

SFB 1265

Re-Figuration
of Spaces

SFB 1265
Working
Paper

No. 9

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Hybrid Mapping Methodology

A manifesto

Berlin / 2021



This Working Paper Series is published by the CRC 1265
Re-figuration of Spaces located at Technische Universität Berlin.
All Working Papers can be downloaded free of charge at:
www.sfb1265.de
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Citation: Jamie Scott Baxter, Séverine Marguin, Sophie Mélix, Martin Schinagl, Ajit Singh, Vivien Sommer (2021): Hybrid Mapping Methodology – A manifesto. SFB 1265 Working Paper, No. 9, Berlin.

ISSN: 2698-5055

DOI: <https://doi.org/10.14279/depositonce-18197>

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Editing and Proofreading: Nina Meier and Annabell Lamberth

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Ernst-Reuter-Platz 1 - 10587 Berlin

Funded by Deutsche
Forschungsgemeinschaft



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About the group

The working group “Hybrid Mapping Methods”, founded in September 2018 within the Collaborative Research Center 1265 “Re-Figuration of Spaces” at the Technische Universität Berlin, consists of young scholars from the fields of architecture, urbanism, sociology and anthropology and pursues the specific transdisciplinary purpose to investigate and design novel hybrid methods for sociospatial research. Over the past two years, the group has hosted, along with its monthly meetings, a number of expert workshops, invited guest speakers and attracted research fellows from across the globe to present their work. The group is hosting seminars at the Technische Universität Berlin. For more information see: <https://www.sfb1265.de/forschung/methoden-lab/arbeitsgruppe-hybrid-mapping-methods/>

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Abstract

For the empirical research of the refiguration of spaces innovative methods are needed to investigate the relationality and materiality of spaces and thus explore societal processes of change from multiple perspectives. We founded the working group “Hybrid Mapping Methods”, with the objective to develop a new hybrid mapping methodology at this interface of social science and spatial design, drawing together the analytical and projective modes within the respective disciplines and combining both visual and textual means of inquiry. The central characteristic of our reflexive methodology is its hybridity which unfolds across four interconnected yet analytically discrete dimensions. The first dimension, Inter- and Transdisciplinarity, explicitly refers to the combination of epistemic and ontological approaches from social sciences with spatial design disciplines; the second dimension, Space, empirically addresses the different co-existing conceptualisations of space (container space and relational space); the third dimension, Data, considers the integration of diverse data into a multi-layered visual-analytical protocol; the fourth dimension, Modus Operandi of mapping production brings together both designerly and sociological ways of thinking and making.

Keywords: mapping; hybridity; spatial research; mixed-methods; reflexivity; design

1. Introduction

Since the 1960s, societies have experienced dramatic shifts in their social order. Among the most serious of these changes are the intensification of transnational economic activities, ruptures in global political geography, the development and spread of digital information and communication technologies, the increase in the global circulation of people, knowledge and goods, and the fracture of regional territorial identities. This points to a re-figuration of spaces on a global scale, which is also reflected in new struggles for interpretation and power over spaces (Knoblauch/Löw 2017; Löw 2018; Löw et al. 2021). These dynamics have become comprehensively clear in the Corona pandemic, as if under a burning glass, and will possibly intensify once again in what is often called a “post-corona society”. In addition to a theoretical expansion, innovative methods are also needed to empirically investigate the relationality and materiality of spaces and thus explore societal processes of change from multiple perspectives (Baur et al. 2014; Heinrich 2021).

Within the stimulating context of the Collaborative Research Center 1265 ‘Re-Figuration of Spaces’ at the Technische Universität Berlin, we founded in September 2018 the working group “Hybrid Mapping Methods”¹, with the objective to develop a new hybrid mapping methodology at the interface of social science and spatial design, drawing together the analytical and projective modes within the respective disciplines and combining both visual and textual means of inquiry. Mapping instruments and other forms of digital visualising have been a well-proven and common practice in professional and scientific praxis of geography, architecture and urban planning² since the 1990s (Christmann et al. 2020). Through their professional education geographers, architects and planners learn to understand, imagine and design space using mapping tools and as such possess a repertoire of sophisticated drawing and mapping practices (Mélix/Schinagl 2019; Christmann/Schinagl 2021). However, even if the practice of mapping is well established in these disciplines, the methodological reflection of the practice has a different status. This is often due to the fact that the concept of “method” – especially in architecture and planning – is understood and treated differently. Over the past decades, sociology³ has

¹ The working group “Hybrid Mapping Methods” has been founded out of a cooperation between scholars from the CRC 1265 “Re-Figuration of Spaces” from the Technische Universität Berlin and the Leibniz Institute for Research on Society and Space (IRS, Erkner).

