting these processes in future.

Keywords

Village development – responsibility – participation – civic engagement – planning process – rural areas

1 Introduction and objectives

Actively shaping one's own living environment and assuming responsibility: the village development funding programme presents an opportunity to create suitable responsibility structures and framework conditions for this purpose in villages.

Life in rural areas is undergoing change and facing comprehensive challenges. Political, economic and spatial planning interventions are used in an attempt to address this. However, these have been and often continue to be funded, steered and planned by external actors (Brake/Klein 1997). Current research sees a need for change in this respect, because in order to retain the village as an attractive place to live and work (Harteisen 2016), stakeholders in rural areas must jointly assume responsibility

(Ritzinger 2011; Harteisen/Eigner-Thiel 2016). These reflections focus on the formative power (Krambach 2013) of village residents and the question of preserving the local quality of life. Quality of life is created not only from the availability of social, technical and cultural infrastructures and existing individual resources but also from social relationships and a lively village community (Harteisen/Eigner-Thiel 2016). The lack or disappearance of these elements influences the current and future development of villages and emphasises the need for action. As a result, local people are needed who, as affected persons, are willing to contribute to the active shaping of their living environment and to assume responsibility. The academic discourse about the assumption of responsibility is still very much in its infancy, whereas in practice, responsibility is already being assumed by civil society in diverse ways. Civic engagement has great significance for rural areas (*BMFSFJ* [Federal Ministry for Family Affairs, Senior Citizens, Women and Youth] 2016) and is manifested, for example, in voluntary fire services, village shops or resident's buses. As well as local people, support structures such as funding programmes also play a role for rural areas, as they can help to shape the development of villages by financial incentives and by supporting cooperation. Various questions arise with regard to cooperation and joint responsibility: What responsibility do members of a village have for shaping their living environment? What might innovative solutions for the joint shaping of the living environment look like? What role can the funding instrument of village development play as an instrument for planning and stability, and to what extent must it be further developed for this purpose? My PhD research is based on these questions. Within the framework of the village development funding instrument in Lower Saxony, my research includes an investigation into whether village development requires new methods and a new substantive direction with regard to the formative power of residents and other structures of responsibility in order to be able to respond to current and future challenges.

The present article aims to demonstrate the need for further development of the funding programme with regard to the formative power of residents and the examination of structures of responsibility, and to emphasise the specific research need. The themes of responsibility and village development are addressed from a regional studies and planning perspective. The article begins by discussing the challenges of rural areas, the formative power of residents and the village development funding programme. It then identifies the conditions for the assumption of responsibility and considers them in relation to the process of village development. On this basis, the significance of the joint assumption of responsibility in villages will be elaborated. At the same time, questions will be raised regarding changes to methodical process support.

2 Rural areas – existing challenges

A closer look at life in the country shows that *the* rural area or *the* village do not exist; instead, there is a broad range of different starting situations and developments. According to the definition in the *Land Atlas (Landatlas)*, not only villages but also many small and medium-sized towns count as rural areas. According to this demarcation, 57% of the population of the Federal Republic of Germany therefore live in rural

areas, which make up 91% of the country's territory (BMEL [Federal Ministry of Food and Agriculture] 2016). Based on this knowledge, it is surprising that rural areas still play a subordinate role, not only in public but also in research on the structuring of planning processes and on responsibility. On this basis, it is worth taking a separate look at rural areas, since the current developments have different effects on urban and rural regions and require different approaches.

Rural areas face significant challenges connected with demographic, economic and social change. Whereas dwindling populations, the ageing of society and migration occur in all types of space, individual localities are subject to different specific problems. Acting on the basis of individual cases therefore seems appropriate. An indication of this is the different extent to which technical and social infrastructure is dwindling. Many villages show a deficit with regard to local public transport, schools and nurseries, or retail trade (Einig 2015). With regard to the low birthrates and the emigration tendencies from rural to metropolitan areas and cities, the issue of vacancy, which often goes hand in hand with unattractive village centres, is very present. In connection with the ageing society, the question is also raised as to how care measures can be guaranteed in future despite the infrastructure problems. Changed demands in relation to housing and work can be identified as a result of the change in values in society (Helmle/Kuczera 2015). Lifestyles change and influence the shape of leisure time and mobility. A high level of commuting and a form of everyday life which is characterised by having little available time beyond unavoidable activities pose challenges here. This also leads to a change in the willingness to become involved. For example, people get involved in specific projects, but not so much on a long term basis (Helmle/Kuczera 2015; Becker 1997).

In summary, individual needs and interests now characterise life in villages. Despite this, certain particularities of village life often remain intact. The sense of community, close contact with neighbours and nature are just some of these aspects which constitute quality of life and which are valued (Harteisen/Eigner-Thiel 2016). In this context, a discussion and consideration of participation and responsibility in village development proves important.

3 The formative power of the village community

With a view to the structural change in rural areas, targeted joint activity by residents and social cohesion are important in order to retain quality of life and enable sustainable development. This is shown, for example, in the *WohnLokal* pilot study (Wolter/Kaiser 2018), in which joint activities and personal contributions which lead to a sense of community were identified as success factors.

Empirical research shows that the capacity for self-determination is significant for residents of rural areas (Magel/Ritzinger/Groß 2009; Krambach 2013). The concept of empowerment encompasses the ability to 'take existing interests into one's own hands and shape them independently and responsibly' (Hill 2008:17). The formative aspects and people's pro-active engagement are at the forefront here. At the same time, the traditional relationships between all participants is called into question to

the extent that the focus is on cooperation and the joint development of solutions, rather than on solutions suggested by external experts (Lenz 2009). Empowerment manifests itself in some villages in the implementation of innovative endogenous projects and successful cooperation between local people. Some of the research for my PhD thesis takes place in the village region of Lower Saxony known as ‘from Bierde to Wittlohe’. The self-organised village shop in Otersen exemplifies the potential which can be developed by successful cooperation. This also shows how various challenges can be overcome – from how things are organised to stacking the shelves. The joint networks which emerge make use of resources and the scope for action that residents create for themselves.

This civil society potential of the village community with regard to joint action offers an opportunity for development processes such as village development, which, however, require a stronger focus and integration. Initially, however, this raises the question of the extent to which one can still talk of a village community these days, in view of changing lifestyles in villages. Coexistence in villages is characterised by the lack of young people and a large proportion of older people. This trend contrasts with the relevance that is still assigned to the village community. It is associated with good neighbourliness, contact density and manageable social relationships (Krambach 2013; Henkel 2012). Very different forms and stages of development of village communities can be seen in current developments. In addition, several communities may also coexist which are not differentiated by spatial delimitation but, for example, by common interests (Vogelgesang/Kopp/Jacob et al. 2018). The formation of village communities is also distinguished by the existing social relationships between the residents. These are positively influenced by civic engagement, a number of social activities, active village associations and self-organisation. Here, self-organisation refers to the possibility for village residents to be able to steer, shape and organise things within a village (Krambach 2013).

Overall, the importance of interaction in a village is revealed – regardless of how exactly the village community is organised. According to Kurt Krambach (2013), the future viability of villages depends on the people and the ‘power of civil society’ within the locality (Krambach 2013: 43). The challenges that affect life in rural areas today contribute to the emergence of lively village communities in some localities. In these cases, perceived changes and restrictions lead to an impetus for people to change and shape things through their own efforts. In such examples – which include the aforementioned Otersen village shop – the local residents discover their formative power and assume responsibility. They make decisions of their own accord and gather experiences which lead to empowerment. The importance of cooperation in the village and the potential which can be opened up by becoming active together can also be seen in villages which have participated in competitions such as ‘Our village has a future’ (*Unser Dorf hat Zukunft*) (BMELV [Federal Ministry of Food, Agriculture and Consumer Protection] 2011).

In order to harness this potential formative power of cooperation between local people for village development, it is necessary to reflect on the participatory processes which take place. It should be asked to what extent the formative power of members of the village is incorporated. The role of local residents in participatory processes and

the seriousness of joint solutions and decision-making are essential in order to find a common basis for the shaping of future development. This makes it possible for local political representatives, the administration and residents to assume responsibility jointly in their various functions and offices.

4 The funding programme for village development in Lower Saxony

In Lower Saxony, local authorities can apply to the Lower Saxony Ministry of Food, Agriculture and Consumer Protection (*Niedersächsisches Ministerium für Ernährung, Landwirtschaft und Verbraucherschutz*) for village development funding. In villages which make successful applications, ‘planning, implementation support and measures are subsidised which initiate comprehensive private and public regeneration plans’ (Office for Regional Land Development Leine-Weser 2018). The village development funding programme is an instrument used to initiate processes at a local level and to jointly create a village development plan for the future shaping of the village. Several villages come together in village regions in order to pursue a common strategy development. The level of an individual village has been recognised as being frequently too small for strategic developments. Based on the stipulations of the Guideline on the Granting of Aids for Integrated Rural Development (ZILE 2017), a joint concept for development is created in the village regions whereby relevant issues are identified and initial proposals for measures are outlined. As well as the collaborative approaches, the funding programme includes the possibility of private subsidies – for example for energy regeneration in houses.

The village development funding programme in Lower Saxony entails the discussion of questions like ‘How do we want to live in future?’, ‘What are our local challenges here?’ and ‘How can we respond to them?’. Participatory approaches play an important role. In the process of village development over several years, an exchange of ideas between local politicians, the administration and local residents about the shaping of the village is encouraged. Likewise, local businesses, churches, associations, etc. may be involved. On the basis of the different spatial circumstances and the endogenous potential, joint discussions are held to decide on important fields of action and necessary projects. The moderating and advisory support by a planning office supports the process of combining various existing interests and leveraging potential. Diverse forms of participation are used in order to involve residents. Further training is also offered for interested participants, such as village moderation. A clear understanding of the roles of the participants is advantageous for cooperation. A peculiarity of rural areas, with their limited number of people, is that one person may hold different functions or offices at the same time (Born 2017). For example, one person may at the same time be the chair of an association, a member of the local council and also be interested in the topic as a private individual. When collaborating, it can be important to make one’s own role clear during discussions. The village community, with its views of how future life in the villages should be shaped, also plays an important role in participation. This is clearly shown in the targeted attempts to involve groups such as young people, farmers or elderly people, who are often not represented by active persons, in the process. The opportunities offered by the process are also shown in potential new structures of collaboration between publicly acting persons and local

residents. Examples of this include the establishment of long-term working groups (Born 2009) or overarching strategic committees. Building on this cooperation, the question is raised as to how far the shaping of the participatory process must change in order to deepen it and to support a joint assumption of responsibility for the future shaping of the village as a living environment.

5 Responsibility for shaping the village living environment

When considering the joint assumption of responsibility, the following question arises: what responsibility can and should the residents take for the shaping of their living environment in the villages? This question arises in the context of the discussion about public service provision, the existing expectations of people who live in the village, and the actual service performance by the state in rural areas. Provision of public services encompasses the securing of public, comprehensive access to existential services and goods at socially acceptable prices and in the acceptable minimum quality (Kersten/Neu/Vogel 2015). Technical and social services are included here. State responsibility for guaranteeing the provision of public services includes the provision of services and also the provision of the infrastructure needed for this. According to the spatial planning report, the provision of public services refers to 'the public safeguarding of a range of selected goods and services which are classified as essential by the legislator' (BBSR [Federal Institute for Research on Building, Urban Affairs and Spatial Development] 2012: 31). In rural areas, local authorities must fulfil their municipal obligations despite often declining tax revenues. The narrow financial margin results in a loss in the provision of voluntary tasks such as support for libraries or open-air swimming pools, since even maintaining minimum standards causes problems for many local authorities. Funding programmes such as village development in Lower Saxony may offer financial grants for this along with the option of creating a framework or ideas for solutions for the future development of the villages.

5.1 Conditions and differentiation of the assumption of responsibility

In the basic consideration of the assumption of responsibility, various conditions become evident. Responsibility is firstly a basic ethical stance which includes the willingness to collaborate in order to create something 'good' together (Banzhaf 2017). In addition, responsibility is also an organisational and formative principle of social practice. Stakeholders today are not responsible *per se*; rather, a distinction must be made between different forms of responsibility. Ethical responsibility in the sense of taking responsibility for consequences must be distinguished from legal responsibility in the sense of the assumption of liability and from sociological responsibility in the sense of the acceptance of tasks (Heidbrink 2006). The ambiguity means that it is important for the future to specify who is responsible in a particular situation for what, with regard to whom and why (Banzhaf 2017).

With regard to the obligatory tasks and the voluntary tasks of local authorities, accountability exists on the part of the state, since 'local affairs' (section 28(2) of the Basic Law) must be guaranteed. If, because of budget constraints, new and innovative

solutions are sought in order to find a way to maintain the village as an attractive living environment together with all those concerned, a certain scope for action and decision-making must be established. A concomitant surrendering of responsibility by the local authorities requires discussion. Competence responsibility entailed by the assumption of particular tasks or roles by members of the village plays an important complementary role in this sense, particularly in those areas where no precise regulations or external stipulations exist, such as voluntary commitment (Heidbrink 2017). In practice, it is evident that residents are already assuming responsibility for the common good by their commitment in diverse ways, by contributing to social cohesion, generating social capital, or even contributing to providing public services. Thus, at the local level of the village, co-responsibility for the common good is not just discussed but is often already being enacted. The voluntary assumption of responsibility can be found in villages in the form of diverse civic engagement and association structures. One established example is voluntary fire services (Steinführer 2015). Village shops, too, not only present a form of civic engagement but also the assumption of responsibility for local services for the members of a village. The assumption of responsibility appears in various dimensions in these examples. Firstly, there is a responsibility for certain tasks which are assumed by individuals, such as selling goods in the village shop. Secondly, there is a common assumption of responsibility by the group in relation to all persons in the village by making local provision possible in the village.

In addition, motivation and the interests of the respective persons play a role in the assumption of responsibility. The perceived immaterial or material gain may be decisive for a willingness to contribute (Kiehlbrei/Magel 2012). It is also important to note that this is not about a transfer of responsibility by others but about self-determined assumption which is based on the conviction of being able to help oneself and on empowerment, for example. An important aspect is the voluntary assumption of responsibility by residents. In addition, not everyone is equally capable of assuming responsibility, since this is linked to conditional and generic conditions. The conditional requirements are freedom to act, causality – i.e. the ability to have an effective influence on consequences – and intentionality as well as knowledge of consequences. The generic conditions include developing the abilities and competences needed for responsibility and ultimately the assumption of responsibility (Heidbrink 2017). These prerequisites are often met in practice by so-called *draft horses* (Damm/Dähner/Slupina et al. 2017): particularly committed persons who possess these competences in order to initiate projects and encourage others to participate. However, this also means that further training measures for the future discussion and assumption of responsibility are relevant, particularly when activating previously less committed local residents.

The assumption of responsibility always plays a role when there is a possibility of influencing something. However, this can quickly lead to overwork, which is why competences should be clearly defined and why a ‘reflection on the limits of the human capacity for responsibility’ is necessary (Banzhaf 2017: 163). With regard to village residents, this means that addressing what is manageable is important for a continual assumption of responsibility. This can be seen not only in the discussion about which tasks the local authority will still be able to perform in future, but also in

the advantage of having full-time officers responsible for volunteer commitment. The above-mentioned limits play an exceptional role, particularly for approaches aimed at making processes permanent. In summary, the assumption of responsibility requires differentiation. There is an accountability on the part of the state which is contrasted with the voluntary assumption of responsibility. Responsibility can be assumed by various stakeholders, alone or jointly, and for many different reasons. It is important that the stakeholders have the necessary capabilities and that corresponding spaces of action and possibility are created.

5.2 Village development and responsibility

With regard to the assumption of responsibility in the context of village development, the participants in the planning process show an interest and an initial willingness to assume joint responsibility for the shaping of their living environment. They develop project ideas on the basis of endogenous local potential, as well as a long-term perspective for development possibilities and limits (Magel/Ritzinger/Großetal. 2007). Jointly, they identify fields of action and form working groups (Brake/Klein 1997). The funding programme typically intends for the municipality to collaborate with local residents and take up the resulting ideas and proposals. When considering a collaboration or potential future cooperation, the various persons involved in the process and their attitude towards the assumption of responsibility play an important role. As well as different motivations, there are differences in power and resources. One's own perception of one's role in the village development process is just as relevant here as creating the space for action and enablement which might mitigate these differences. Consequently, it seems that this reveals the limits and possibilities offered by the assumption of responsibility in the context of the village development process. An example of a power difference would be if the local authority has to agree to the jointly drafted village development plan, as this means that it has decision-making power and is therefore able to create spaces for action. The planners who moderate and advise the process of village development are able to influence the collaboration. On the one hand, they shape the framework of exchange within which the various interests are addressed; on the other, they have the role of mediators in situations of conflict. They can take on a supportive role in the exchange between the municipality and population, and constitute an important coordination point for exchanges between the different villages.

There is thus a need for research into the perception of responsibility, particularly with regard to the various perspectives of the residents and planners, as well as into how to bring these together. The question also arises as to what existing structures of responsibility in village development processes look like and how a joint assumption of responsibility on the basis of them might be structured. This necessitates a discussion of the options for activating the assumption of responsibility, and of the corresponding conditions and possibilities for stabilising this in the long term. This reveals a need to change the planning supporting processes and its methods in order to support a joint assumption of responsibility. This need for research will be taken up in the course of the PhD thesis. To do so, qualitative research will encompass interviews conducted with planners who are highly experienced in village development. In addi-

tion, focus group discussions will take place with participants from two village regions. The various perspectives will then be brought together.

6 Conclusions

The nascent academic and political discussion about sharing responsibility in village development opens up an exciting field concerning the question of how the shaping of life in rural areas might look in the future. In practice, associations and various types of commitment guarantee that several aspects will be maintained. The assumption of responsibility for this may comprise different dimensions. Specific tasks such as driving a residents' bus are supplemented by an overarching responsibility which is assumed by residents coming together to improve the local transport situation. In order for local residents to become active in this way, they must '*want to be, able to be and allowed to be*' (Ködelpeter/Nitschke 2008: 17). The village development funding programme offers diverse starting points to address the assumption of responsibility. The research project will examine this in depth and collect qualitative empirical data on the structures of responsibility in village development and the possibilities and conditions of a joint assumption of responsibility.