² Since the 1980s and 1990s, both in the Anglo-Saxon and the German-speaking world (e.g. Harley/Markham 1989; Rose 2003; Schlottmann/Miggelbrink 2009), the self-evident ways in which geographers use visual practices and produce visual representations have been widely discussed.

³ In terms of interdisciplinary cooperation, it should explicitly mentioned that sociology, as a multi-paradigmatic discipline, has always found its methods in other disciplines (e.g. anthropology, ethnology), adapted, developed and finally applied them for its own purposes.

developed a broad and sophisticated set of methods in which reflexivity is an important part of the research programs themselves (Marguin et al. 2021). The focus on empirical social science research still lays on text-based data like interview-data or written field notes – even if one can notice a current growing interest for visual research methods (Leeuwen/Lewitt 2001; Pink 2012; Rose 2016), especially photography (Becker 1974; Bourdieu et al. 2006 [1965]; Raab 2012) and videography (Heath et al. 2010; Knoblauch et al. 2006; Tuma et al. 2013). Our proposed methodology pursues the objective to bring together mapping tools from architecture and spatial design practices with the rigour of methodologies from social science, or to put in another way: to combine the creativity of spatial design disciplines with the reflexive processes of social scientific disciplines. Since we ourselves work across disciplines, and as we are aiming to bridge the gap between disciplines, we address an interdisciplinary community of spatial researchers who will hopefully find inspiring thoughts in our paper: be it of a methodical nature for sociologists, who can discover new visual methods of empirical social research; be it of a methodological nature for architects and planners, who will be stired to think about a long-standing practice and all the conditionalities and possible biases it entails for the production of knowledge. In this sense, it is not our intention to produce new mappings, but rather to establish mapping as a tool for the (possibly scientific) interdisciplinary exploration of space.

After some definitions and reflections of the hybrid mapping methodology (1), we will turn to four elaborated dimensions of hybridity in the main part of the article (2): first, the inter- and transdisciplinary orientation of the methodology (2.1); second, the attempt to grasp the hybridity of space with it (2.2); thirdly, the hybrid data composition that is both mixed-methods and multimodal (2.3); fourthly, the hybrid mode operandi of mapping production that brings together both design-based and sociological ways of thinking and making (2.4).

2. Maps, mapping, hybrid mapping: Some elements of definition

Our interdisciplinary constellation grew out of a specific institutional context and relies on the encounter of specific disciplines: architecture, planning and sociology. In writing this paper, it has become clear to us how this specific constellation has allowed us a certain freedom from long-established discourses and epistemic cultures of the disciplines of geography and cartography, and in doing so, has allowed us to cross deep discipline-specific trenches quite light-footedly. In our deep examination of the cartographic and geographical literatures, we repeatedly noticed that our positioning departs from the previous discourse boundaries. This is particularly tangible in our understanding of hybrid mapping and how it differs from understandings of maps or (participatory, collective, critical) mappings.

A map can be defined as a simplified and conventional, oriented and reduced, planar geometric representation of all or parts of the earth's surface (Joly 1976). In this sense it is a representation of concrete or abstract phenomena that can be located in space. In the classical cartographic literature, a distinction is made between two major types of maps: topographic maps, which are used for the precise depiction of terrain forms and features such as landforms, waterways, roads or other visible details of the earth's surface; and thematic maps, which illustrate facts (such as plant distribution or population density) or connections between thematic levels (Lambert/Zanin 2017). Classical quantitative geography, which has established the map as a research tool, takes a specific epistemological position on the map as an 'objective' measurement of territorial spaces. The attempt is therefore made to produce as accurate a picture of the earth as possible, firstly by means of topographic maps, then photogrammetric and finally by GIS technologies (Kohlstock 2004: 27f). Against this idea of 'objective' measurability, critical geography has been arguing since the 1970s for a deconstruction of maps (Harley/Markham 1989). As objects of power (Wood/Fels 1992), the map always conveys a certain view of the world, which should be reflected by researchers throughout.