The willingness of local people to take on the future shaping of village life constitutes an important starting condition for this. Firstly, this affects residents who use their leisure time in order to make a contribution. Secondly, however, interest is needed on the part of local political representatives and the administration in a collaboration which takes the role of residents seriously. If village development is regarded purely as a funding instrument, the potential formative power of the village community and of the joint assumption of responsibility cannot be exploited. However, if there is an active village community and an interested local authority, this provides a good basis for reflecting on new structures of cooperation within the village development process. Further research should discuss how far the structuring of the planning process and the methods used are suitable for this, as well as possible adjustments or expansions to the process. It is important not only to encourage processes for the assumption of responsibility but also to provide them with a suitable structure for cooperation, while respecting the limits of what is achievable, creating space for enablement and making a contribution towards long-term stability.

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Yvonne Siegmund

CAN OPENNESS BE PLANNED? AN ESSAY ON THE TEMPORAL DIMENSION IN SPATIAL PLANNING

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Abstract

Urban planning processes manoeuvre within the interplay between constantly shifting global, regional and local dynamics. Considering processes from a temporal perspective can therefore provide a key to understanding these complex contexts. Although the time factor is still largely ignored in planning practice, some exceptions, such as *rapid planning* or *slow urbanism*, experiment with it. In these cases, planning processes are either accelerated and simplified or expanded and designed openly. This essay focuses on the slow, open-process developments of creative quarters in Munich and Hamburg. In both cases, the temporal dimension will be used to elucidate path dependencies in the negotiation and design of urban spaces.

Keywords

Time – temporalities – planning time – space-time – slow urbanism – fast urbanism – open planning – creative quarter – acceleration – deceleration – own times – timescapes – time structures – openness – flexibility

1 Making planning time visible

*‘Three questions have always driven and preoccupied me in my research:
Which causes and motives are connected with the structuring of space?
How does built space influence our actions?*

*And how can I decipher these hidden connections and make them visible and explicable?
I am convinced that the temporal dimension represents a key to this.’*

In *The smallest possible intervention*, which was written between 1979 and 1981, Lucius Burckhardt expressed surprise at spatial planning – more precisely, at ‘[...] how seldom such time-related information is included in it, and how seldom the planner admits that they are unable to predict the course of events. This is probably because the urbanist planner has learnt to deal with space but not to have an overview of time. The planner sees time simply as the empty elapsing of in-between spaces [...]. There seems to be no sense of the fact that the time of planning itself is the actual time that we live in, that our life does not pass in the time of realisation but in the time of planning’. (Burckhardt 2013: 51).

2 Time structures in transition

There have been increased attempts for some years now to combine the strands of space and time research more closely together – in planning practice, however, this connection is still far too rarely addressed. This is surprising, since the discrepancies and tensions between political, structural, economic and civic society perceptions of time and objectives now emerge more clearly than ever in city planning. This development can be partially explained by upheavals in the structure of time within society. In the areas of cultural studies and the social sciences which research time – for example, philosophy and geography – the focus for decades was on social acceleration processes. However, the theory of incessant acceleration is strongly criticised today. It is argued that acceleration is a problem that has long since been overcome and is now only a symptom of temporal scattering or ‘dyschrony’ (Han 2009: 7), since people today lack order, rhythm, stability and a meaningful sense of duration.

Although the causes are assessed differently, there seems to be agreement about the social consequences: acceleration, flexibilisation and fragmentation increasingly characterise everyday worlds. And these tensions, also referred to as a ‘blurring of boundaries’ (Läpple/Mückenberger/Oßenbrügge 2010), are increasingly reflected in a changed use of the city. Urban spaces with numerous, dense and overlapping functions and infrastructures, similarities and contrasts, events and possibilities are searched for and formed by so-called ‘time pioneers’ who have to manage their unpredictable everyday life flexibly (Oßenbrügge/Vogelpohl 2010). They are the pioneers of dissolving living and working environments, as explained by Hartmut Rosa: events, actions and processes increasingly lose their time, their expectable duration, their ‘place in the temporal sequence’ (Rosa 2009: 33). Unpredictability, openness, and multi-optionality are part of everyday reality for more and more people, and these social developments are increasingly, although still too rarely, the starting point for planning activity.

Exemption clauses or plans attempt to integrate the temporal dimension into their processes, for example the *accelerated processes* (section 13a and b Federal Building Code) anchored (in some cases temporarily) in the Federal Building Code, the *Rapid Planning* research project, or comprehensive urban strategies such as *Città Slow* and *Slow Urbanism*. If, therefore, planning strategies are temporally ‘labelled’, this is done predominantly with reference to speeds, with either *fast and targeted* or *slow and open-processed* planning. Planning thus attempts to react dynamically to overarching

economies, as well as to local needs, with a suitable tempo. But what are the limits to accelerated and decelerated planning? And what happens when they are exceeded? These questions lead me to the following theory.

3 Compensation theory

Accelerated processes are often accompanied by their opposite, i.e. by 'delay, retardation and deceleration' (Rosa 2005: 51 et seq.). Aleida Assmann explains this phenomenon using the compensation theory by the philosophers Joachim Ritter, Hermann Lübbe and Odo Marquard as follows: in our accelerated world, which itself cannot be changed, breaks and idle times must be incorporated in order to make it more bearable for people (Assmann 2013: 210 et seq.). The dynamic of modernity is therefore no longer linear, but rather – in a far more complex and sometimes paradoxical way – is characterised by a coexistence of opposites (cf. *ibid.*: 226). Breaks and idle times have now become deceleration trends in leisure time with concepts such as *mindfulness* and *offtime*, while *slow business* is a concept in the working world. *Work-life blending*, i.e. the blurring of boundaries between work and leisure time by means of yoga breaks integrated into the working day or *sabbaticals* – all these things are intended to provide orientation and clarity, and ultimately to optimise work processes.

This essay discusses decelerated planning approaches in two so-called *creative quarters* in Munich and in Hamburg. In both places, the municipal authorities are attempting to maintain built structures and to shape neighbourhood development together with the user community in an open process.

4 Case analyses

4.1 The Munich laboratory in the creative quarter on the Dachauer Strasse



Fig. 1: Impression of the Munich laboratory (2017) / Photo: Yvonne Siegmund

After the realisation of the ambitious design by Kazunari Sakamoto for the replanning of the *Werkbund settlement* (*Werkbundsiedlung*) was rejected in 2007, the city of Munich saw an opportunity in 2011 to announce a competition for coherent planning for the approx. 20-hectare *creative quarter*. The special feature of this site was, and is, its lively cultural and creative scene, which has been established in the north-western area since the 1990s. Thus, a *creative quarter* existed long before the competition of the same name was announced. The intention was to keep the creative uses but to move them to the southern part, while in the main part of the site, approximately 900 apartments were to be created with a social infrastructure, office spaces, retail trade and educational institutions.

The competition for an urban development idea was won by the offices Teleinternet-cafe and TH Landschaftsarchitekten, although they evaluated and addressed the main principles of the competition in a different way. They subdivided the area into four development sites (*laboratory*, *field*, *park* and *platform*) and recommended developing each of these at different speeds and within different timeframes. According to their assessment, the approximately five-hectare *laboratory* area, with its creative scene, constituted the centrepiece in which structures should be maintained and only successively converted or expanded. With this approach, the competition winners multiplied the required creative use within the site. An additional green open space known as the *park* area, located between the *laboratory* and the listed hall buildings,

meant that the required 900 housing units had to be accommodated densely and quickly in the *field* and *platform* areas. On the other hand, a great deal of time was allocated to development in the *laboratory* to generate impulses for the entire quarter (more information: Teleinternetcafe, undated).

There was palpable euphoria in the *laboratory* when the competition was won: numerous workshops and art events took place under the motto 'A new start'. Soon, the Munich Laboratory (*Labor München*) initiative (now an association) was also founded on the site: a cooperative community of artists, creative businesses and socio-cultural stakeholders.

The subsequent Regulation on the Awarding of Contracts for Freelance Services (*Vergabeordnung für freiberufliche Leistungen, VOF*) process was also won by the competition winners, and in 2014 they developed a framework plan which recommended structural-spatial stipulations in potential temporal developments within the regulations and structural guideline.

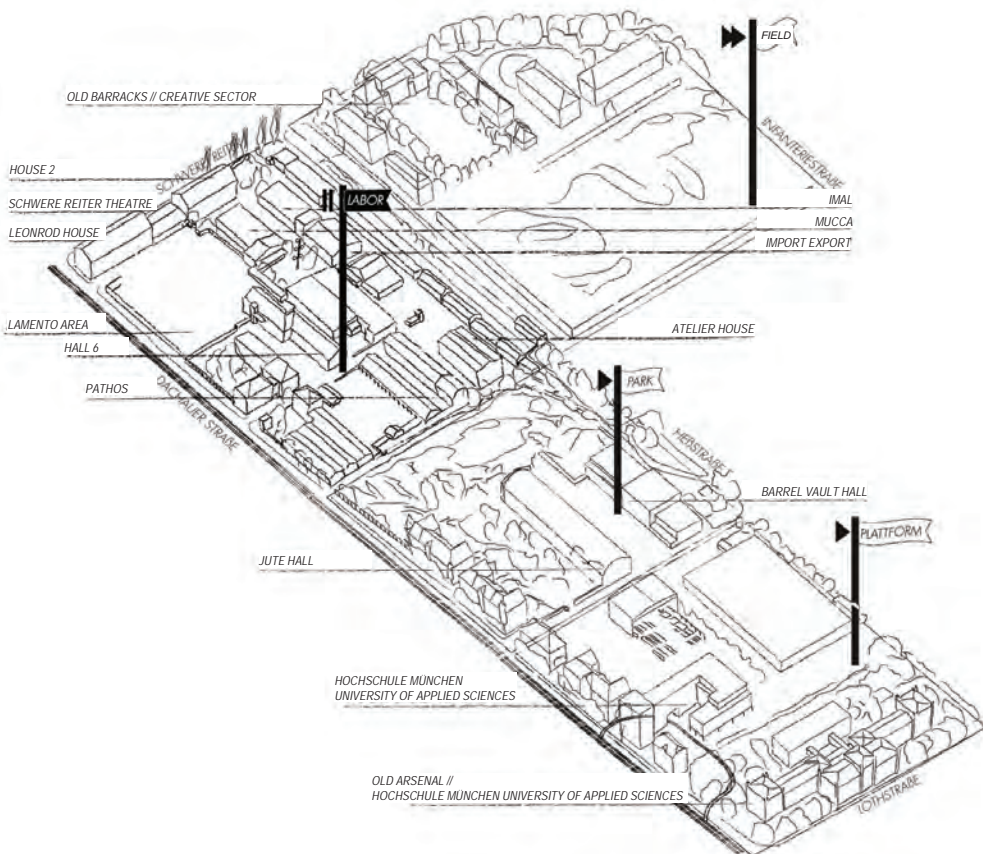


Fig. 2: View of the laboratory in the Munich creative quarter (2018) / Source: the author

Seven years have now passed in the *laboratory* since the competition was won. The creative user community has grown and is, in some cases, active in the quarter's management. In 2016, a coordination office was set up, which started upgrading part of the building stock in line with fire protection requirements. However, not every building could be maintained. The demolition of the Lamento hall produced a 6,000-square metre hole in the *laboratory*. Since space-time gaps in the neighbourhood are to be avoided, not only is interim use made of the existing building stock, but provisional arrangements are also experimented with in vacated areas – such as the vacated *Lamento area*.

4.2 The Hamburg Oberhafen quarter in HafenCity



Fig. 3: Impression of the Oberhafen in Hamburg (2017) / Photo: Yvonne Siegmund

The first creative artists also discovered this unusual place at the end of the 1990s. The *Oberhafen* spans approximately 1,300 metres between the slanting Oberhafen canteen, the *Deichtorhallen* art centre, between the harbour basin and the railway embankment through the north-eastern part of *HafenCity*. Single-floor goods halls and head-end brick buildings characterise the quarter.

Deliberations took place at the end of the 1980s and specific planning from the 1990s for the development of today's *HafenCity*. The master plan in 2000 intended to use the almost seven-hectare *Oberhafen* as an industrial and commercial area. In subsequent years, however, circumstances changed (e.g. because of the financial crisis), while at the same time, difficult spatial constitutions caused headaches for the planning authorities (e.g. flood protection, difficult access, traffic noise). Furthermore, the 'Creative milieus and open spaces in Hamburg' (*Kreative Milieus und offene Räume in*

Hamburg) survey by UC Studio identified the creative potential of *Oberhafen* and deemed it absolutely worthy of protection. This meant that the development of a *creative quarter* was the only logical scenario. Existing halls were to be maintained, space was to be offered for creative use in the low-threshold area, and the future of the place was to be shaped in an open dialogue process with the local stakeholders. In the revised master plan of 2010, the *Oberhafen* was intended to be a space of inspiration which, in the long term, would form the heart of a creative, cross-district networking space.

Since 2003, all the buildings in the *Oberhafen* have been the property of the City and Harbour (*Stadt und Hafen*) special fund of the Free and Hanseatic City of Hamburg, represented by HafenCity Hamburg GmbH as an urban development company. The last commercial enterprises and shipping agencies moved out in 2013. But it was not until the release of the land from railway use in 2015 that the quarter could be developed intensively, and work was started on regenerating the halls, some of which were 100 years old. Nevertheless, the general situation for the local creative and artistic scene are not easy. The area is not built at a flood-safe level and the technical standards of the buildings are very low, such that investment on the user side has to be compensated by lower rents (cf. HafenCity Hamburg GmbH 2011). New rentals for temporary use are organised in cooperation with the Hamburg Kreativgesellschaft, which also has its premises in *Oberhafen*.

Thus, between 2011 and 2014, an experimentation phase began which was planned to last for approximately 20 years, since by then, the stability of the halls could be guaranteed, urban investment should have been recouped by rental income, and the creative quarter – it is hoped – will have grown and established itself.

Nine years have now passed since the revised master plan. The creative user community has grown, and part of the building stock has been minimally regenerated. However, not every built structure could be retained. Part of Hall 4 had to give way to sports facilities. No decision has yet been made about the demolition of the rail hall roof between Halls 2 and 3.

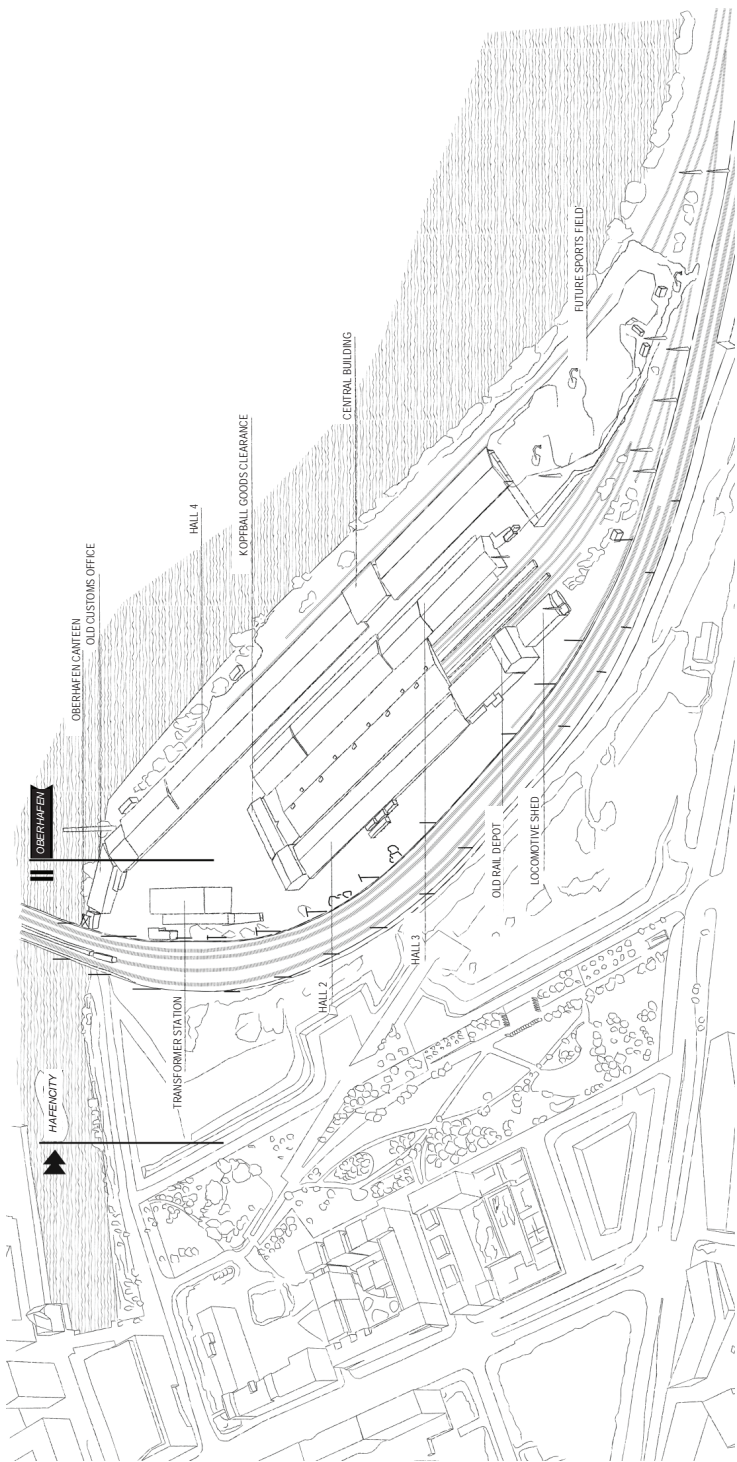


Fig. 4: View of Oberhafen in HafenCity (2018) /Source: the author

5 Compensation levels

The following questions arise when considering both quarters: Is openness plannable? And can a creative quarter be planned? Although it may not be possible to answer these key questions or to resolve the associated paradoxes, they form a connection with the *compensation theory* which I will outline in the following, using the examples of three observed phenomena. The continuation of my theory is namely that the slow and open-process approaches offer the necessary breaks, idle times and also outlets in a linear, and in some cases increasingly accelerating, planning culture. And these compensatory outlets take effect at the spatial, processual and social level.

5.1 Space-time compensation

The competition winners were only able to legitimise the maintenance of the building stock and the slow development of the *laboratory* with the aid of a proposal for the fast implementation of two of the three adjoining areas: the *field* and the *platform*. Thus, these two areas function as outlets for the development pressure in Munich. While housing would be created there rapidly, in the adjacent *laboratory*, creative spaces would be further developed and things would be allowed to emerge. Conversely, however, this legitimation (speed enables slowness) can explain the principle of the compensation theory postulated here (speed cannot exist without slowness). At this point, I will take up the thoughts of Ritter et al. again and apply them to the Munich and Hamburg quarters. The *Oberhafen*, too, constitutes a break from large-scale demolition, rebuilding and reprogramming in comparison with the rest of *HafenCity* – similarly to the Munich *laboratory* in comparison with the rest of the creative quarter. Both locations are intended to develop autonomously, and function, in a sense, as oases of deceleration and possibility spaces in rapidly changing, thoroughly planned neighbourhoods (Fig. 2 and 4).

5.2 Compensation in the planning process

The quarter scale, in turn, reveals a further dialectic: time, as a dimension in the life of a society, can neither be increased nor multiplied but can only be compensated or compressed (cf. Rosa 2016: 34). Thus, for the Munich departments and the Hamburg authorities, compensation means avoiding space-time gaps in the development of quarters. The slow wheel must keep on turning continuously – without breaks. Thus, the building fabric and local features are maintained, but spaces must be made available for temporary use at short notice, quickly and flexibly. This strategy is as reasonable as it is paradoxical: on the one hand, the short-term nature of the uses outwardly extends the provisional arrangements, while on the other, this means that the frequently necessary fire protection measures, authorisations and room rentals must be implemented at short notice and quickly. Accordingly, not every task and planning phase proceeds at an even pace, let alone slowly (cf. Siegmund 2018: 72 et seq.).

5.3 Compensation at the stakeholder level

In both quarters, those involved in the process shape its course and their spaces. On the basis of the interviews I conducted, I was able to identify four planning types which, at the start, fundamentally differed from each other in their typical proper times and understanding of the process. It was exciting to see their development in the slow, drawn-out negotiation processes, since these required the rethinking of handed-down roles and responsibilities. Thus, the negotiations in the *laboratory* and in *Oberhafen* also changed those involved in the process.

The planners: The planning instances originally really understood the time over which planning takes place to be merely an intermediate phase. First and foremost, they pursued the aim of completion – the path was linear and clearly timed. When the decision was made to retain and develop a creative quarter, many (but not all) adapted to the sluggish negotiation process. They accepted several possible futures and tried to create the prerequisites for flexible, creative interim solutions.

The creatives: Creative thought and work is usually intrinsic and iterative and works through immersion and quality. This cyclical mode of thinking is naturally connected to a continually extended present. Long-term projects are rarer, and thus long-term objectives are vague. The future is uncertain. But the creative types, too, adapted to the planning process. To do so, it was partly necessary to organise themselves, even to institutionalise themselves, in order to be able to formulate and assert common goals. Some of them are now active in managing the quarter (the quarter's office in Munich; the '5+1' model in Hamburg) and helping to develop the city; thus, they themselves are becoming planners to a certain extent (see also the coordinators).

The coordinators: Their areas of work were initially set up as temporary interfaces in the course of both planning processes. The coordinators are themselves 'all-rounders' who have already gathered experience in art, business and in some cases also in planning. On the part of either the departments or the authorities, they provide local coordination of spaces and processes (e.g. the *Hamburg Kreativ Gesellschaft* or the coordination office in the Competence Team for the Cultural and Creative Sector (*Kompetenzteam für Kultur und Kreativwirtschaft*) in Munich). Or they are coordinators from the user community: whereas the quarter's office in Munich focuses on public relations work, the elected members of the 5+1 model in Hamburg represent and network the *Oberhafen* community. This interface work has established and perpetuated itself in the course of the process.

The impulse-setters: This refers to individual persons, organisations and institutions which did not constantly participate in the planning process but nonetheless decisively influenced it by one-off or repeated visits or formative interventions. They inspired and set the course, steered planning processes sustainably and also seemed to stabilise themselves in the process.

6 Living planning time

According to the compensatory dialectic, we in the modern world must experience speed as well as slowness (cf. Assmann 2013: 231; Marquard 2003: 239). And in both quarter developments, the principle of these opposites and the tension between them becomes clear. These opposites should be understood not as contradictions but as a paradoxical manifestation of our time (cf. Assmann 2013: 226). Flexible, fast and short-term solutions are equally necessary aspects in a careful process as are compromises and synchronisation, deals and tolerance, or expanded competences and new interfaces. In conversation with one participant, the apt term ‘swing process’ was mentioned, since both projects are permanently chafing against dichotomies, acting and reacting between acceleration and deceleration, stability and instability, trust and responsibility, coordination and letting go, dynamism and standstills. It seems that a balance must be permanently created in the development of both quarters, which juggles the interests of an accelerated economic usage pressure, the protection of the invested rights of the creative temporary user community, the future interests of residents and the inclusion of provisionalities and unplanned occurrences. And it is this swinging which makes the slow and open processes and spaces so dynamic.

We recall the quote by Lucius Burckhardt, and his astonishment that planning time is merely understood as an empty elapsing of in-between spaces. Even today, urban planning processes and negotiations predominantly take place covertly, and neighbourhoods stand still until the diggers roll up. Or participation is often just a backdrop, a ‘particitation’ ‘behind which everything stays the same’ (Selle 2011). However, in both *creative quarters*, smart decisions and mistakes, provisionalities and protests continually change the urban space (Fig. 1 and 3). Not only creative processes but also negotiation processes become visible in the city. That’s life!

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Falco Knaps, Sylvia Herrmann, Tanja Mölders

LANDSCAPE IDENTITY: APPROACHES TO ITS CONCEPTUALISATION, CAPTURE AND INTEGRATION INTO PLACE BRANDING PROCESSES

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Abstract

The integration of spatial identity is seen to be a crucial factor for successful place branding. However, spatial identity is often insufficiently conceptualised. In light of this, this article presents a theory-based approach to using spatial identity in an applied context such as place branding. This is done using the example of the Regiobranding research project. This project systematically surveyed landscape identity – a specified variant of spatial identity. Starting from social-constructivist approaches to landscape, landscape identity is presented as an individual and social interpretation of landscape distinctiveness and character and the associated place attachments. In the empirical part, individual interpretations of landscape identity are qualitatively recorded in a rural case study region and evaluated across all the cases. This cross-case analysis visualises the appropriated identity-forming landscape, in other words, the reference points that are repeatedly interpreted as distinctive or characteristic in relation to the space and/or that are frequently activated as components of individual place attachments. The results show an extensive range of different reference points: those interviewed describe these reference points in various ways, connect them, and use them as cognitive/emotional reference points. Furthermore, the cross-case analysis revealed contradictory patterns of interpretation. Our empirical findings highlight that landscape identity is predominantly an individually constructed reality, which is neither unambiguous nor without contradictions. Against this background, specific actions are recommended for using landscape identity in place branding processes.

Keywords

Spatial identity – landscape identity – place branding – spatial planning

1 Introduction

Place branding is a strategic instrument used in spatial planning that can contribute to sustainable spatial development (Oliveira 2015; van Assche/Lo 2011). Strictly speaking, the term ‘place branding’ refers to strategies used to develop positive place brands, in other words, to create positive associations with a space on the part of those external to it (Braun/Zenker 2010). The implementation of such strategies often goes hand in hand with the development of innovative products and services as well as new types of partnership (Lee/Wall/Kovacs 2015; Domínguez García/Horlings/Swagemakers et al. 2013). That is why place branding, in the broader sense of the word, can also be seen as a (re)shaping of the human-space relationships through which circumstances conducive to non-sustainability can be changed (San Eugenio Vela/Barniol-Carcasona 2015).

Integrating spatial identity is an important factor in the success of place branding (Campelo/Aitken/Thyne et al. 2013; Braun/Eshuis/Klijin et al. 2018). In general, this is understood as the unique character or ‘distinctiveness’ (Zeitler 2001) that stakeholders perceive a section of space to have. On an individual level, this can justify cognitive-emotional place attachments (Christmann 2010; Weichhart/Weiske/Werlen 2006). Spatial identity can be a central reference for place branding to activate residents and stakeholders and integrate their self-images (Campelo/Aitken/Thyne et al. 2013; Messely/Dessein/Lauwers 2010). On the one hand the integration of different perspectives lays the foundation for sustainable spatial development (cf. Hofmeister/Mölders/Thiem 2014), and on the other hand authentic brands can be developed by establishing spatial identity patterns (Giles/Bosworth/Willett 2013).

Despite its well-known potential, it is evident that in some place-branding literature, spatial identity is not conceptualised at all or is done so in a simplistic manner. One such widespread simplification, for example, is the view that there exists a homogeneous, largely unchanging spatial identity that can only be identified using academic or empirical methods and which then must be communicated (Kavaratzis/Hatch 2013; Mayes 2008). Against this background, this article aims to present a theory-based approach to using spatial identity in an applied context such as place branding. This is done using the example of the Regiobranding research project,¹ in which an identity-based branding process was initiated and supported in a rural region.

The following section presents an introduction to the Regiobranding research project. Theoretical and conceptual considerations regarding spatial and landscape identity,

1 Funded by the Federal Ministry for Education and Research (*Bundesministerium für Bildung und Forschung*) as part of ‘Innovation groups for sustainable land management’ (*Innovationsgruppen für ein nachhaltiges Landmanagement*) (www.regiobranding.de; Funding Code 033L121 AN); cf. www.regiobranding.de

which then lead to a qualitative research design (section 4) form the basis of the third section. The empirical results (section 5) are summarised in the final section (section 6), and tangible recommended actions for the use of landscape identity in place branding processes are formulated.

2 The Regiobranding research project

The Regiobranding research project attempts to use landscape to develop plausible place brands at a regional level. This approach is in keeping with research findings that emphasise the potential of landscape for place branding (Maessen/Willms/Jones-Walters 2008; San Eugenio Vela/Nogué/Govers 2017). The goal of the project is to develop and highlight engaging and authentic interpretations of regional landscape. This valorisation of the cultural landscape functions from the inside out, i.e. it is not controlled from the top down but is rather developed in cooperation with regional stakeholders. A participatory process, in which stakeholder networks are built and expanded, is key here. The role of this network is to agree on certain interpretations of the cultural landscape, to work together on communicating those modes and to develop joint model projects during the course of the project. The latter goals are mainly geared toward the long term and represent a first step in 'outward communication'. A fundamental assumption is that knowledge about spatial identity can have a positive influence on the shaping of place branding in terms of both process and content. For this reason, spatial identity connected with landscape – hereinafter referred to as landscape identity – should be systematically fleshed out and integrated from the start of the project.

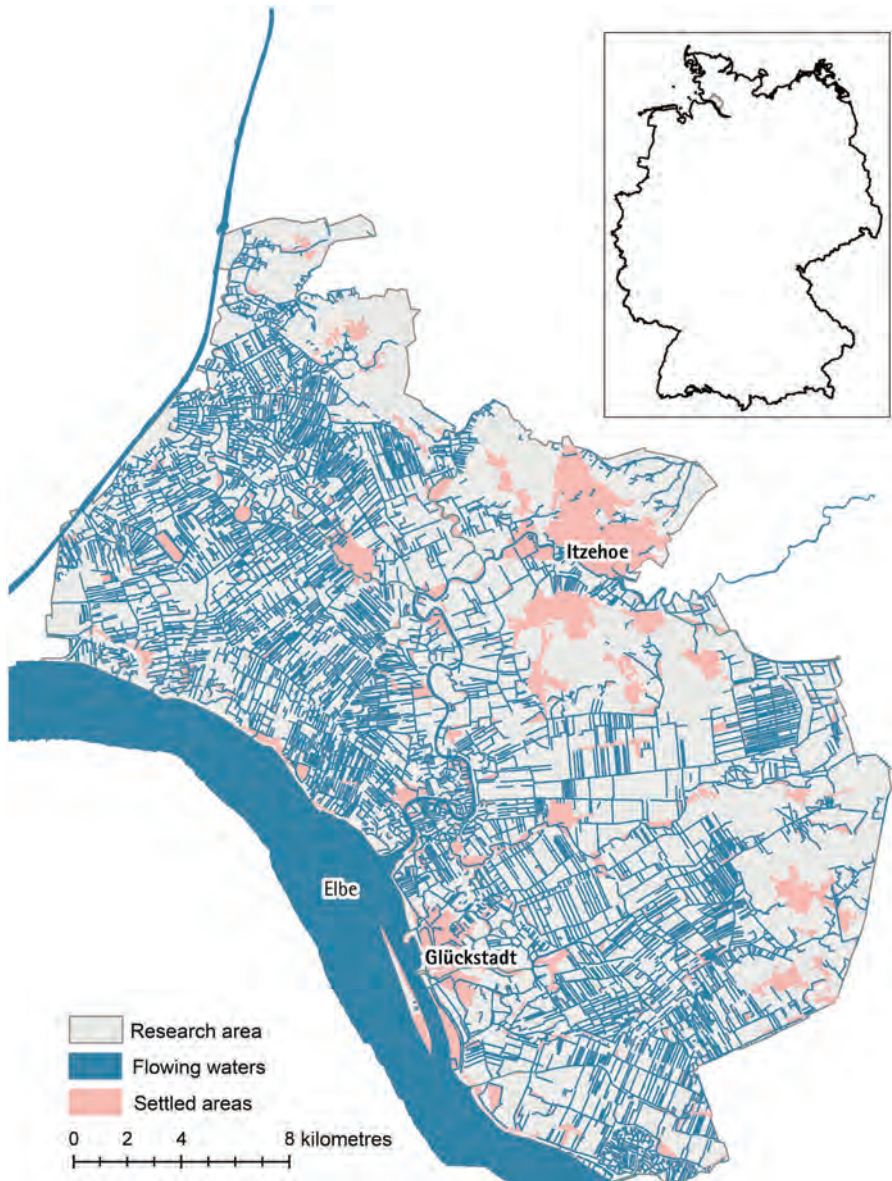


Fig. 1: Location of the Steinburger Elbe marshes /Source: Falco Knaps' own representation

The Steinburger Elbe marshes, a rural region in Northern Germany (Fig. 1), serves as the research area. The open marshy landscape characterised by flowing waters and grassland is undergoing great change. Since 1999, the number of agricultural holdings has decreased by approx. 30%, which is linked to challenges in maintaining the traditional operating structures and their characteristic manifestation (Malottky 2018). At the same time, there has been a massive expansion in wind turbines: 178 turbines are

currently producing wind power and still more are in the planning stages, which sometimes leads to conflicts in relation to land use (Ruge/Huusmann 2018).

3 Landscape identity – theoretical considerations

A theory-based conceptualisation of landscape identity is based on social constructivist understandings of landscape. In the broad discourse surrounding different approaches to landscape, landscape is understood as an *‘individual and/or collective construct which continuously undergoes change’* (Gailing 2014) or as a socially pre-formed *‘mental image’* (Meier/Bucher/Hagenbuch 2010). The diverging interests of social constructivist landscape research mean that the material substance is given varying degrees of attention (Leibenath 2014). Because place branding is seen in an application-related context, a relational understanding which systematically includes physical objects, in addition to individual and societal constructions, is used (Levin-Keitel/Mölders/Othengrafen et al. 2018). For this reason, the (relational) understanding of landscape according to Kühne (2008, cf. also 2009, 2018) has been chosen as the theoretical starting point. This approach conceptualises landscape as a comprehensive view within one’s consciousness of spatially arranged objects, but also as a spatial ensemble comprising different dimensions.

- > The foundation is the ‘physical space’, understood as an initial physical/material substrate that comprises all perceivable spatial objects regardless of whether they contribute to constituting landscape or not.
- > The ‘social landscape’ is understood as society’s stock of knowledge of all socially accepted patterns of constructing, associating and interpreting landscape. While the overall social landscape tends to encompass fundamental patterns of interpretation, more specific social landscapes (e.g. milieu- or region-specific patterns of constructing landscape) create pre-formed bases for individual interpretations.
- > The ‘individual’s social landscape’ represents patterns of constructing, associating and interpreting landscape on the part of each individual. This is the subjective modification of the social landscape, which is interpreted and then construed as reality in light of personal experience of the world and preferences.
- > The ‘appropriated physical landscape’ is the sum of physical objects in space which is drawn on or visually consolidated to construct the social landscape and individual’s social landscape. This dimension thus represents a subset of the total physical space interpreted as landscape.

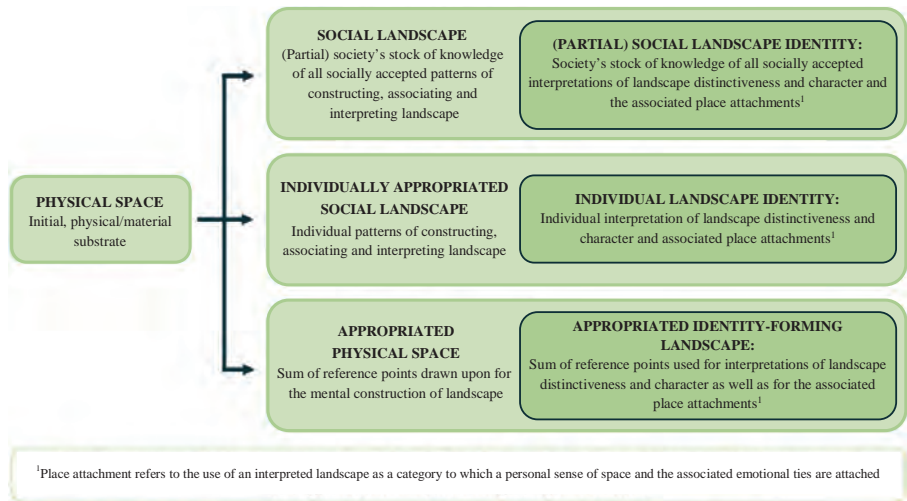


Fig. 2: Dimensions of landscape following Kühne's concept of landscape (2008; light green) and the resulting understanding of landscape identity (dark green) / Source: Falco Knaps' own representation

For a theoretically-based understanding of landscape identity, these general approaches to landscape become sharper when it comes to interpretations of landscape distinctiveness and character as well as to the associated place attachments. 'Place attachments' refer to the activation of an interpreted landscape as a component of social identity, in other words as a category to which ideas of a personal sense of place and the associated emotional ties are attached (Christmann 2010). In addition to physical/material objects, aspects of (assumed) landscape knowledge (e.g. about landscape history and customs) may also form the foundations of such interpretive and attachment patterns. Thus, in these three approaches, landscape is not restricted to physical objects but rather includes related immaterial reference points. Figure 2 illustrates a conceptualisation of this.

4 Approach and methodology

Based on the understanding developed in the previous section, some preliminary methodological considerations can help to capture landscape identity for an application-oriented context such as place branding. Empirically, only individual landscape identities are directly accessible. It is, however, assumed that these identities are constructed in a highly heterogeneous manner, which would be reflected in limited usability for branding processes. The reasons for this heterogeneity can be found in the variety of (partly) social beliefs and the highly subjective impact of personal interpretations. For this reason, it is more expedient to focus on the appropriated identity-forming landscape. This requires comparative analyses

Characteristics		N
Age	< 20	1
	21-40	3
	41-60	20
	> 61	15
Background	Long-established	28
	Migrated	11
Gender	Male	27
	Female	12
Category	Private sector stakeholders	5
	Representatives of interest groups	9
	Stakeholders in policy and administration	7
	Private individuals with specialist knowledge of the landscape	5
	Other private individuals	13

Table 1: Characteristics of the interviewees / Source: Falco Knaps' own representation

of individual landscape identities. These analyses reveal reference points that are repeatedly interpreted as landscape distinctiveness and character and that manifest as anchor points for place attachments, even though they can differ significantly from person to person.