From this critical perspective of radical or critical cartography, further mapping techniques were developed, which prefer the concept of mapping over that of the map in order to focus on the process rather than the "finished object of the map" (Cosgrove 1999: 1) and understands "mapping [...] as the act of making or producing a map, i.e. part of the active tense of a verb" (Schoonderbeek 2017: 72)⁴. These discourses convey a strong participatory approach: the maps are made with and by the people being studied, so that the power potential of the maps serves the purpose (often political in nature) of the people studied (This is not an Atlas 2018).

We position the hybrid mapping methodology neither on the one side of quantitative-positivist cartographic research nor on the other side of qualitative-participatory cartography. Rather, we would like to take an interpretative mixed-methods approach (Akremi et al. 2018). Therefore, we think of mapping as "operative images" (Krämer 2008: 94), which "constitute the represented and make it possible to operate with it" (ebd. 2018: 23, own translation), and oscillate between surveying and creating the world, or, in other words, between transparency and opacity (Goodman 1997). Following Krämer we can describe the function of mapping and their products maps, which "tell" something through their visualisation about the scientific knowledge we produce in our social-spatial research. We are aware that mappings are potent objectifications in the sense that they help to shape our society by leading to a co-

⁴ On the epistemic status of maps as 'finished' or processual objects, see chapter 2.4.

construction of observed reality. For this reason, we are close to approaches of critical mapping, but we want to transcend it by formulating our multifaceted understanding of integration/hybridity and strengthening the inclusion of design knowledge practices (Löw/Marguin 2021; Baxter/Sommer 2021; Marguin/Pelger/Stollmann 2021; Kelling/Pelger/Stollmann 2021).

3. Dimensions of “Hybridity” in Hybrid Mapping

What do we mean by hybrid? The central characteristic of our methodology is its hybridity. In the recent past the conceptual figure of the hybrid has taken many forms (e.g.: Haraway 1991; Latour 1993; Whatmore 2002). In our programmatic we develop an understanding of hybridity across four interconnected yet analytically discrete dimensions. The first dimension, Inter- and Transdisciplinarity, explicitly refers to the combination of epistemic and ontological approaches from social sciences (especially contemporary sociology and anthropology) with spatial design disciplines, in particular architecture and planning (2.1); the second dimension, Space, empirically addresses the different, yet as state-of-the-art research indicates, co-existing conceptualisations of space (container space and relational space) (2.2); the third dimension, Data, considers the integration of diverse data into a multi-layered visual-analytical protocol (2.3); the fourth dimension, Modus Operandi, addresses the diverse methodological approaches existing in each discipline for researching socio-spatial phenomena (2.4).

3.1. Hybrid disciplinary perspective

Mappings are currently very popular in the academic field, as the multiplication of maps and mappings as a means of visualization shows – a finding that goes beyond the disciplinary boundaries of cartography. Various mapping concepts are discussed and their methods employed in cultural studies (Schmidt-Lauber/Zechner 2018), (critical) geography (Cosgrove 1999; Rekecewicz 2013a, 2013b; Dodge 2016), historiography (Rankin 2016; Siegel/Weigel 2011), anthropology (Hammarlin et al. 2009; Munk/Jensen 2014; Roberts 2016) and, naturally, in the architectural and planning practices (Atelier Bow-Wow 2001; Bureau D'Études 2015). However, despite the extension of these discourses, very little exchanges between them have yet taken place and even less methodological reflection on them.