Individual landscape identities were captured during the course of 39 semi-structured interviews. In accordance with the principle of contrasting sampling, the cases selected were as diverse as possible (Table 1; Kruse 2015). The surplus in the higher age groups can be attributed to the fact that representatives of interest groups and stakeholders in policy and administration are typically older. In the interviews, participants were given guided questions and asked to outline their personal interpretation of landscape distinctiveness and character and to describe the landscape that is relevant to and emotionally tied to their personal space of belonging. All of the interviews were transcribed and evaluated using a reconstruction analysis based on Kruse (2015) (Fig. 3). The goal of the data analysis was to determine the appropriated identity-forming landscape.

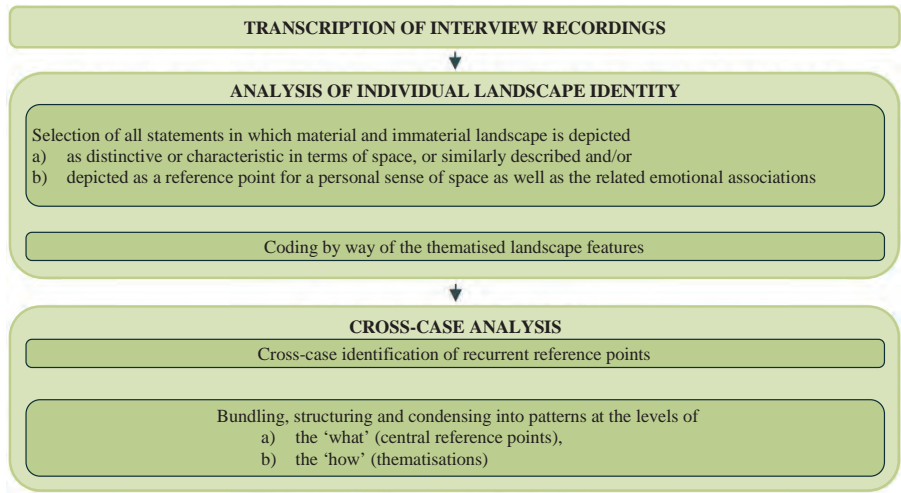


Fig. 3: Evaluation methodology of qualitative interviews to determine the appropriated identity-forming landscape / Source: Falco Knaps' own representation

Main group	Reference points	Considerations
Physical/ material landscape	North Sea	Spatial proximity to the North Sea, tidal range of regional flowing waters
	Maritime climate	Constant wind, rapid changes in weather
	River landscape (including the associated built structures)	High frequency of flowing waters, Elbe (regional border, living environment, width, part of the estuary), dykes, historical and contemporary built structures that are associated with lowing waters (harbours, shipyards, locks, lighthouses)
	Marsh landscape	Flat topography, openness, location below sea level, historical growth of the drainage infrastructure, special soil properties, moors
Built structures	Agricultural structures	High density of historical agricultural structures, farms with thatched roofs, individual farms in remote locations, construction methods specific to the region
	Villages	Scattered settlements, ribbon villages on marsh land, small, attractive village structures
	Other historical buildings	Historical town halls and churches, historical built structures in small towns

Land use	Types of land use in the past	Peat extraction, orchards
	Grassland utilisation and livestock farming	Historically evolved types of land use, consequences of location factors specific to the region, (sub-regional) dominant type of land use, attractive scenery, dairy products specific to the region
	Vegetable cultivation and arable farming	Historically evolved types of land use, result of location factors specific to the region, (sub-regional) dominant type of land use
	Wind energy use	(Sub-regional) high density of wind turbines
Characteri- sations	Peace	Found in the landscape, emanating from the landscape, depending on remoteness
	Proximity to nature	Diverse landscape, semi-natural landscape, small-scale structures dotting the landscape, minimal traces of anthropogenic activity
	Historically evolved landscape	Narratives of artificial land reclamation since the 16th century

Table 2: Points of reference for the appropriated identity-forming landscape in the Steinburger Elbe marshes / Source: Falco Knaps' own representation

5 Results of the case study

5.1 Central points of reference for the appropriated identity-forming landscape

The data analysis resulted in various main groups, making it possible to illustrate the central reference points of the appropriated identity-forming landscape (Table 2). Each of these main groups contains several reference points, which were then discussed based on various individual considerations.

5.2 Thematisations of the landscape

5.2.1 Thematisations of landscape distinctiveness and character and the associated place attachments

The spectrum of individual attributions of distinctiveness and character aspects ranged from lists of features with no context to individual, sometimes complex cause and effect chains. The latter is illustrated by a statement made by I13², in which narratives of artificial land reclamation depict it as the cause of certain soil conditions, indirectly describing grassland farming as typical:

2 'I' stands for 'interviewee'; the number represents the anonymised identification of the person in question.

*'Yes, and that we are a grassland region and have little arable land.
 (...) Some boggy places too. That's because the Wilster marsh was dyked
 too early by the Dutch. That was back in the 14th century,
 15th century. And, yes, we can only operate and farm
 [grassland farming – F.K.]
 the way we do now.'*

The way in which the interviewees described their place attachments was also extremely varied. Theoretically different approaches were then evident due to the way in which the place attachments were described. Thus, landscape was depicted as a category to which a personal sense of place is attached and by means of which the interviewees described themselves as 'members' of a landscape-based space with certain properties. This is evident, for example, in a statement by I5:

*'I realised at some point that for me there was a really special connection,
 usually in the summer when the grass is being cut, the smell of hay.
 As soon as I make that connection I feel like:
 this is your, your home, your region.'*

I7 made a similar argument, referring to a more emotionally charged concept of a personal 'home':

*'[...] what for me is my home: the lush, green fields and lots of water,
 lots of ditches, little streams and then the Elbe.'*

The broad field of emotional attachments was also made clear in statements like 'I also love the vastness' (I8) or 'For me that is also the charm of the landscape, because it is something peaceful' (I22).

5.2.2 Contradictory associations of the appropriated identity-forming landscape

Cross-case data analysis showed that some reference points of the appropriated identity-forming landscape were contradictory. A total of four mutually exclusive patterns of association were identified in the interview material.

Identity-forming vs. non identity-forming: For some interviewees, the use of wind power through technical infrastructure represented a positive reference point for landscape identity. Wind turbines were interpreted as 'images that characterise the landscape' (I5) or a 'unique feature of the landscape' (I32) as well as emotionally charged ('somehow home' – I31). One interviewee saw them as the continuation of a historical use of wind energy:

'But wind is good too because in modern times wind turbines produce electricity and about 200 years ago there were also lots of wind turbines around [...] at that time they were used to drain the water' (I11).

For other interviewees, however, wind turbines were non identity-forming landscape structures. For example, 'no wind turbine' (I7) was explicitly highlighted as an actual characteristic of the region and wind turbines were disparaged as 'intruders in this landscape' (I22).

Careful use vs. over-use: Contradictory associations of this type were expressed in connection with two reference points. Some interviewees interpreted grassland utilisation and livestock farming as careful production methods associated with environmental compatibility and minimal impact intensity. According to I11, despite intensive dairy cattle farming there is 'still enough potential nature', while I28 described the agriculture as expressly not industrialised:

'When I [...] get to the area of the landscape that is no longer characterised by [...] industrialised agriculture, I feel like I'm home again.'

Other interviewees referred to the minimal use of pesticides and to the presence of environmental protection measures related to the grassland. Contradictory to that, this type of land use (at least for part of the land) also prompted negative connotations of overuse (without, however, questioning the actual identity-forming character). This was illustrated by statements about ever increasing cattle herds (I25) disparaged as 'intensive livestock farming' (I26) or 'constant silage manure management' (I17), as well as about the negative effects on the identity-forming permanent grassland.

The reference point of wind energy use was not directly described as a careful form of land use. Some interviewees felt, however, that the extent of the current expansion was minimal or at least acceptable. In contrast, there were other categorisations of wind energy use as over-use of the landscape. In these cases, the increasing density of the installations was criticised as an excessive or endangering factor for other identity-forming features, such as the special image of a landscape made up of farmhouses dotting the countryside, vastness and drainage ditches, as described, for example, by I14: 'Today, farms are being torn down to make way for even more wind turbines.' *Still preserved vs. already lost:* this pattern of interpretation also became clear based on two different reference points. Firstly, grassland use in the form of pasture grazing was recognised as an identity-forming production method that has been largely preserved, as illustrated in a statement by I10: 'Evenly farmed marshland is a very beautiful image, with the red cattle on it. And we have actually mostly preserved that.' Opposite interpretations include those that describe this type of land use with images of loss. This referred both to the decrease of grassland use and livestock farming as a whole and to a reduced connection with origins or authenticity due to the loss of the significance of traditional breeds and production techniques. Nowadays, for example,

‘the traditional cattle breed [...] has relatively little significance’ (I30) and historically evolved pasture grazing ‘is basically non-existent today’ (I30).

Secondly, agricultural structures were deemed to be ‘still preserved’. Individual interviewees referred to ‘lovingly restored old buildings, rebuilt in the proper style’ (I10), and to still present ‘traditional thatched cottages’ (I34) and ‘beautiful, sometimes very well preserved houses’ (I14). In contrast, there are also perceptions of a decline in these built structures and a loss of authenticity or a connection with origins. I5, for example, described the historical countryside dotted with farmhouses as ‘important built cultural heritage’, but saw in it a negative change from the original image due to a decline in the number of typical thatched roofs: ‘farmsteads are all well and good but without thatched roofs [...] something typical to the landscape is lost.’ *Large vs. small*: Finally, contradictory thematisations pertaining to agricultural areas (grassland and arable) were evident. I19 described the latter as ‘very fragmented, parcelled [sic], there are not that many large farmed areas’. In contrast, there were also representations of large agricultural areas in which a broader split can be seen: on the one hand, the ‘wide marshland with its very large, structured areas’ (I14) was perceived as a positive component of landscape identity. On the other hand, the expansion of agricultural areas was deemed a modern phenomenon in the context of agricultural intensification that some interviewees associated with negative effects on the identity-forming drainage system.

6 Discussion and conclusion

This article conceptualised landscape identity for an application-related context (place branding) and, based on this, a method for capturing such identities was developed and applied. The appropriated identity-forming landscape was central throughout. The latter is the sum of all material and immaterial reference points which are drawn on to interpret landscape distinctiveness and character as well as associated place attachments. The variety of reference points evident in the results, their disparate thematisations and sometimes contradictory associations, confirm the theoretical considerations: landscape identities are individually constructed realities that are depicted by the interviewees as alleged certainties but which are neither unambiguous nor uniform. This substantiates current research findings which also show multi-layered meanings ascribed to the same materiality (Dossche/Rogge/van Eetvelde 2016; Knaps/Herrmann 2018).

Based on these research findings, it is now possible to formulate recommended actions to integrate landscape identity into place branding. First, uniform interpretations of landscape identity should neither be required nor pursued (Schönwald/Kühne 2014). Second, the appropriated identity-forming landscape can be used strategically to activate stakeholders by regularly putting central reference points on the agenda. This may provoke an emotional reaction in potential stakeholders and increase their willingness to support the process (Soini/Vaarala/Pouta 2012). In the process, reference points that are ‘inhabited’ in different ways by the stakeholders should be used in order to provide points of connection to as many and as wide a variety of stakeholders as possible (cf. Schönwald/Kühne 2014). In the Regiobranding research

project, this was implemented through formats such as workshops (discussion of intermediate results with the participating stakeholders; Herrmann/Kempa/Osinski 2016) and public forums. The topics of the discussion rounds at these events were formulated with knowledge of the appropriated identity-forming landscape. Examples include 'Using and experiencing artificial landscape, shaping change' (with a focus on regional forms of land use as well as the marsh landscape and its historical genesis) or 'Recognising regional built culture as a resource and developing it' (with a focus on agricultural structures). Third, inconsistently embraced reference points should neither be completely excluded nor unilaterally preferred. By excluding them, it would not be possible to deal with dichotomous interpretations of landscape identity as they would remain unresolved conflicts (in objectives) and block any sustainable development. One-sided preferential treatment, on the other hand, would be tantamount to ignoring any 'other' topics and stakeholders. From a constructive perspective, the question to ask is rather about 'in-between spaces' organised beyond contradictory interpretations. These kinds of (new) strategies, approaches or measures may already exist – but as 'special cases' beyond the dominant patterns of action and thought (Forschungsverbund „Blockierter Wandel?“ 2007). This was made clear in the Regio-branding research project, e.g. by way of the 'wind energy use' topic. This 'contested' topic was neither excluded nor exclusively discussed in a problematising way. Instead, creative solutions such as a *Windkraftcent* ('wind power penny' – a levy from the profits of wind energy use allocated to care for the cultural landscape) were topics of discussion, although this topic was not pursued further.

Overall, the study showed that it is possible to understand landscape identity on the basis of a solid theoretical foundation as well as how this is possible. It also revealed which approaches can be used to analyse and integrate landscape identity. However, the initially required theoretical foundation should not be seen as the academic purpose in and of itself. On the contrary, from the outset it brings into focus the ambiguity and contradictory nature of landscape and spatial identity, which is reflected in the recommended actions. The appropriated identity-forming landscape discussed in this article takes this complexity into account. At the same time, due to the strong spatial connection, it is linked to the ways of thinking and acting in place branding as well as to other spatial development processes. This prevents the theoretical and conceptual nebulousness from hindering a full exploitation of the potential of spatial identity for sustainable spatial development.

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Insa Thimm

THE CONCEPTUALISATION OF CIVIC ENERGY COOPERATIVES AS CHANGE AGENTS IN THE GERMAN ENERGY TRANSITION

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Abstract

Civic energy cooperatives play an essential role in shaping the transformation of the German energy system. They contribute significantly to the decentralised expansion of renewable energy and to the acceptance of the energy transition. This paper aims to shed light on the role of civic energy cooperatives as change agents in the energy transition. A civic engagement approach was chosen because in addition to their economic orientation, civic energy cooperatives are known for their social component with a focus on the common good. The paper will demonstrate the civil society potential of civic energy cooperatives, despite their economic activity and profit motives. The paper will also present the concept of change agents from transformation research and demonstrate the value of the concept for situating civic energy cooperatives within the social context of the energy transition.

Keywords

Energy transition – civic energy cooperatives – civic engagement – change agents

1 Introduction

In the summer of 2011, after the nuclear disaster at Fukushima, the German Federal Government adopted an amendment to the Atomic Energy Act (*Atomgesetz*) which laid the foundation for a national energy transition. The core elements of this are the gradual withdrawal from nuclear energy, the expansion of renewable energy and the improvement of energy efficiency (German Federal Government 2011: 1 et seq.). Together with the liberalisation of the energy market and the discontinuation of electricity concessions, the decision led to the entry of new stakeholders into the energy sector. The involvement of citizens in the energy sector is generally termed

civic energy and has decisively influenced the transformation of the German energy system thus far (Quitow/Canzler/Grundmann et al. 2016: 163 et seq.). Thus, private citizens and farmers, as pioneers of the energy transition, have built up almost half of the installed renewable generation capacity (Müller/Dorniok/Flieger et al. 2015: 96). Civic energy therefore includes not only enterprising activities by citizens in a sector which was still dominated by a few large companies until a few years ago; it has also made a substantial contribution in the last ten years to a decentralised expansion of renewable energy and to the social acceptance of the energy transition (Lautermann 2017: 99; Klagge/Schmorle/Seidel et al. 2016).

With regard to the energy transition, civic energy cooperatives, in particular, have great significance for the transformation process taking place in society which goes hand in hand with the transition. Depending on the perspective, civic energy cooperatives can be classified at the system, organisational or individual level. In the present article, civic energy cooperatives are examined at the organisational level, since citizens bundle their involvement in the civic energy cooperatives and organise themselves within them in order to shape the energy transition. Although civic energy cooperatives have remained a small group of players, their democratic structure enables them to play an important role in ensuring a decentralised, fair energy transition through civic participation (Müller/Dorniok/Flieger et al. 2015: 96 et seq.). The term *civic energy cooperative* first and foremost defines the form of enterprise and the sector to which it belongs. A general characteristic is that they collect capital from private individuals and thus open up a further source of funding in the energy sector (Radtke 2016: 163). And yet, empirical cases and their various social and organisational arrangements are highly heterogeneous. As well as the types of activity (e.g. electricity production, local heating production and distribution), the number of members, investment capital, regional orientation and cooperative partners also vary considerably (Klagge/Schmorle/Seidel et al. 2016: 243). Empirically, the largest group of civic energy cooperatives in Germany are production cooperatives, which are involved in electricity generation, primarily via photovoltaic systems (Dorniok 2018: 211). The development of civic energy as a whole is generally viewed positively in the media and politics and is considered an expression of a well-functioning civil society (Dorniok 2016: 1). Civil society players are seen as important drivers of changes to social (sub-)systems and therefore also of transformations. As *change agents*, they help to shape social change (incognito in some cases), e.g. by introducing new technologies, ideas and visions (Grießhammer/Brohmman 2015: 17; WBGU [German Advisory Council on Global Change] 2011: 242 et seq.).

This paper explores the role played by civic energy cooperatives as change agents in the energy transition. A civic engagement approach was chosen because in addition to their economic orientation, civic energy cooperatives are known for their social component with a focus on the common good. Involvement in civic energy cooperatives is often described as a type of civil society activity, but without exploring the concepts in more depth. This paper will therefore firstly show that the civil society potential of civic energy cooperatives is definitely visible, despite their economic activity and profit motives. Subsequently, the paper will present the concept of change agents from transformation research and demonstrate the concept's value for situating civic energy cooperatives within the social context of the energy transition.

2 Civic engagement in the energy transition

2.1 Stakeholders in civil society

There is no standardised concept of civil society; rather, depending on the theory, certain focal points, understandings and definitions are emphasised (Adloff 2005: 65; Schade 2002: 11 et seq.). In order to illuminate the civil society potential of civic energy cooperatives, this paper adopts an understanding of civil society which permits economic activities in civil society under certain conditions. According to Adloff (2005: 65), civil society fundamentally means ‘a social space, namely the pluralist totality of public associations and gatherings which are based on the voluntary, joint activity of citizens’. The typical organisational forms are neither purely state-organised, nor are they based on pure market principles; examples are clubs, associations and social movements. Most conceptualisations of civil society differentiate it from the private sphere, i.e. the family, and its affiliation with the public sphere is emphasised. In addition, civil society encompasses certain rationales for human interactions, which include civil behavioural standards such as tolerance, non-violence, citizenship and public spirit. Moreover, citizens living together in a self-governed, democratic manner that represents a ‘utopian moment’ is considered to be part of civil society (Adloff 2005: 65 et seq.). The non-profit sector (third sector) is often described in the literature as the organisational infrastructure of civil society, since it can empirically designate the organisations which function as the bearers of civil society. While there are certainly overlaps, the non-profit sector and civil society are not identical (Adloff 2005: 65 et seq.). Evers (2004: 8) argues that the decisive factor for the strength of civil society is not the size of the non-profit sector. Instead, it draws its strength from anchoring the principles of civil society activities outside of this sector as well.

The extent to which economic organisations should be included in the concept of civil society is disputed. Whether a clear dividing line exists between the economy and civil society is firstly dependent on the theoretical underpinnings of the concept, and secondly on the nature of the relationship assumed between civil society and the state. Modern civil society theories do indeed distinguish between state and civil society and, moreover, weight the political dimension of civil society differently. Other theories focus on the rationale of civil society being a differentiated social sphere or connect it conceptually with a rationale for interactions of civil society activity (Adloff 2005: 90 et seq.). According to Adloff (2005: 92), ‘civil society activity can be viewed as something that can in principle take place in all realms of society, but that is de facto very rarely found in the realm of the economy’.

2.2 Civic energy cooperatives – stakeholders in civil society?

Energy cooperatives are considered to play an important role in ensuring a democratic, fair energy transition through citizen participation. Thus, civic energy cooperatives are usually contrasted with traditional market players (e.g. large corporations, agricultural energy producers and project developers) and with public stakeholders (e.g. municipal administrations) (Becker/Gailing/Naumann 2013: 46). In addition, co-operatives have always incorporated the idea of self-help, which traditionally belongs

to the infrastructure of civic engagement: 'Cooperative self-help is considered to be an association of at least three people who pursue economic and other goals, stand by each other financially and organise their cooperation democratically' (Alscher 2011: 3). Since cooperatives can encompass very diverse areas of activity and working methods, these can be seen as a link between the market and civil society (ibid.).

For the German nationwide Alliance for Citizens' Energy (*Bündnis Bürgerenergie e.V., BBEn*), 'civic energy stands for a transition to renewable energy based on decentralised structures, which complies with democratic, social and ecological values' (BBEn 2018). The following aspects are emphasised:

- > Participation by means of the self-determined, autonomous shaping of decentralised energy provision and participative, sustainable economic activity
- > Orientation towards the common good, by placing economic aims in the service of social objectives. These include ecological responsibility and the sustainable development of a region, and exclude the maximisation of profit
- > The foundation of a common identity and the creation of acceptance by means of mostly regional anchoring and regional creation of values ('from the region, for the region')
- > Diverse players, such as private individuals, farmers and different legal entities (e.g. associations, private corporations, energy cooperatives, limited companies, limited partnerships), excluding large corporations

The above shows that civic energy is predominantly characterised by the population's demands to participate in and shape the energy transition, as well as by sustainable, regional economic activity, and that it is directed against the economic model of large corporations. Empirical findings from various studies (trend:research/Leuphana University Lüneburg 2013: 59 et seq.; Leuphana University Lüneburg/Nestle 2014: 21 et seq.; Radtke 2016: 489 et seq.) show that the main motives cited for founding civic energy cooperatives are environmental protection, promoting the energy transition, and striving for independence from supra-regional providers, with financial motives also playing a role. The interest in regional investment or the desire for ethical/ecological investment predominates, such that most investors are willing to forgo yields if the investment pursues particular social or ecological goals. In addition, the majority of civic energy cooperatives are run on a voluntary basis. The common good is also an important aspect for the civic energy cooperatives. Most energy cooperatives were explicitly founded with a regional social commitment in order to generate local participation in the energy transition (ibid.). Blanchet (2015: 247) illustrates this by describing them as 'projects where communities (of place and interest) exhibit a high degree of ownership and control, as well as benefiting collectively from the outcome', '(...) and that strive to bring about both a technological and social change'.

The development of civic energy overall is repeatedly given a positive emphasis in the media and politics, highlighting its significance for the acceptance of the energy transition (Dorniok 2016: 1). However, critics note that it is primarily economically

and socially better-situated population groups that benefit from the investment in civic energy facilities, whereas the financial burden of the EEG levy must be borne by all electricity consumers (Lautermann 2017: 106 et seq.). Indeed, it is predominantly better-educated and higher-earning, middle-aged men who participate in civic energy cooperatives (Radtke 2016: 297 et seq.). In addition, it is difficult for civic energy to address and reach population groups that are distanced from involvement. However, the supposition that non-graduates and low-earners are effectively excluded cannot be confirmed. For example, many cooperatives offer the option of only investing small sums (ibid.). By shifting the focus from the individual level of investors and (passive) members back to the organisational level and by considering the outward strategies of civic energy cooperatives, it becomes clear that they are more likely to overcome than to cause social divisions by their activities. It is therefore inaccurate to speak of an 'energy bourgeoisie' (Lautermann 2017: 107).

Civic energy cooperatives can therefore be considered to be a hybrid form of organisation and enterprise. Despite the very different contexts in which they arise and their different motivations and orientations, civic energy cooperatives are not just characterised by a special economic orientation that serves as their foundation, i.e. the fact that they offer citizens the possibility to participate financially in the energy transition, but they also have social and political dimensions (cf. also Radtke 2016: 139). With this in mind, involvement in civic energy cooperatives represents an example of a fundamentally economic activity which is very strongly linked to the social and political themes and spheres of society. Following this view, civic energy cooperatives can be conceived as organisations of civic activity, since they correspond to a fundamental logic of civic activity on the grounds of their notion of self-help, their democratic structure, the orientation of and towards members, and the focus on the common good.

3 Change agents in the energy transition

3.1 The concept of change agents

The concept of *change agents* offers a point of reference for situating civic energy cooperatives in a social context. In its flagship report entitled 'World in Transition', the German Advisory Council on Global Change (*Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen, WBGU*) underlines the central role of change agents in shaping and implementing transformations (WBGU 2011: 242 et seq.). The success of a transformation hinges on whether the change processes are consolidated and lead to a fundamental paradigm shift in the prevailing system. Whereas historical transformations such as the Industrial Revolution were unplanned, the energy transition was initiated deliberately as an intentional transformation of the German energy system. The challenges faced by intentional transformations include forging a social consensus on common goals, the timescale and overcoming resistance (Grießhammer/Brohm 2015: 13).

In transition theory, change agents are described as niche actors, who use windows of opportunity that open under particular circumstances and thus enable the dissem-

ination of (social) innovations (Ahaus 2017: 181). The concept of *niche* has been specified in the *multi-level perspective* (MLP) from innovation research: 'Niches create special conditions for new technologies, which would not be able to succeed under market circumstances due to their low technical or economic performance' (Docj/Vasileidou/Petersen 2015: 87). Although the focus in MLP is on technological innovations, the interrelationships between technological, ecological and cultural change processes are emphasised (Geels 2002: 1257 et seq.). With regard to civic energy, co-shaping the energy transition to the extent of self-sufficiency and taking over networks can be understood as social innovations, particularly when considering the very pronounced tradition of centralised energy production and supply by a few large stakeholders in Germany. At its core, this innovation comprises both the ecological guiding principle of establishing a new technological and economic approach to energy supply, and the implementation of this idea by a pluralist, citizen-centred constellation of players (Dorniok 2018: 214; Mautz/Byzio/Rosenbaum 2008: 82).

The term *change agent* originates in diffusion research and was first used by Rogers (1986: 28), who describes innovations using a series of individual empirical investigations. According to him, the diffusion processes and adoption speeds of innovations are dependent on the so-called

- > (technology) pioneers (located at the beginning of the innovation process),
- > early adopters (who adopt new innovations from the pioneers),
- > opinion leaders (who disseminate relevant information about the innovations) and
- > change agents (who influence innovation-relevant decisions made by other players)

(cf. also Mautz/Byzio/Rosenbaum 2008: 66 et seq.). Rogers (1986) describes a change agent as 'an individual who influences clients' innovation decisions in a direction deemed desirable by a change agency' (Rogers 1986: 28). The initiation, organisation and shaping of the social process of diffusing an innovation is characteristic of change agents. This distinguishes them from opinion leaders, who do not actively shape ideas but function as facilitators (Mautz/Byzio/Rosenbaum 2008: 69). However, Rogers bases his diffusion theory almost exclusively on examples of technological innovations, leaving social and cultural effects under-explored (Sommer/Schad 2014: 49). In addition, Rogers locates change agents in a top-down understanding which particularly concentrates on governmental institutions or companies as the change agencies on behalf of which the change agents act as experts (Ahaus 2017: 183). Kristof (2017: 168 et seq.) has developed another concept of change agents which has received a great deal of attention. This is based on an understanding of change agents similar to that of Rogers, but her 'promoter model' distinguishes between four different promoter roles:

- > Expert promoters (who initiate change processes and contribute their expertise and knowledge)
- > Power promoters (who possess resources and can successfully promote change processes on the grounds of their position)
- > Process promoters (who define problems and shape and communicate processes)
- > Relationship promoters (who support change processes by means of their network knowledge and relationships)

Essential factors for the initiation of successful change processes are deemed to be the qualification of change agents and the cooperation of promoters with different roles (cf. also Ahaus 2017: 183).

In the transmission of the concept of change agents into interdisciplinary sustainability research thus far, change agents, following Rogers (1986), have been described as mediating actors for the introduction of renewable energy (Mautz/Byzio/Rosenbaum 2008) or as highly visible experts in environmental protection (Kristof 2017). Sommer and Schad (2014: 48 et seq.) describe a reduction of the concept to these two groups of people as inadequate, since transformation into a sustainable society necessitates a social and cultural change and the broad participation of the population. Accordingly, far-reaching change processes are substantially dependent on the acceptance and participation of society (Heins/Alscher 2013: 121).

The German Advisory Council on Global Change adopts a perspective which could be adapted to civil society (WBGU 2011: 243 et seq.). It describes change agents as individuals and small groups who actively promote transformation processes and create an alternative practice to the established paths. Thus, change agents not only effect changes in their immediate environment but trigger comparatively large-scale transformation processes decentrally and 'from below' by finding imitators and stimulating others to change their behaviour. According to the German Advisory Council on Global Change, the effectiveness of their activities is generally dependent on four elements: 'A certain social outsider position, the linking of several knowledge areas, the integration into a supportive network, and the respective era's favourable opportunity structures' (WBGU 2011: 244). Civic energy cooperatives are described here as an example of change agents in the energy transition. The German Advisory Council on Global Change (WBGU 2011: 249) also allocates private sector stakeholders a role as change agent under certain circumstances: namely insofar as, in addition to economic interests, an orientation towards the common good is discernible and sufficient material effects are produced for a sustainable mode of economic activity. However, this focuses on technological innovations, particular in relation to renewable energy, energy efficiency and electric mobility.

Ahaus (2017: 183 et seq.) transfers the approach of change agents to the local level of civil or civic engagement. He thus distinguishes the involvement of citizens from the rather top-down view of Rogers and Kristof, who look more at professional *change*

agents and highly visible experts. Ahaus and Welbers (2015: 7) describe change agents as ‘stakeholders in local civil society who proactively promote the introduction and use of social innovations in relation to climate protection and sustainability’ (ibid.). According to this understanding, change agents are individual players who expedite the introduction and use of social innovations in relation to climate protection and sustainability. In the following, civic energy cooperatives will be situated in relation to the approaches presented above.

3.2 Civic energy cooperatives as change agents

Individuals who act as change agents are at the centre of all the concepts presented in section 3.1. However, when conceptualising civic energy cooperatives as change agents, it is useful to consider the perspective of the organisational level described in the introduction: in civic energy cooperatives, at least three people bundle their interests, which are represented outwardly as a single position. According to this assumption, the concept of change agents offers different approaches for classifying civic energy cooperatives as transformation players. The pioneering phase of civic energy cooperatives took place in the 1970s, triggered by the reactor accident at Chernobyl, the anti-nuclear power movements and the Agenda 21 movement. These early foundations had a strong ecological background and were inspired by social and political changes (Dorniok 2018: 220). ‘In many cases, it was these pioneers from the early wind power, photovoltaic and biogas projects who then also grew into the active role of “change agent” which is important for the dissemination of innovations’ (Mautz/Byzio/Rosenbaum 2008: 67). Thus, civic energy cooperatives bring both alternative technological possibilities for the production and distribution of energy and decentralised and participatory decision-making structures into the existing system (Dorniok 2016: 8). However, with over 900 energy cooperatives listed in the commercial register, the foundational boom of civic energy cooperatives largely ground to a halt in 2014 due to legislative reforms: the amendment of the Renewable Energy Act (*Erneuerbare-Energien-Gesetz, EEG*) in 2014 created obstacles for civic energy cooperatives trying to initiate new projects in the electricity sector. Although the German Federal Government wishes to retain the diversity of players in the energy sector, the replacement of previously guaranteed feed-in remunerations with tendering procedures for electricity generation capacities removed the favourable conditions that were essential for civic energy as a whole (Ohlhorst 2018: 103 et seq.). In 2016, civic energy comprised 42% of the ownership of renewable energy plants in Germany. This was down four percentage points from the previous survey in 2012, which can largely be ascribed to the proportionate increase in larger companies. In the on-shore wind power sector, the share of installed civic energy capacity fell by as much as 9% compared with 2012, while the number of energy providers rose by almost 4% (AEE [Renewable Energy Agency] 2018). Civic energy cooperatives therefore face the challenge of developing business models that are sustainable in the long term (Beermann/Tews 2017: 130 et seq.; Klagge/Schmorle/Seidel et al. 2016: 255).

What role do civic energy cooperatives therefore play as change agents in the German energy transition? Fischer and Kucharczak (2017: 5) point out that the success of the cooperatives’ contribution to the transformation of the energy system

is not only measured by changes on the macro level, i.e. the share of the installed capacity from renewable energy or the amount invested, but that change impulses at the meso and micro level should also be taken into account. These include changes to stakeholder constellations, effects on other energy policy players, and the expansion of the collective capacity to act. In the context of the promoter model of Kristof (2017), the constellations of players as process, expert, power and relationship promoters, and their strengths and weaknesses, are decisive (cf. also Ahaus 2017). By means of existing and newly formed (local) networks, civic energy cooperatives come into contact with other stakeholders from civil society, the economy, politics and administration. As well as the expert knowledge which they have gained through their qualifications and, in some cases, longstanding networks, they also often have local knowledge which they can use to implement their projects. At the same time, their networks make them visible in the media. Above all, because of the changed (legal) situation in Germany, organised lobbying and political awareness training by umbrella organisations as well as the professionalisation of existing civic energy cooperatives have gained in significance (Lautermann 2017: 102). Power promoters can be found predominantly among politicians, who set the overarching framework conditions for the development of renewable energy and access to civic energy (cf. Canzler 2017: 33 et seq.). However, it can also be observed that change agents themselves can adopt the role of power promoters on the basis of their increasing establishment and diffusion (Ahaus 2017: 197).

In the conceptualisation of civic energy cooperatives as change agents, in addition to their civil society potential and their sustainable, ecologically-oriented mode of economic activity, they are characterised by their close networking with other civic energy cooperatives, as well as cooperation with other players from politics and the economy. Rogers and Kristof, however, use the term 'change agents' to describe highly visible experts in governmental institutions, NGOs or companies who promote social change processes through their position (cf. Sommer/Schad 2014: 49). For a consideration of civic energy cooperatives as stakeholders in a socio-technological energy transition, however, this orientation is inadequate. Indeed, the development of civic energy cooperatives has shown that the people who participate in them usually organise themselves voluntarily and initiate change processes from below. Diffusion paths therefore comprise horizontal imitation processes within civil society or winning over power promoters in politics or civil society. Sommer and Schad (2014: 49) also argue that the visibility of stakeholders as local change agents should not be limited exclusively to material/social structures, but rather should also include the mental dispositions, orientations and values of the protagonists. This can be linked to the civil society potential of civic energy cooperatives (democratic membership structures, participation, orientation towards the common good, ecological responsibility, the notion of cooperative self-help) (BBEn 2018).

4 Conclusions and outlook

Despite their economic activities and profit motives, the involvement of citizens in energy cooperatives corresponds to a fundamental logic of civil society action on the grounds of their democratic structure, membership orientation and focus on the

common good. In particular, the pioneering phase of civic energy cooperatives can be situated as civic engagement on the grounds of its vision for energy policy. Given the current diversity of forms of civic energy cooperatives and the latest developments with regard to the framework conditions established by the government, it is not constructive to generalise about civil society stakeholders. It remains to be seen to what extent these developments will necessitate a stronger focus on economic activities and what effects this will have on the social/civil society aspects of civic energy cooperatives. It is possible that the relationship between civic energy cooperatives and civil society will need to be reconsidered accordingly. The conceptualisation of civic energy cooperatives as change agents enables their hybrid nature between entrepreneurship and an orientation towards the common good to be captured.

The literature focuses strongly on questions of participation and increasing acceptance by means of the participation of citizens in energy cooperatives (for a comprehensive overview, see in particular Radtke 2016: 25 et seq.). Heins and Alscher (2013: 123 et seq.) critically point out that earlier examples of civic participation in relation to environmental and climate protection were often relatively short-lived – or that, despite their willingness to participate, citizens withdrew their involvement due to protracted political decision-making processes. Situating civic energy cooperatives as change agents offers an alternative or another dimension to civic participation in the energy transition. This opens up a new perspective for energy research, since the focus is shifted from the level of (passive) members and investors to the management of the cooperatives, which networks and enters into an outward exchange with other stakeholders, creating collaborations. Civic energy cooperatives thus not only constitute a low-threshold model for the participation of citizens in the energy transition, but, as new stakeholders in the energy system, offer new possibilities for cooperating with other stakeholders such as local authorities for the purpose of sustainable regional development.