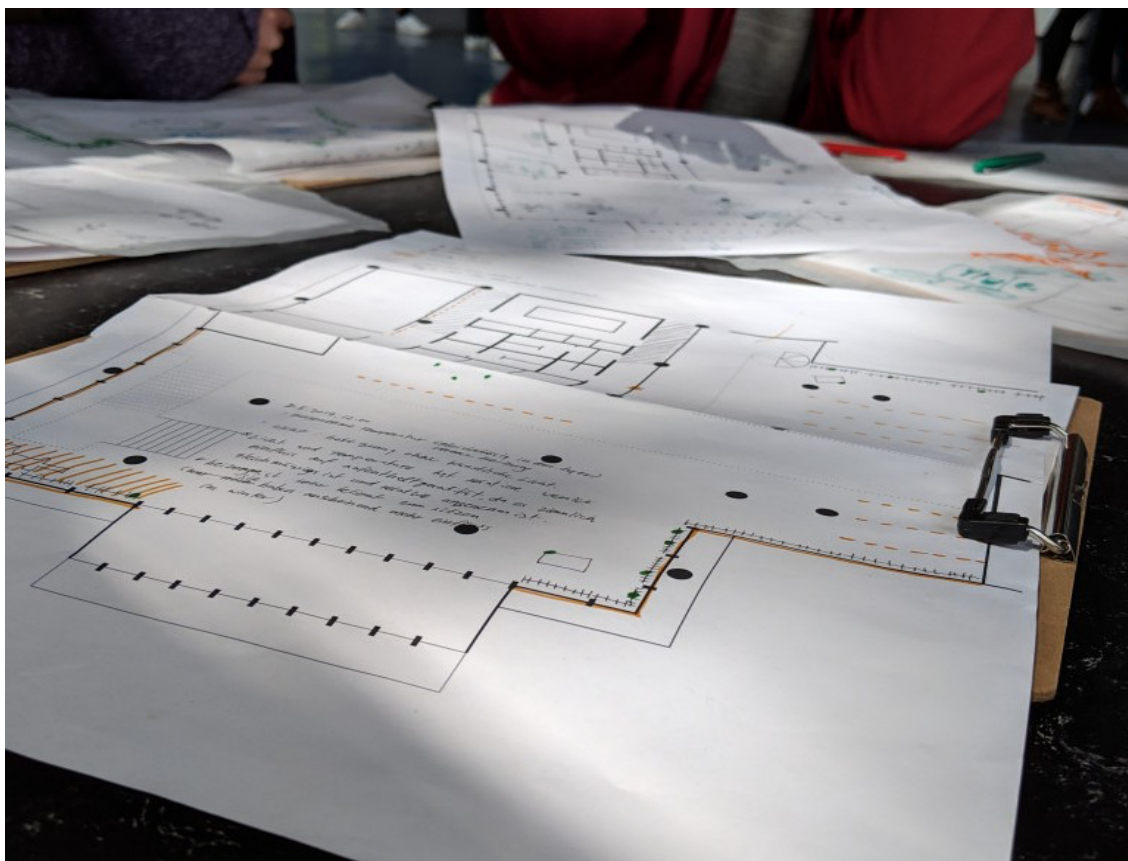


Figure 1: Hands-on workshop of the “Hybrid Mapping Methods” working group. Photo: Jamie Scott Baxter, 2019.

This is the starting point for our research group. Our aim is to develop and establish an interdependent interdisciplinary method out of the encounter of on the one hand creative and on the other hand social-scientific epistemic cultures and thus make a fundamental contribution to spatial research. The proposal of such an interdisciplinary working constellation needs some clarifications in order for it to become productive and usable. We experienced as a group, that the method can only become hybrid once not only the method itself but also the topic and above all the purpose of research are clarified among the involved researchers:

- What: it is therefore a matter of defining space as well as materiality, structures and practices but also of tackling the challenge about inventing a common social-theoretical language.
- How: in addition, it is necessary to negotiate between different modalities. For example, the question whether and how text and visualisation can be intertwined within the same method needs to be discussed. This raises questions about the definition of data itself, about the standard of research.

- For what purpose: and last but not least, it's about finding an agreement regarding the motivation and addressees of research. The least presents the most difficult challenges insofar as the researchers are embedded in different research cultures and structural logics depending on their disciplinary background:

“The encounter between architecture and sociology reveals a prevailing conflictual duality along the dividing line between basic research, theory, analytical thinking on the part of sociology and applied research, practice, synthetic thinking on the part of architecture” (Marguin 2021a: 213).

The interdisciplinary work requests from the interdisciplinary researchers to transcend this contradiction by integrating such logics and by embedding their action in a polycontextural way. With the establishment of our hybrid mapping methodology, we are pleading for a turn towards design disciplines within spatial science (Marguin 2021b), but also for a so-called social turn in architecture (Awan/Schneider/Till 2011; Lepik 2013; Richter/Göbel/Grubbauer 2017). Design is traditionally oriented towards problem solving and therefore considered a convincing partner in the production of new types of knowledge. We found these types of knowledge especially interesting, in so far as they must at once be informed by the past, be reflective of the current state of a society, and simultaneously being future facing and projective (Mareis 2010). We refer to this new type of knowledge embedded in the context of design as, hybrid knowledge. The burgeoning field of social-spatial research has already begun to establish such cooperations between sociology, anthropology, architecture and urban planning and as such, provides a fertile ground for critically thinking the effects of the transformative society through the design turn in the social and spatial sciences and humanities (Schäffner 2010; Wildner 2015; Marres et al. 2018; Estalella/Criado 2019).

3.2. Hybrid Space

Our approach aims to understand space in its contradictoriness and its hybridity as both territorially constrained and as relational. Conceptually, we navigate along the social theoretical boundaries between the material and the symbolic, between container and relational space, between communicative action and social practices, between human and more-than-human. These are some of the productive tensions that exist around present questions of space, and which form a rich dialectical ground to rethink socio-spatial assumptions, research methods and design practices (for a broader discussion on the constitution of space and the history of spatial conceptualisations, see Löw 2001; or Shields 2013).

In this regard conceptions such as relational (Massey 1984; Soja 1989; Löw 2001), fluid (Mol/Law 1994), flows (Castells 1989), topological (Shields 2013) are central to our reflections. We want to avoid a dichotomy between ‘container space’ on the one hand and socio-relational space on the other. By taking seriously the tensions between these different topologies, we aim at integrating both perspectives of space through what we refer to as a hybrid approach to mapping and to grasp multi-cited and different concepts and experiences of space. In this regard the hybridity of mapping accounts for the hybridity of space. We would plead that the development of visual methods of mapping can contribute to empirical grasp of the multiplicity of spatial concepts and therefore lead to their differentiated theorization.