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Moritz Engbers

UNDERSTANDING AND SHAPING SPATIAL TRANSFORMATION PROCESSES THROUGH TRANSDISCIPLINARY CASE STUDIES

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Abstract

A transdisciplinary case study focuses on a particular phenomenon in its social, cultural, economic and ecological context. *Transdisciplinary* means, first of all, that people from different fields – such as science, administration, art or business – conduct research together on socially relevant problems, learn from each other and develop interventions. Cases can be understood as boundary objects, which allow participants' perspectives to be identified and discussed. An approach to transdisciplinary research that is sensitive to differences can help to better understand and shape spatial transformation processes. In-between spaces that exist between disciplines, sectors, fields of work and living environments offer the potential to examine spatial processes from different perspectives and to question what is usually taken for granted as well as non-sustainable ways of thinking and acting. The conceptual contributions are illustrated using examples from a transdisciplinary case study in the district of Oldenburg with actors from science, art, the regional administration and civil society.

Keywords

Difference – transformative research – sustainability – in-between spaces – experimenting and reflecting

1 Introduction

Global challenges range from climate change, unequal resource distribution and poverty to issues of social cohesion. Socio-ecological transformation processes are needed to address these problems (WBGU [German Advisory Council on Global Change] 2011) and to allow for changes in economic frameworks and lifestyles through interventions. Socio-ecological transformation processes have both a temporal and a spatial dimension. In principle, the idea is to develop approaches in the

dynamics between existing and becoming in order to viably and sustainably shape the relationships between society and nature (Becker/Jahn 2006). In recent times, the spatial dimensions of socio-economic transformations have received a great deal of attention (ARL [*Akademie für Raumforschung und Landesplanung*] 2016, Levin-Keitel/Mölders/Othengrafen et al. 2018). This includes questions pertaining to the comparability of local spatial developments, the significance of different scales and the effects of spatial dynamics such as migration or the concentration of capital. The German Advisory Council on Global Change (*Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen*) (WBGU 2011: 23) has spoken out in favour of responding to this socio-economic challenge with ‘transformative research’ that ‘promotes the redevelopment process through specific information, methods and technologies’. Unlike basic research or research about transformation processes, this transformative research is meant to have a greater impact on society. Transdisciplinary research can be understood as just such a transformative form of research. It aims to address real-life problems, promote cooperation between scientific and non-scientific fields and to actively include the values and interests of the various participants in the research process (Jahn 2008; Burger/Zierhofer 2007). One methodological approach of transdisciplinary research involves case studies in which various parties work on a specific case that is spatially and thus also socially, culturally and ecologically situated. This paper focuses on conceptual considerations that take advantage of the potential of transdisciplinary research to analyse and shape spatial transformation processes. The case is made for transdisciplinary research that is sensitive to differences, emphasising its contribution to spatial planning theory. The conceptual considerations are illustrated using examples from a transdisciplinary case study in the district of Oldenburg in Lower Saxony, in which individuals from the fields of science, art, the regional administration and civil society worked together.

2 Transdisciplinary sustainability research

Since the 1990s, approaches in transdisciplinary research with different focal points have been continuously developed and have become more differentiated. Transdisciplinary research can be understood as a field within sustainability research which is characterised by a normative orientation towards sustainability in which societal problems are the starting point and which involves a heterogeneity of actors from the field of science and other areas of society. Spangenberg (2011) describes this type of research as a ‘science of sustainability’ – as opposed to a ‘science for sustainability’ – which is characterised by transdisciplinarity, reflexivity and a practical orientation. This type of research is associated with discussions surrounding ‘Mode 2’ knowledge production (Gibbons/Limoges/Nowotny et al. 1994), which emphasises issues of increasing interaction between scientific and social practices. The following addresses a few central structural elements of transdisciplinary research, as they are discussed in sustainability research.

Transdisciplinary research starts by focusing on socially relevant, complex, difficult-to-define or ‘wicked’ problems (Pohl/Hirsch Hadorn 2006; Scholz 2011). One basic premise is that transdisciplinary research is meant to address problems that are relevant beyond science itself and that working on these problems requires the

knowledge of scientific disciplines and other fields of society. The creation of socially and culturally robust knowledge is seen as an important goal that emerges in a transparent and participatory process and is based on local conditions (Gibbons 1999; Nowotny 1999; Vilsmaier/Lang 2015).

In principle, there is a certain overlap when dividing transdisciplinary research processes into three phases. Lang/Wiek/Bergmann et al. (2012) describe phase A as the phase in which a problem is collectively framed and a joint research team is formed. In this phase, the problem is structured. Phase B includes the co-creation of solution-oriented and transferrable knowledge through cooperative research. This phase involves analysing the problem. In phase C, the mutually generated knowledge is integrated and applied with regard to the research objectives. What is paramount here is making the results productive by synthesising them and translating them into different fields of application. The phases are understood to be iterative and recursive (Hirsch Hadorn/Bradley/Pohl et al. 2006; Lang/Wiek/Bergmann et al. 2012). A further structuring element is the classification into knowledge types that are generated through transdisciplinary research. A distinction is made here between: 1) systems knowledge aimed at understanding the facts, 2) target knowledge to describe desired objectives and behaviours in terms of a need for transformation, and 3) transformation knowledge used to emphasise the means and ways of achieving objectives (Hirsch Hadorn/Hoffmann-Riem/Biber-Klemm et al. 2008). Ultimately, research principles are an integral part of transdisciplinary research that should act as fundamental principles or guidelines to orient the research process. Cooperation should take place 'on equal footing' where possible, responsibility should be evenly distributed across the research process and, regardless of the different roles and tasks, participating parties should work towards a common goal (Pohl/Hirsch Hadorn 2006; Scholz/Steiner 2015).

3 Transdisciplinary case studies

The structuring elements of transdisciplinary case studies are a focus on a particular problem, phases, types of knowledge and principles (Lang/Wiek/Bergmann et al. 2012; Pohl/Hirsch Hadorn 2006; Scholz/Tietje 2002). The aim of working on cases is both to find a solution to the problem in a specific situation and to generate knowledge that goes beyond the individual case (Krohn 2008). For this reason, context plays an important role in transdisciplinary sustainability research (Lang/Wiek/Bergmann et al. 2012). Unlike the relatively general understanding of cases in economics or sociology, cases in transdisciplinary research, according to Scholz/Tietje (2002), can be understood as specific phenomena in their historical context that are viewed from different perspectives and then strategically, socially and culturally framed. Because cases represent a specific phenomenon, it is necessary to precisely work out the specifics of each case. At the same time, cases exemplify a bigger issue. Generalised conclusions may thus be drawn by way of abstraction and can then be compared and contrasted with similar cases (Vilsmaier/Lang 2015).

According to Lang/Wiek/Bergmann et al. (2012), in phase A of a transdisciplinary case study a research team is formed, the problem is defined and a mutual understanding of the case is developed. A key question is also developed and

various methods of collaboration are established (e.g. rules of collaboration or guiding principles). In a collaborative research process, phase B involves discussing the case from various perspectives, which are characterised in regard to their (in) compatibility and are used to generate intervention strategies. In phase C the case is transformed, bringing together the different perspectives and translating the findings to different fields of application. When the knowledge types according to Hirsch Hadorn/Hoffmann-Riem/Biber-Klemm et al. (2008) are applied to a case, systems knowledge corresponds to understanding the case from different perspectives, target knowledge corresponds to a desired need for change focused on a central normative question, and transformation knowledge corresponds to the analyses, experiments and interventions carried out to fulfil the need for change.

Participants with different perspectives conduct research on the same case together. The researchers are 'situated' (Haraway 1988), in other words, they are shaped by their perceptions, scientific backgrounds, socio-cultural backgrounds, world views and previous experiences. This situatedness is not seen as an obstacle to the research; instead, making it explicit enables a better understanding of the researchers' basic assumptions, ways of thinking and interpretive models. Following Star and Griesemer (1989: 387 et seq.), cases in such research settings can be understood as *boundary objects* because they are compatible with different points of view and knowledge bases and they also enable a certain coherence beyond the individual points of view. One commonality is that all of the participants can associate a specific meaning with the boundary object. And because the participants come from very different backgrounds, these meanings may vary greatly. Due to the huge range of perspectives, boundary objects can bridge dichotomies between abstract and concrete or between specific and general. Burman (2009) stresses that boundary objects enable both the identification and differentiation of the perspectives. Particularities and nuances between the participants' perspectives become visible while the fundamental assumptions by which the perspectives differ also become apparent. The result is that a single case has a dual character: it makes differentiation possible by pointing out the participants' different perspectives on the case and at the same time it allows for integration by representing a reference point in the research process that can be reverted to time and again.

Initially, cases represent abstractions, which highlight different perspectives and make it possible to work on a transformation of the case (Vilsmaier/Lang 2015). Using the case as a boundary object, participants are faced with unusual or alien perspectives in the research process. They perceive their own perspective as increasingly relative and individualised, which has developed as a result of their socialisation, background and environment. By using the case to relate different perspectives to one other, a spatially and temporally situated phenomenon can be comprehensively described.

4 The role of difference in transdisciplinary case studies

The differences in the perspectives, knowledges and visions of the individuals involved are crucial to transdisciplinary research. However, it is clear that by focusing largely on

consensus, compromise and integration, the potential of exploring differences has not been realised (Engbers 2018). The same is true when it comes to examining the normativity of research (Schmieg/Meyer/Schrickel et al. 2018), the background of different conceptions of a given problem (Meyer 2020) and the questioning of power structures in the research process (Rosendahl/Zanella/Rist et al. 2015; Polk 2014).

Differences between the participants are not simply there, rather they are continually created and reproduced through the participants' own attributions and revaluations and those of others during the course of the research process. These self- and external attributions form regimes during the course of the research, thorough which individuals and statements are assigned to specific categories (Mecheril 2013). In this way, transdisciplinary research initially creates other relationships between individuals and ways of speaking, as is the case in empirical social research. This is firstly because individuals' roles towards each other change when all of the participants start to see themselves as researchers and secondly it is because adequate speaking and working methods, concepts and relevance only develop as a result of the heterogeneity of the participants. The way a transdisciplinary case study is organised, which settings are determined in advance, which ones develop during the process and whether they are understood in a static or dynamic way, also influences the relationships of the individuals to one another and the results of the research process. At the same time, this negotiation process provides the potential to shine a light on cultural regimes and things which are taken for granted from the backgrounds of the participants as well as on shared cultural regimes within society.

Difference-oriented thinking has consequences for the understanding of space. Bhabha (1994) uses the term 'in-between space', in which cultural differences, regimes and power structures are (partially) visible and can be experienced and negotiated. It is precisely in these in-between spaces, says Bhabha (1994), that the potential for individual and collective change lies. Difference is then not understood as static but rather as something that is in perpetual negotiation. One potential of transdisciplinary research lies precisely in creating the conditions to make such in-between spaces possible (at least temporarily) (Vilsmäier/Brander/Engbers 2017). Exploring cultural differences allows for a critical reflection as regards (implicit) basic assumptions and preferences, different ways of appropriating the world as well as the associated affiliations, values and norms.

5 Transdisciplinary case studies and spatial transformation processes

Transdisciplinary case studies have a twofold spatial dimension: firstly, they make it possible to describe spatial relations and processes from the perspectives of the participating actors and secondly, they themselves represent material, social and cultural places where actors meet and – in the sense of in-between spaces – negotiate their individual perspectives. The two dimensions are mutually dependent.

Hofmeister/Scurrall (2006: 283) state that sustainable regional development requires a socio-ecological transformation of space: 'The awareness that we (help) produce "nature" and that we can negotiate about the 'nature' that we want with each other

opens up new spaces of opportunity for practical political action.’ That also means taking up concepts of space that do not lead to an over-determination of nature or society and understanding them as being related to one another and understanding ‘space’ as a ‘socio-ecological relationship’ (Hofmeister/Scurrall 2006: 278). This socio-ecological relationship can be understood more deeply thanks to the variety of perspectives held by participants in transdisciplinary case studies. Spatial comparisons made in order to identify ‘spatially-relevant powers [...] and to appreciate their reach’ (Vogelpohl 2013: 74) do not initially refer to different regions but rather to the comparison of different perspectives on the same case. The challenge and the potential lie in allowing not just one but different notions of space to exist alongside each other, which shape the perspectives of the participants.

Transdisciplinary case studies create in-between spaces when actors meet outside of their usual fields of work, sectors, disciplines and realms of life. Throughout the research process, material, social and cultural situations emerge in which researchers learn from each other, try out intervention strategies and negotiate preferences, values and norms. The quality of the interactions is also determined by the methodological design of the research process: Who should be involved in these negotiations, in what capacity and how? How should processes be shaped? Who makes this decision? The response to these questions is itself part of the research process. When power structures between actors are simply reproduced without thoroughly addressing their differences, the potential of transdisciplinary case studies for socio-ecological transformations can be lost. This may be the case, for example, when conventional constellations of participants come together or when long-established forms of interaction are not disrupted. That is why it is important to continuously reflect on the conditions of one’s own knowledge generation and to make jointly generated knowledge accessible to everyone.

According to Lefebvre (1991), spatial relationships and processes are both a prerequisite for and a consequence of social relationships. If other relationships between participating individuals are developed in a transdisciplinary case study and those relationships transcend the dichotomy between researchers and those being researched (Vilsmaier/Brander/Engbers 2017), there are consequences for the space-related results. In this sense, other relationships amongst individuals are also required to understand and create spatial transformation processes.

6 A transdisciplinary case study in the district of Oldenburg

In the following, a transdisciplinary case study is described in order to illustrate the discussion above. This case study was part of the international sustainability project entitled ‘Leverage Points for Sustainability Transformation’ at Leuphana University Lüneburg from January 2016 to March 2019 (funded by the VW Foundation and the Ministry for Science and Culture of Lower Saxony [*Niedersächsisches Ministerium für Wissenschaft und Kultur*]). As part of this project, the district of Oldenburg was defined as a case in which the topic of (bio)diversity and its interconnectedness was addressed using the concept of the ‘(bio)diversity corridor’. The objective was to find and make use of potential intervention points for sustainable development. The

district of Oldenburg is located in Lower Saxony between the cities of Oldenburg, Delmenhorst/Bremen and Osnabrück. A large part of the land is characterised by intensive, industrial agriculture, typical of the district of Oldenburg. Consequently, challenges in the region include a loss of biodiversity, increased nutrient inputs, pesticide loads and conflicts of interest between agriculture, tourism and nature conservation.

In the transdisciplinary case study, different groups of actors collaborated as part of projects, workshops and public events on the topics of biodiversity, nutrition, energy and agriculture. These included scientists from the Leverage Points project; artists from the *artecology_network* association with a focus on art, culture and land-scape; representatives of regional and municipal administrations (including from the areas of nature conservation, climate protection, culture and the nature park); Master's students from Leuphana University and other actors from business and civil society. The collaboration focused on one key question that can be understood as the result of phase A and which was jointly developed in a workshop with the actors: 'How can (bio)diversity corridors in the district of Oldenburg nourish, promote and drive a sustainable and future-oriented way of life?' According to the *artecology_network*, a (bio)diversity corridor represents bridges between human, animal and plant communities, ecological habitats and cultural meanings. Such a corridor should increase the awareness of climate protection and biodiversity as shared concerns, create an awareness of the region with its changes and the particularities of its landscape as well as promote neighbourly behaviour. Cultural and ecological diversity are seen as being of equal value according to this concept (*artecology_network* e.V. 2017).

During the course of the research process (phase B), differences between the participants, which facilitated a better understanding of the case in different ways, became evident. This was manifested in the design of the workshops, the methods applied and the intervention strategies that were developed: at the beginning of the project, the scientists suggested lectures as a way to communicate knowledge, whereas the artists wanted to stimulate people to think by way of direct confrontation. Over time, a number of scientific and artistic projects developed, which were then realised in conjunction with different actors from the district. This included working with natural materials in workshops, researching 'favourite places' as special, personal places and evaluating artistic projects independently from scientific assessment criteria. On a particularly positive note, the scientists and artists worked together in tandem, researching similar topics using fundamentally different approaches. The question as to what nature is and how it can be researched, for example, came up again and again: analytical (conducting qualitative interviews), experience-based (describing and drawing cherished oaks) and experimental (cooking with invasive plants) approaches complemented one another.

As part of the (bio)diversity corridor, places developed that inspired people from the district to communicate and network during trade fairs, festivals and workshops. A special place was created using a project container, which represented a place to meet and communicate other than the established places. The (bio)diversity corridor represents a notion of space at the centre of the transdisciplinary case study that was

strategically developed during the course of the research and, in effect, filled with life. This proved to be a unifying strategy, making it possible to negotiate notions and ideas of space that bridge human and non-human nature, sectors and different ideas of nature and coexistence. Experimenting with the notion of the (bio)diversity corridor contributed to change by including more integrative viewpoints in the planning, bringing different people together to make decisions about spatial planning processes and finding intervention strategies for existing problem areas that run counter to existing systems of thought and behavioural patterns. The results of the transdisciplinary case study were included in a joint final publication for the district of Oldenburg, in which the different projects and approaches were reflected upon and related to one another (phase C). One key finding of the transdisciplinary case study was the connection between science, art and the regional administration. It was precisely the act of inviting the district administration to support artistic projects and to collaborate that led to a better understanding and reassessment of certain perspectives on spatial development. Through the concept of the (bio)diversity corridor, different ideas of diversity and diverse groups of actors could be related to each other.

7 Conclusions

Transdisciplinary case studies can expand the repertoire for reflection within spatial and planning science, and serve to develop and try out intervention strategies. By putting greater emphasis on the spatial dimension of transdisciplinary case studies, transdisciplinary sustainability research becomes more compatible with the strategies of spatial and planning science. In addition, the role of spatial processes can be given greater consideration in socio-ecological transformations. With the case as the methodological foundation, there is already a reference point for spatial comparisons and scaling to higher spatial and administrative levels.

Transdisciplinary research processes have a political dimension because the participants – including the scientists – do not act devoid of any interests; rather they bring certain aims and ideas about the world into the process. This research process presents an opportunity to uncover and process this normativity and thus the conditionality of one's own thinking and actions (Engbers 2018). This can be achieved in the research process by consciously questioning social structures (e.g. age, gender, ethnicity, dominant paradigms, socio-economic backgrounds) and by conducting open-ended experimentation and subsequently reflecting on it. These are preconditions that make it possible to change perspectives, negotiate meanings and develop a shared understanding of the problem. In this way, transdisciplinary research that is sensitive to differences and an exploration of in-between spaces can be pursued in an effort not simply to maintain an unsustainable present state but to develop alternative ways of thinking and acting to promote socio-ecological transformation.

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RESEARCH THROUGH DESIGN AS A TRANSFORMATIVE APPROACH*

Contents

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Abstract

New and experimental research methods to understand and co-steer processes of spatial transformation are called for. From the perspective of designing urban landscapes this paper draws a connection between Research through Design and transformative science. (Urban) landscapes constantly undergo (spatial) transformation, and not only have landscape architects always dealt with perpetual change, they increasingly often catalyze it. Designing is an integrative activity and the central means of the discipline to understand issues and draw up possible solutions. Furthermore, design often reaches out to other disciplines, involves multiple participants, and can be paradigm shifting. Research through Design is an increasingly acknowledged approach in landscape architectural research. With regard to the procedures, characteristics and goals of knowledge production, this paper presents commonalities between Research through Design and transformative research, highlighting the integrative and projective nature of designing. In conclusion, I suggest positioning Research through Design among the methods of transformative research.

Keywords

Research through Design – urban landscape – spatial transformation – transformative research – integrative method

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1 Urban landscapes, spatial transformation and transformative research

This paper points out commonalities between transformative research and a Research through Design approach (in the field of landscape architecture), aiming to demonstrate that the latter can contribute to transformative science. I expect to illustrate that the inherent qualities and goals of Research through Design resonate with those of transformative research. These reflections are based on both theoretical and practical experience from my doctoral research and landscape architectural practice revolving around spatial transformation.

To anchor a concept of space for this paper, I refer to urban landscapes: contemporary open spaces that are not only compact cities or traditionally understood natural landscapes, where new practices and forms of space, culture and production emerge (Cronon 1992; von Seggern/Werner 2008:55–57; Giseke 2010; Nassauer 2013:80). As “complex and multilayered spatial interactions of built and unbuilt areas” (Giseke 2010:525, translated from German), urban landscapes are the product of different processes that emerge in space, and “consist of different spatial images and are modified by different spatial forces and actors” (Giseke 2010:527). Composed of both physical and social elements, urban landscapes thus represent a relational understanding of space (Levin-Keitel/Mölders/Othengrafen et al. 2018).

The contemporary understanding of urban landscapes underpins dynamics and change, and (urban) landscapes constantly undergo transformation (Waldheim 2006; von Seggern/Werner 2008:55–57; Giseke 2010; Prominski 2011; Reed/Lister 2014). According to dictionaries, transformation means a thorough or dramatic change in the appearance, medium, character or function of an object, organism or system. It comes from Latin ‘trans-’ across and ‘formare’ to mould, make up or organize. This paper regards spatial transformations in plural, not as one orchestrated process but including diverse developments. Not only have landscape architects always dealt with perpetual change, they increasingly often catalyze it. This is where I draw a connection to a topical framing: the German Advisory Council on Global Change uses the term ‘Great Transformation’ to conceptualize a necessary, comprehensive systematic shift towards low-carbon societies in response to today’s crisis of natural life-support systems and global population growth (WBGU 2011). I see both designed/planned and uncontrolled spatial transformations implicit in the Great Transformation.

To address the goals of the Great Transformation, a call for transformative research has emerged in German-speaking Europe to globally address environmental and social sustainability (WBGU 2011, 2016; Schneidewind/Singer-Brodowski/Augenstein et al. 2016; Wittmayer/Hölscher 2017:89). Transformative science is defined as “a specific type of science that does not only observe and describe societal transformation processes, but rather initiates and catalyzes them” (Schneidewind/Singer-Brodowski/Augenstein et al. 2016:6). Transformative research is concerned with socially robust knowledge that supports change through concrete innovation; it is application oriented, trans-disciplinary and integrates different types of knowledge (WBGU 2011:23–24; Schneidewind/Singer-Brodowski/Augenstein et al. 2016). These include

systems knowledge, target knowledge and transformation knowledge (Wuppertal Institute [www](http://www.wuppertal-institute.de)) – that is, knowledge about what is, visions about what should be, and practice-oriented knowledge about how to direct the desired change. That is also what landscape architects handle. In laboratories of reality (from German *Reallabor*) (Schneidewind/Singer-Brodowski/Augenstein et al. 2016) the expertise of design/planning disciplines in producing ideas and visualizing alternative scenarios is highlighted (Alcántara/Arnold/Lindner et al. 2018:286). I further elaborate on the potentials of (landscape architectural) Research through Design to provide meaningful contributions to transformative research.

2 Producing knowledge through designing

Recent theories investigate the creation of new knowledge through design/planning practice (Prominski 2004; von Seggern/Werner/Grosse-Bächle 2008; M. Jonas/Monacella 2012; Engels-Schwarzpaul/Peters 2013; Buchert 2014b; Schultz 2014; Verbeke 2015; Prominski 2016). Research through Design (RtD) is a category of design research that has gained ground since the 1990s. In landscape architecture it usually means acquiring or ‘creating’ both theoretical and practical knowledge through the act of designing (von Seggern/Werner/Grosse-Bächle 2008; Moore 2010; M. Jonas/Monacella 2012; Jenner 2013; Verbeke 2015; Prominski 2016). There is no single format for RtD and it is also generally called Research by Design, where “the act of designing is the key process to develop understanding and knowledge” (Verbeke 2015:79). It is applying “[t]he act of designing as a means to answering a research question” (Prominski 2016:27).

Designing is the central activity of landscape architecture in solving problems and developing spatial or conceptual forms, visions and strategies. For the discipline, which looks for solutions to complex natural and urban issues, exploratory design processes are the most natural and comprehensive way to answer research questions (Lenzholzer/Duchhart/Koh 2013; Reed/Lister 2014; Prominski 2016). RtD is an essential way of developing methodology and scientific thinking in landscape architecture, and helps to engage with other disciplines (von Seggern/Werner 2008; Lenzholzer/Duchhart/Koh 2013; Weidinger 2015; Prominski 2016). Before discussing the characteristics of a design process and what qualifies designing as (transformative) research I give a brief picture of some of the outcomes and forms it takes.

Typically, research through design in landscape architecture is undertaken with the help of (producing) various analogue and digital media such as drawings, concepts, spatial plans, graphics, models, reports, guidelines and videos. Scales and topics vary from small objects to gardens, parks, cities, blue-green infrastructure and regions – like any landscape architectural design that might be visionary and/or implemented. Many undertakings focus on environmental and urban issues on a relatively large scale (Shannon 2004; Viljoen/Bohn/Howe 2005; Reed/Lister 2014; Giseke 2015), or explore particular tools such as playing, walking, narrating, landscape urbanism etc. (Shannon 2004; Langner 2013; Schultz 2014; Erixon Aalto 2017; Kania-Feistkorn 2017; Schmidt 2018) to understand complex phenomena and to develop methodological approaches and solutions. Beyond universities, trans-disciplinary design labs address envi-

ronmental challenges by bringing stakeholders and experts to dialogue (Westley/McGowan 2014:294–95). These labs can be seen as analogous to the ‘real-world labs’ of transformative research. In my doctoral thesis I apply RtD in order to: 1) gain a multi-faceted understanding of the topic (of spatio-temporal dynamics on urbanizing islands) 2) test a hypothesis about integrating seasonal dynamics into building resilience, and 3) produce both practical and theoretical new knowledge for islands. One of the case studies involved teaching a M.Sc. design studio. Besides context-specific solutions for the chosen cases, the research produces transferable knowledge about island urbanization and seasonal phenomena, and potential applications for designing urban landscapes in general.

In a scientific context, designing is considered in the category of creative or subjective practices and its viability as research raises critical questions. In order to go beyond an individual project or piece of art, research in creative disciplines qualifies scientifically by being a systematic inquiry, knowledge directed and transparent (Archer 1995). To recapitulate, designing is the means to answer a research question, and what distinguishes research from a design project is critical reflection of the process and outcomes within a theoretical framework and the drawing of transferable conclusions from specific cases (Prominski 2016). Like Mode 2 sciences, designing is contextual, temporal and application-oriented (Prominski 2004:106–07). A great number of publications consider design processes as a meaningful mode of research and knowledge generation (Prominski 2004; von Seggern/Werner/Grosse-Bächle 2008; De Maeyer 2011; M. Jonas/Monacella 2012; Engels-Schwarzpaul/Peters 2013; Lenzholzer/Duchhart/Koh 2013; Buchert 2014b; Weidinger 2015; Prominski 2016).

3 Integrative approach

There have been calls for academic understanding of knowledge to be amplified with other conceptions and types of knowledge such as tacit knowledge (Polanyi 1967), practitioners’ reflection in action (Schön 1983), and creating or designing knowledge (Prominski 2004; von Seggern/Werner/Grosse-Bächle 2008; Weidinger 2015). Integrating different modes of discovery, perception, and types of knowledge is central for designing (Schön 1983; von Seggern/Werner 2008; Braae/Diedrich/Lee 2013; Buchert 2014a; Corner 2014; Schultz 2014; Verbeke 2015). Designing deals with unpredictability and complex processes (Prominski 2004: 23–25, 116). Design processes are non-linear (von Seggern/Werner/Grosse-Bächle 2008), reflective and reflexive (Schön 1983; Buchert 2014a) and embrace an openness to distraction – an “intentional serendipity” (Braae/Diedrich/Lee 2013:194). This is helpful for reframing situations and generating insights. Subjective engagement and intuition encourage sensing, experiencing, understanding, interpreting and making apparent the non-tangible aspects and abstract qualities of landscapes, such as atmosphere, dynamics, and cultural meanings (von Seggern/Werner 2008; Braae/Diedrich/Lee 2013; Schultz 2014). Designing urban landscapes incorporates both implicit and explicit knowledge (Schultz 2014:284). As ‘reflective practitioners’, designers integrate rational and subjective threads, practice and theory (Schön 1983) In RtD subjective elements purposefully complement a plain rational-analytical approach by expanding observations and diversifying the means of knowledge production.

Nurtured by experience, openness and heuristics, intuition helps where objective reasoning fails to reach (Flyvbjerg 2004:20).

Both urban landscapes as a medium and the process of designing are integrative. Furthermore, design processes explore across disciplines such as ecology, sociology, urbanism, hydrology, geology, fine arts etc., and beyond theory to be informed and inspired. Designers and planners increasingly often assume a role as mediators between expert teams and users, and as facilitators of participatory processes. This enables a transfer of different types of knowledge between academia and society, and the development of new models of creative cooperation besides design labs (Westley/McGowan 2014). Thus RtD in many cases is trans-disciplinary, in line with the definition usually applied in transformative research (Schneidewind/Singer-Brodowski/Augenstein et al. 2016). An integrative and trans-disciplinary approach is necessary for understanding the complexity of landscapes, and particularly for the forward-looking nature of designing urban landscapes. According to von Seggern and Werner, “[T]he specific quality of the activity of design lies in the conscious combination of analytical, intuitive and emotional faculties [...] in order to grasp complex relationships and consequently to formulate possible solutions” (2008: 37–39). Fusing art, imagination and poetry can overcome what instrumentalized problem-solving lacks, and create not only alternative forms of landscape but “meaningful relationships between people, places and earth” (Corner 2014). The subjective, implicit knowledge, uncertainty and heuristics are essential to discovery and the creative capacity of designing (and any research, see Flyvbjerg 2004 and Polanyi 1967).

4 Research through Design catalyzes transformation

“[Design] can integrate the knowledge gained in the process projectively.”
(Buchert 2014a:42)

In the context of transformative research, I finally highlight the expected capacity of Research through Design to produce integrated and solution-oriented knowledge for spatial transformation. Landscape architecture is transformative in the literal sense of shaping and re-using existing spaces, places and landscapes and their processes (Braae 2015). But what I point out here is that designing is “oriented towards development” (von Seggern/Werner 2008:35). It “[tries] to project into the future, and thus to change things” (Verbeke 2015:79). Designed objects, materials, functions, concepts, spaces, and systems can challenge customary practices (Buchert 2014a:46; Corner 2014; Hight 2014). Through ecological and creative processes, landscape architecture can employ effective transformative powers (Corner 2014). New forms of urban landscapes have the potential to foster changes in urban ecological systems and societal attitudes towards more sustainable futures (Corner 2014:60; Hight 2014:100–01). I argue that when embedded in a research context, a design process can produce strategic and visionary knowledge that contributes to transformative science.

Designing is managing necessary and desirable change (Lynch 1972:1). In my view, recent responses such as Landscape Urbanism (Waldheim 2006, 2016), Projective Ecologies (Reed/Lister 2014), Continuous Productive Urban Landscapes and urban agriculture (Viljoen/Bohn/Howe 2005; Giseke 2015), the urban metabolism project of International Architecture Biennale Rotterdam 2014, Landscape Machines (Roncken/Stremke/Paulissen 2011), Water Atlas Hamburg (Studio Urbane Landschaften 2008) and projects such as the Emscher Park in the Ruhr Region illustrate transformative potential. Contemporary landscape architecture seeks to reject a nature vs culture dualism and to encourage meaningful engagement and awareness (Prominski 2014; Reed/Lister 2014). This echoes the aspirations of transformative science and the Great Transformation. By integrating different modes of inquiry and projection, and types of knowledge, existing practices and theories are challenged. While this is not to conclude that all design is transformative in the sense of transformative research¹, or that designing alone is omnipotent, landscape architects can facilitate ecological and societal transformation and challenge paradigms (Brown/Kjer 2007; Corner 2014; Jonas 2014; Prominski 2014).

5 Conclusions

Focusing on the field of landscape architecture this paper has described Research through/by Design and how its characteristics and goals resonate with transformative research. RtD is a methodological approach that searches to answer research questions and create new knowledge through (a) design process(es). This paper underpins its integrative, solution-oriented, trans-disciplinary, and projective nature. As an exploratory methodological approach, RtD challenges paradigms of science and knowledge production. Designing (urban landscapes) integrates physical and social spaces, rational and intuitive modes of inquiry and different types of knowledge, as well as inputs from different scientific and non-scientific fields and processes. It is both analytical and visionary – often aiming for change towards sustainability by challenging conventional models. RtD can profit from these characteristics in producing theoretical and practical knowledge – or integrated, applicable, solution-oriented knowledge and innovation that contribute to transformation. I conclude that with the qualities described, landscape architectural RtD is inherently transformative, and suggest embedding it in the agenda of transformative research. In this context collaborations are necessary to overcome disciplinary limitations and to impact on society. Based on the commonalities presented through this paper I argue that the processes and means of knowledge production in RtD can be useful for transformative research.

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1 For example refurbishing a plaza without amending its ecological or social functions.

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Angelina Göb

COME OUT OF YOUR SHELL! ARTS-BASED RESEARCH AS A METHOD FOR TRANSFORMATIVE RESEARCH

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Abstract

This article deals with *arts-based research* (ABR), a method in which knowledge is (re) produced through art. ABR formats rely on the way art can be experienced through the senses, as well as on the public, jargon-free accessibility of art as a medium capable of mediating. The paper presents the use of ABR in the context of a study on suburban living environments. The artwork produced is a result of the research process and aids the reception of and reflection on the object of research (through designs and interpretations) with the aim of transforming the perspectives of researchers and those involved in the process.

Keywords

Arts-based research – designs and interpretations – sensory perception – reflection – transformation

1 Introduction

‘... but as a ceramist, I remained to some extent a foreign body.’

With this statement, Ms R laid¹ the foundation for an experiment which became an exploratory field test for transformative research² as part of my study on suburban living environments³. In my role as researcher, I wanted to understand what constitutes the suburban and how it plays out in everyday life by experiencing it, hence I actively participated in the living environment of the participants in my study. For this purpose, Ms R invited me into her home, including her studio, and became a participant herself, as she acted not only as an expert on suburban life, but also in her profession as a ceramist, i.e. as a co-designer of the research process. Within this process, we shared our living environments – her artistic one and my scientific one – in order to jointly develop something *new*: the snail shell, a work of art made of clay. This symbolises both the process and the result of the arts-based research.

In the following, I would like to show exactly what is hidden within the shell. In section 1, I start by explaining what ABR is and what constitutes this method. Section 2 presents the experiment with Ms R in practice. The conclusions (section 3) end with a non-final reflection about the advantages and disadvantages of ABR, as well as its challenges in comparison with other methods.

1.1 What is ABR?

ABR is ‘defined as research and discovery *by means of* aesthetic/artistic activity’ (Schreier 2017: 8). McNiff defines it as ‘the systematic use of the artistic process, the actual making of artistic expressions in all of the different forms of the arts, as a primary way of understanding and examining experience by both researchers and the people that they involve in their studies’ (2007: 29). Thus, ABR connects the apparent dualism of art and science (Leavy 2015) via their immanent commonalities, ‘in their attempt to explore, illuminate, and represent aspects of human life and the social and natural worlds of which we are a part’ (Leavy 2017: 3). ABR approaches integrate and enrich existing methods within the discipline, use synergy effects and are therefore regarded as ‘holistic’ (Chilton/Leavy 2014; Leavy 2011). They interlink artistic and scientific contexts in order to create ‘innovation(s)’ (Leavy 2017; McNiff 2007).

In this arts-based mode of knowledge production, communication and reflection, ABR concepts represent a third paradigm alongside quantitative and qualitative social research (Schreier 2017: 20). In contrast, ABR does not aim to generate discursive, generalisable knowledge which can be written down, but rather to produce intuitive knowledge and to open up new perspectives and potentials, in which art takes on a mediating function (ibid. 2017; Leavy 2015). Barone and Eisner therefore describe ABR as an ‘effort to extend beyond the limiting constraints of discursive communica-

1 Ms R was a participant in the study.

2 In this article, *suburban* refers to living environments in spaces based on their phenomenological manifestation, i.e. their characteristics that can be described and perceived by the senses (Sieverts/Koch/Stein et al. 2005: 154). They can neither be clearly differentiated spatially nor conclusively defined, but they clearly differ from other elements in the urban region.

3 This refers to processes in which perspectives are transformed through critical (self-)reflection – in this case through art – in order to change and expand the processes.

tion in order to express meanings that would otherwise be ineffable' (2012: 1). The focus is on the temporary and revisable nature of knowledge and on its dependency on context and location (Schreier 2017; Eisner 2008). The use of ABR as a research tool is therefore always appropriate when 'research aims not merely at explaining phenomena, but at gaining an understanding of phenomena' (Kagan 2017: 162).

1.2 What constitutes ABR?

ABR approaches are characterised by openness, diversity and flexibility. ABR therefore also functions as an 'umbrella category' and covers a broad repertoire of art forms (Leavy 2017: 4). These include literary (novels, poems), performative (theatre, dance) or visual (photography, painting) formats, which are distinguished in their degree of abstraction as well as in their reference to the object of the research: the less referential the artistic expression is, the more room there is for ambiguity and ambivalence in the interpretation (Schreier 2017: 5). Permitting differential meaning horizons can 'democratize meaning-making and decentralize academic researchers as "the experts"' (Leavy 2017: 10).