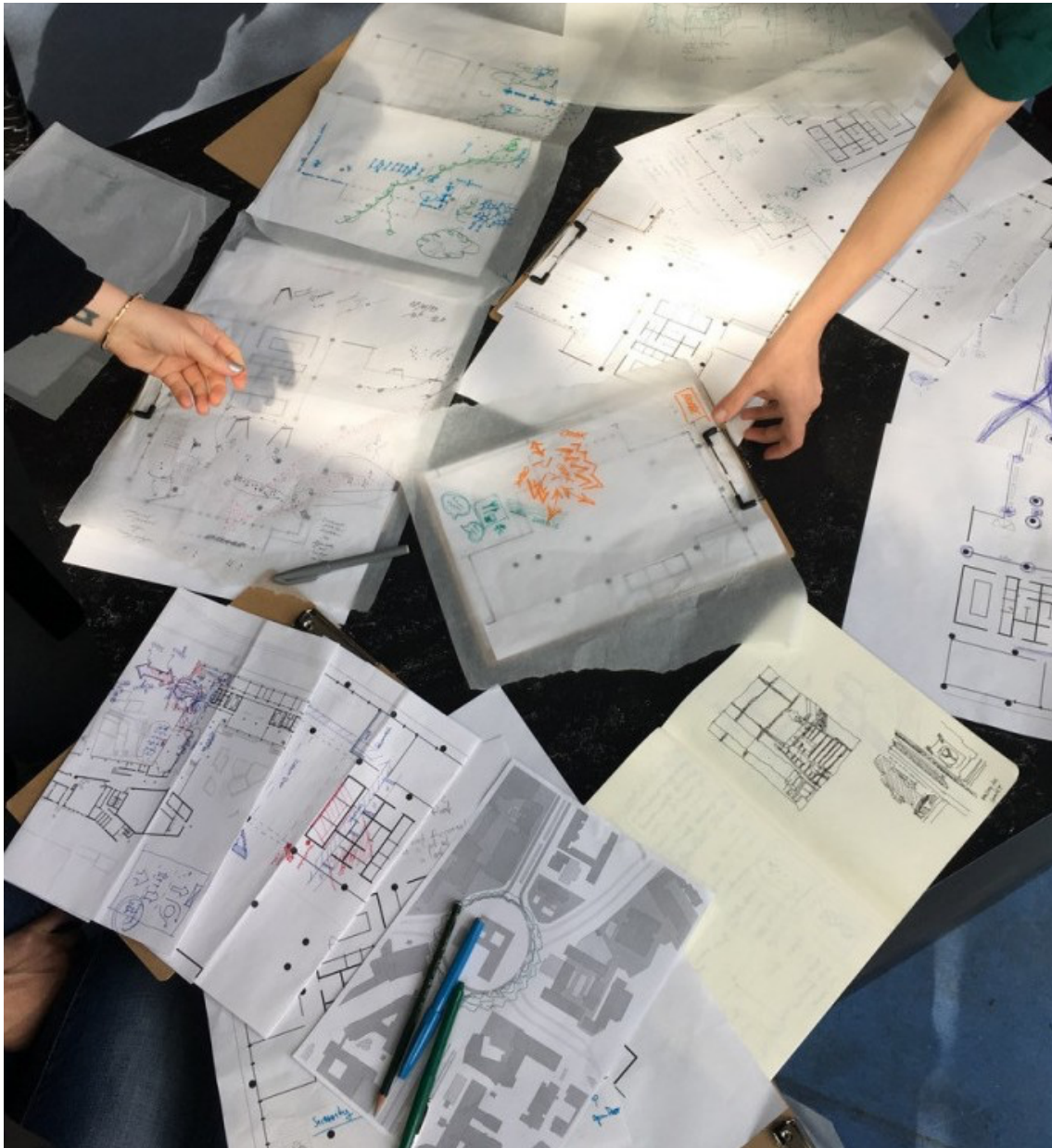


Figure 2: Hands-on workshop of the “Hybrid Mapping Methods” working group. Photo: Vivien Sommer, 2019.

The transdisciplinarity of our working group is somewhat representative of this dialectical problem; where the reflexive knowledge production of the social sciences, specifically sociology and anthropology meet the interventionist creativity found in architecture and spatial design. It would be facile to say that spatial design disciplines hold tightly to only a material view of space, however the practical, solution-oriented imperative the field dictates (as they are required to generate spatial design) comes with notions of spatial delineation and articulation, notions which can serve to reproduce a spatial model of the 'container'. However, the materiality of landscape, territory and the situated practices and the different forms of knowledge that co-constitute place are often the starting point in design practices, or at least contribute to the process and production of place-making, a core concern of spatial design. Conversely, the spatial turn, which has suffused the social sciences since the 1980's, turned its back on absolutist notions of space foregrounding instead social relations that are considered to constitute space through arrangements of people and social goods, synthesized in human perception (Löw 2016), however this constructivist infused position tends to retrain the human subject at the centre, negating the possibility of agency beyond the human, as expressed in recent critical social and feminist theory (Haraway 2016; Barad 2007; Braidotti 2013).

Space is constituted by and affects human and non-human bodies through social structures, discourses and power relations as well as materialities, climatic and ecological events, etc. We are also convinced that there are aspects of space that pre-exist particular social encounters and that spatial characteristics are in constant flux (e.g., atmospheres) introducing a temporal aspect to spatial research and methods. Furthermore, claiming the performativity of space that at once emerges in action and simultaneously structures action (Löw 2016: 176) presents further challenges and questions such as, how we render maps that are not a frozen-in-time spatial backdrop for social processes but can account for the entangled co-evolution of objects, bodies and spaces.

We do not want to base our hybrid mapping methodology on only one epistemological understanding of space. Rather, we want to make the approach open to diverse social and spatial theories in order to ensure a multiple appropriation. Thinking space in such a hybrid manner we propose here poses a prior challenge that we want to confront with hybrid mapping methods by combining territorial and relational understandings of space.

3.3. Hybrid Data Set

Our third assumption is that a hybrid mapping methodology offers the promise of an innovative solution to grasp this hybridity of space by processing heterogeneous data within empirical research. With our mapping approach we don't want to analyse each individual type of data separately, but to develop results by relating them to each other. In order to do so we have to tackle two divides: the first one is the quali-quantitative divide. In approaches in which space is primarily conceptualised and analysed as a container space, the data basis is primarily quantitative data, i.e. space is measured. Whereas in research, in which space is understood as social relational space, it is primarily investigated by means of qualitative data. The second divide opens up between visual and textual data (Heinrich 2021). In the context of a multimodal (Kress/Van Leeuwen 2001; Sommer 2020) understanding of textual and visual data forms, these two data forms can be fruitfully integrated. We argue that for both of these dividing lines, hybrid maps are useful both as a process in the form of mappings and as maps in the form of presentations.