ABR relies heavily on 'paradigmatic and participatory formats' (Schreier 2017: 11), i.e. on the integration of very diverse participants (specific to the context or issue) in various phases of the research process. Learning from and with one another and researching together 'not only brings new methodical elements that allow an enriched interdisciplinary research work [...] it also requires that the researchers learn and develop new sets of competences and skills that help scientists research the complex unity of the world beneath, between and beyond disciplines [...] contributing to the development of transdisciplinarity' (Kagan 2017: 162). ABR practices are participatory or transdisciplinary if different players are involved collaboratively in order to generate, (re)integrate and apply 'new' knowledge. 'The duality of researchers and participants is expanded in ABR into the triad of researchers, participants and recipients – whereby individual roles [...] may be combined' (Schreier 2017: 11). The aim is therefore a reciprocal partnership between the participants.

With this in mind, ABR approaches can also be used to question stereotypical (human) images by means of sensitisation and critical perception, to initiate identification and communication processes and to interlink individual and social elements (Leavy 2017: 9 et seq.). 'The research carries the potential to jar people into seeing and/or thinking differently, feeling more deeply, learning something new, or building [...] understandings across similarities or differences' (ibid.: 9). In the process, concepts, stories and ideas emerge which (can) address how to deal with social problems, as well as questions about collective values, 'in the service of cultivating social consciousness' (ibid.: 8). Therefore, the use of ABR is aimed at reaching a broader (non-academic) audience and therefore the public usability and accessibility of the research results (ibid.: 5; 11). Its utilisable value consists in the production of an *outcome* in the sense of public science (ibid. 2011; 2015; 2017), which is firstly free and open to all, since it has a low threshold of comprehensibility (jargon-free), and secondly takes place specifically at locations which are accessible to a large public. 'It is therefore ultimately also about empowerment through research, about research

towards social change and about the breaking up of positions of power' (Schreier 2017: 5). These aspects thus refer to the transformative paradigm (Mertens 2008), which incorporates the complexity and multiplicity of realities (by means of participatory/transdisciplinary research), permits contradictions and therefore attempts to include real living conditions particularly authentically in the research process.

1.3 What is special (or especially difficult) about ABR?

'Science states meaning, arts express meaning'
(Eisner 2005: 210).

The special aspect of ABR is the medium of art. As an interface between preconceptual and conceptual knowledge, art has a different effect, on both those who make it and those who view it. This is because art – whichever form of expression it uses – affects us immediately, before we can grasp it intellectually (as an *embodiment*⁴). Art triggers more or less intense, positive or negative emotions (states of being) and can be experienced through the senses. Nobody can escape this effect. It occurs both in the process of making art and in the process of interpreting and reflecting on it, which is why research designs that include ABR might never be entirely completed (Finley 2008).

ABR is characterised by openness, diversity and flexibility. However, this also means that neither the form nor the use of this method are set or standardised. These characteristics are optional; they can be a component of ABR but do not have to be. Thus, participation – in the form of involvement (on an equal footing) or in its effect (social-transformative, etc.) – in the process of arts-based research can vary and is dependent on who is providing the impetus. It can therefore be said in summary that the science of ABR is currently nowhere near being able to answer all the questions about its object of inquiry conclusively. Is the result of ABR deemed to be art or, conversely, is every work of art deemed to be research if ABR is defined by generating new perspectives and alternative knowledge as a medium and mediator? Or does it require specific criteria such as the explicit interest of the researcher in generating knowledge, the reflection of the work of art and cooperation with other players in order to be real ABR? The preliminary conclusion is that ABR approaches are very heterogeneous in themselves and are hardly comparable with each other. The only thing they have in common is that they are perceived via the senses and the body, and that this perception is elicited through the mediation of art.

4 *Embodiment* describes the bodily understanding of aesthetic perception (Berleant 2004: 83 et seq.). This draws on the individual's own involvement and therefore self-evidently includes sensations (Böhme 2001: 73 et seq.)

2 The experiment

‘Once a bat went astray here and flew into my house by accident. [...] This was an unprecedented encounter with nature. [...] Never before had I been able to observe a bat so closely. It was beautiful, so black and shiny.’

This is Ms R’s account of an experience from her living environment. In this unique situation of proximity and immediacy, the bat resembles a work of art which affects her and moves her emotionally. This occurrence and further everyday episodes from suburban life formed the basis for the creation of an ABR work made of clay⁵. Because handling clay and shaping it into ceramics (as with other forms of art) cannot be achieved without prior knowledge of the material, process and tools, Ms R (as an expert on ceramic art) and I developed this together. The resulting experiment lasted over 12 months.

2.1 From an idea to a work of art

The transformation of my research topic into an implementable form made of clay marked the beginning of the ABR process. On the basis of a qualitative interview with Ms R, I ‘formed’ her expressions and statements (raw data). The biggest issue was to find an appropriate form (structure) without knowing the research results at this point.⁶ The work being produced therefore had to be open to new findings from the further research process (Leavy 2011; 2015). I therefore decided on a design made of individual fragments which would ‘work’ on their own, but also as a whole (original design– design 1). This idea-finding phase was characterised by the intersection of our individual, specific knowledge. This included an intensive exchange and the learning of a common language for a better understanding of each other’s perspective.

In the subsequent phase, the work of art was produced through handicraft. A sketch was made, followed by its ‘freehand translation’ into clay. This was cut to size, pressed and given a texture in the process. The embossed pattern was provided by a material with holes which was laid between the press and the clay in order to add a third (interpretive) level to the planar surface. Using this process, I produced 17 individual parts with the aid of Ms R. After a drying phase of several months (essential for the further process), the material changed, firstly due to loss of water content (shrinkage of the parts by approx. 10%) and then by the bisque firing (plasticity). This was followed by glazing and refiring, which again transformed the shape, colour and form of the material.

5 The term *ceramic*, from the Ancient Greek *keramos* (κέραμος), refers to the raw material, the clay minerals and the dimensionally stable products manufactured from it by firing. Today, it designates both the technique by which such objects are made (the handicraft) and the product thus produced (commodity or ornamental object).

6 The research design (data collection in the form of interviews and focused, observant participation) was only implemented when the ABR commenced.

At this point, however, the transformation was not yet complete. The production phase was followed by the presentation phase of the work of art. In this case, the ABR practice of research and insight included the alternative composition of the work of art by means of its individual segments. This process was intended to inspire further co-production of knowledge and reflexive understanding and/or experiencing. In general, this phase could (or should) take place in an exchange between the researcher, the research subjects and the co-researchers, in order to (re)integrate new knowledge into the work. So far, however, the discussion has only taken place between Ms R and myself. The original design I developed (design 1 – the snail shell)⁷ served merely as a discussion foil on the basis of which further designs (2 – the tribal and 3 – the zip) were created.

In the following, the perspectives and understanding of Ms R and myself will be presented using three designs (variations) of the work of art and (proposed) interpretations on suburban living environments. These are neither conclusive nor complete; rather, they represent the initial associations of the research object. Because these are short reflections, the approach to the work's iconography is fairly superficial. The common denominator of all the design variations lies in their composition of 17 individual parts, with segments of different dimensions (5–20 cm long, 1–7 cm wide and 0.5 cm high), the same surface texture (which varies in its direction and intensity) and coloration (iridescent, changing from dark green via green to grey).⁸

2.2 From design to interpretation

‘This here, this clod, this little clod and this house here, for me they are home, my home, they provide protection and comfort.’

The snail shell

In these words, Ms R addresses a central point which is essential for the construction of her living environment in the suburbs and that of many other study participants: her house with its garden – metaphorically ‘her clod’. By using repetitions, she makes it explicit that these spaces have a particular relevance in her living environment. Thus, Ms R perceives the suburban primarily from the inner perspective of her private space and appropriates this in the mode of a retreat or of a ‘sub-local’ orientation (Menzl 2007; 2014). The home is the centre of her living environment, the place of identification, autonomy and freedom of action. The design of the snail shell corresponds to this interpretation (the snail shell as a clod), which describes a protected space with the possibility of retreat from the outside world.

⁷ As findings were made, they were continually integrated into the research process.

⁸ These form-defining characteristics can also be read figuratively: the differences in dimensions can be interpreted as representing household structures or living spaces, the pattern could stand for temporal parameters such as duration of residence or age, and the arrangement of colour for different furnishings, how the space is arranged or as urban to rural manifestations of lifestyle.

If this perspective is changed, the individual fragments of the snail shell can also alternatively be interpreted as clods. Then the individual clods stand for individual living environments in neighbourhoods or built-up areas. As a whole, they constitute the snail shell, representing the community of the suburban space under examination. This interpretation focuses on the spatially manifested composition of suburbia. Around the unequivocal middle (centre), the snail shell (city/municipality) grows with each structural, functional or social expansion (by the addition of a new clod or its loss in the case of shrinkage). Variations in size and composition can be designed by placing individual clods closer to or further away from each other, in order to indicate structural and social proximity or distance between the inhabitants. This could also enable conclusions to be drawn about social cohesion. In addition, the spiral shape of the snail shell respects the transformation potential of suburbia as open, unfinished spaces which continue to (be able to) change.



Fig. 1: The snail shell / Photo: Angelina Göb

The tribal

When reassembled, the segments form this design that resembles a tribal or tattoo motif. Originating in the word *tribe*, this interpretation concentrates on the aspect of homogeneity and cohesion. In the hierarchy, the community is located above the individual, and commitment to joint goals, values and rituals (as a basis of trust) is at the forefront of coexistence. However, this commitment to and display of a common motive (*tribal*) also indicates a clear demarcation from other places as a result of a

(tribal) identity. Nevertheless, every individual in this *tribe* (segment) is unique, does not appear twice in this form and occupies a self-determined place in the collective context. Whereas social, life-cyclical, normative and structural homogeneity was characteristic of suburban space for a long time (e.g. Menzl 2007; 2014), the increasing individualisation of suburban living environments (through generational change, demographic change, etc.) enables increased heterogeneity (e.g. Aring/Herfert 2001; Jahn/Lanz/Bareis et al. 2000). Thus, this design could also indicate a desired development in which the home stands behind the homeland in the sense of identification by and with the tribe or space (and does not, as in interpretation 1, primarily rely on a privatised 'sub-local' orientation).

A further interpretation focuses on the chaotic position of the individual pieces, i.e. on a state of entropy, which describes the inequality and disorder within a system. An intensification of this tendency towards the expansion of free spaces between the segments could then be interpreted as a disturbance or danger within the community, which could lead to segregation and separation and would possibly require (planning) control.



Fig. 2: *The tribal* / Photo: Angelina Göb

The zip

The juxtaposed individual parts constitute a design in which the elements are visually (linearly) connected. The heterogeneous links are interconnected in the form of a chain. This composition represents both a bond between the segments – despite difference (in the subjective living environments) – and an attachment to the core city and its potential structures. When arranged as a beam, the design might be interpreted

as a line of vision or orientation towards the city which characterises suburbia as a dependent, unemancipated space without an autonomous identity and quality of life, in which each person lives for themselves or in transit between the core city and suburbia and is present neither here nor there.

In the interpretation of the zip, which is focused on the meshing of links, the opposite emerges. The dynamic of opening and closing shows two faces of a suburban continuum: it unites ‘the best of both worlds’ between city and country (with regard to ways of life and infrastructures). This interpretation emphasises the individual perspective of its inhabitants and their potential subjective interpretation in their local coexistence; it entrusts them with the decision between proximity and distance (spatial, social, functional), inner and outer, or private and public. Accordingly, having a bit of everything does not constitute a compromise, but rather a complement which suburbanites (as inhomogeneous links in a chain) can make (optional) use of, flexibly and according to the situation (e.g. balancing out the neighbourly relationship between familiarity and social control) – unless the links become entangled (in the event of conflicts).



Fig. 3: *The zip* / Photo: Angelina Göb

This brief discussion of designs and interpretations reveals the diversity of the various observations and interpretations of the suburban space and/or its inhabitants.⁹ The interpretations constitute temporary, revisable, contextual knowledge and could be understood or arranged (and thus interpreted) completely differently by other players that (may) need to be integrated. The work of art can therefore be repeatedly (re)produced and transformed by ‘re-designing’.

⁹ Hence the conditional formulation. Since there has been no reflection of or on the interpretations with further players, the interpretation above is provisional, allowing for the knowledge generated about suburban living environments to be supplemented and modified.

3 Conclusions

‘The path for me now is to find what fits.’

Ms R is searching for alternatives, just as I am. She is doing this in the context of shaping her everyday life (in order to no longer be a ‘foreign body’), while I am trying to uncover alternative (‘new’) knowledge about suburban living environments which the ABR method offers me. This method tries to find what ‘fits’ by means of a searching process. As shown here by the example of a ceramic work of art, ABR approaches can be an alternative research tool for transformative research. However, before using such a method, the advantages and disadvantages should be carefully weighed up.

3.1 Reflections on ABR

Because of its openness, diversity and flexibility, ABR can simultaneously be a blessing and a curse, because it offers innumerable possibilities. A lack of definition and delimitation compared with other methods makes the classification and use of ‘correct’ ABR difficult in the context of one’s own research. Further challenges emerge in the ‘translation’ of the data (Who is capable of this? Which assumptions are made?), the choice of the medium or form of expression (Who chooses what and according to which criteria?) and in dealing with the fact that there are no evaluation criteria (Is there good and bad ABR? Is it the better the more characteristic elements, such as transdisciplinary approaches, broad access or orientation towards social change, are implemented?). Answers with regard to the necessity of interest in generating knowledge and to interpretation which is developed into explanation are still outstanding. In practice, a major criterion for ruling out the use of ABR is evidently the high investment of resources (in terms of time and funds: equipment to produce the work of art) that does not come with a potential for creating a direct connection between the findings and the research question (e.g. due to a lack of explanation by the recipients).

It remains unclear whether ABR approaches are really as innovative as is claimed, or whether they are simply ‘packaged’ differently. A methodological approach known as ‘auto-ethnography’ has existed since the 1980s (Bochner/Ellis 2016) which unites personal experiences with scientific documentation and reflection and places them in a socio-cultural context. This has ‘large areas of overlap with “traditional” qualitative social research’ (Schreier 2017: 4), which also covers many features of ABR (e.g. openness, reflexivity and the role of the researcher in the research process). Furthermore, there are overlaps with performative methods (Gergen/Gergen 2011). In addition, however, ABR also integrates elements of transdisciplinary (Bergmann/Jahn/Knobloch et al. 2010) and participatory research (von Unger 2014), the approaches of which also aim at the co-production of knowledge, as well as social transformation. Possibilities for using ABR can also be found in emergent methods, which respond to methodological weaknesses as a result of social or technological changes (Hesse-Biber/Leavy 2010a, 2010b). Arts-informed research (AIR), like ABR,

uses artistic formats, whereby the scientific gain in knowledge is subordinated to the presentation of the result (Cole/Knowles 2008). The work of art also has greater importance in artistic research, which coincides with ABR in its content/practice (Borgdorff 2012).

3.2 Come out of your shell!

In summary, it should be noted that the disadvantages can equally be interpreted as advantages of the method, because they give us freedom (of research). ABR relies on broad accessibility and comprehensibility, as well as on turning science into something that can be grasped in people's everyday lives. It enables an artistic, playful generation of knowledge and a reflection of relevant topics by and for the participants, and reveals alternative access points to forms of experience and expression. 'ABR requires us to think in these different ways as we develop projects, make sense of what we have learned, and transform the essence of what we have learned into a coherent expression' and also 'transform[s] the practitioner throughout the process' (Leavy 2017: 11; Barone/Eisner 2012).

The title 'Come out of your shell!' not only refers to the (original) design and interpretation of the work of art that was created, but should also be understood as a plea for more boldness in research. If researchers wish to carry this out as public science, they should, by all means, depart from established paths and try out something new, take their research into the 'outside world', and make it transparent and comprehensible. Although this ABR experiment owed its existence to a chance event, an encounter with a suburban artist, a more planned use of the method can generate added value for all participants beyond the normal research process. The use of the medium of art is enriching because everyone can express themselves, but also experience themselves, through it. Art can be (co-)designed, received and reflected on, and integrates individual and collective perspectives. In the context of ABR, I have expanded my research activity to include an artistic one and shown first, provisional designs and interpretations of the suburban in a transformed form. My conclusion is that ABR was and is an alternative that 'fits', since it produces new perspectives, inspires a process of understanding between disciplines, encourages participation and has been an enjoyable experience for me.

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ABSTRACT

Spatial transformation: Processes, strategies, research design

What can be understood by spatial transformation, how does it manifest itself and what are the characteristics of transformation processes? This Research Report addresses these questions and presents current research projects and approaches from an academic and practical (planning) perspective.

A central point of reference is the concept of a 'Great Transformation', which stems from an expert report by the German Advisory Council on Global Change (*WBGU*). It outlines the profound changes in the economy and society towards sustainability that will become necessary in the future, describing them as a 'Great Transformation'. Likewise, social upheavals also manifest themselves in space, enabling spatial changes to be understood as spatial transformations. However, on a detailed level it remains unclear what is to be understood by spatial transformation processes and how they manifest themselves.

Against the background of this need for (further) research, this Research Report addresses concrete issues in the research and shaping of spatial transformation processes. The aim is to systematise the largely unordered or disordered knowledge of spatial transformation processes and to contribute to a common understanding of the associated concepts, which can form the basis for further research and for the steering of these processes.

The articles on the following topics show how spatial and social transformation processes are mutually dependent and what opportunities and challenges inter- and transdisciplinary research designs can offer in this context:

- > Perspectives on transformation processes
- > Social and settlement structures in change
- > Regional development and innovation
- > Transformation processes in the so-called Global South
- > New challenges for planning, processes and stakeholders
- > Research on transformation

The contributions to theoretical, methodological and practical approaches are intended to stimulate a critical discussion on spatial transformation that is open to new, interdisciplinary perspectives.

Keywords

Transformation – processes – challenges – planning – design – steering – research – sustainability

What can be understood by spatial transformation, how does it manifest itself and what are the characteristics of transformation processes? This Research Report addresses these questions and presents current research projects and approaches from an academic and practical (planning) perspective.

A central point of reference is the concept of a 'Great Transformation', which stems from an expert report by the German Advisory Council on Global Change (*WBGU*). It outlines the profound changes in the economy and society towards sustainability that will become necessary in the future, describing them as a 'Great Transformation'. Likewise, social upheavals also manifest themselves in space, enabling spatial changes to be understood as spatial transformations. However, on a detailed level it remains unclear what is to be understood by spatial transformation processes and how they manifest themselves.

Against the background of this need for (further) research, this Research Report addresses concrete issues in the research and shaping of spatial transformation processes. The aim is to systematise the largely unordered or disordered knowledge of spatial transformation processes and to contribute to a common understanding of the associated concepts, which can form the basis for further research and for the steering of these processes.