A quali/quantitative divide to overcome

We see a chance to contribute to the debate of mixed-methods research. We are convinced that mapping can fill a desideratum that exists in mixed-methods research: One of the biggest challenges in mixed-methods research is the actual integration of data and results (Kuckartz 2017). Two reasons for faulty integration are identified: first, technical shortcomings, because there is no software yet that would reliably enable integration (Creswell 2015), and second, epistemological obstacles, because mixed-methods research approaches continue to function as self-referential – be it quantitative or qualitative. Mapping can allow the synthesis of different types of data and media, such as drawings, diagrams, plan bases, photographs, statistical data, or ethnographic data, by means of their spatialization and overlay. In this sense, hybrid mappings can be seen as “joint spatial displays because, similar to joint displays, they can integrate qualitative and quantitative data and relate them to each other using a graphical spatial display” (Marguin/Pelger/Stollmann 2021: 345).

The question of how quantitative and qualitative data can be integrated in and through mapping challenges the very fundamental dispute in cartography and geography: a deconstructivist versus a representationalist understanding of maps. Christian Jacob (1966: 191) has called this polarization the narrative of the transparent and the opaque map: (i) In the narrative of the transparent map, the guiding principle of exact representation is effective. An external territory is to be depicted in the map as precisely and pragmatically meaningful as possible in such a way that the map provides a correct, relational model of its territory through surveying

techniques and graphic representations. The good map is a map with the highest possible transparency for the territory it covers. (ii) In the narrative of the opaque map, it is not what the map shows, but how it shows it that is the object of interest. In the opaque perspective, the map does not depict the territory, but rather creates it. Maps become texts; they are social constructs and always also instruments of power (Harley/Markham 1989; Rose 2003). From the perspective of the qualitative paradigm with a social constructivist understanding of reality and knowledge the argumentation from a deconstructivist position is obvious at first glance: that a map does not represent the territory. From a quantitative perspective with an understanding of reality it seemed to be that maps are a territorial representation of the actual spatial reality. So one could say – on this line of conflict – which decides on the question of illustration versus construction, and therefore the decision for one or the other definition of a map, depends on the paradigm to which you ascribe yourself and accordingly is determined by which data – quantitative or qualitative – you produce. The mixed methods approach that we propose in our hybrid mapping methodology is in that sense an attempt to transcend this fundamental polarity in the geographical and cartographical discussion (Bittner/Michel, 2018), which a growing number of geographers and cartographers see as obsolete (Kwan/Schwanen, 2009; DeLyser/Sui, 2012, 2013).

The challenges of combining quantitative and qualitative data are amplified with the rise of geospatial big data. Examples for geospatial big data are streaming imageries from satellites, location enabled social media, where geolocalized big data is an additional option. The definition of big data in general is still very fuzzy, but for three dimensions big data is “big”: large volumes, high velocity, high degree of variety (Laney 2001). The question of representation arises even more urgently in the context of Big Data. The question is how to generate meaning on the basis of massive complex geospatial data sets. Moreover, it is assumed that 95 percent of Big Data is unstructured data (Gandomi/Haider 2015). In our opinion, hybrid mapping as a research programme offers potential for mixed-method analysis for Big Data as well. Robertson and Co. argue that maps are generally an important methodological tool for embedding geospatial big data in analyses: “We, therefore, envision the potential that mapping big data may lead to big cartography which conceptualizes and visualizes complex representations of place and space” (Robertson et al. 2017: 35).

Multimodality

The integration of different data through mapping in a research process also refers to the potentiality of a multimodal data combination. In a social-semiotic understanding, multimodality means that not only language, but all sign resources are meaning-giving (Kress 2012: 38). When we characterize data as multimodal, we

are referring to a social semiotic definition of multimodality as the interplay of different modes (Kress/Van Leeuwen 2010; Van Leeuwen 2006). These modes range from gestures to music, images, and language, among others, and are constituted of semiotic resources. The resources include both physiological resources, such as the human voice or the muscles for our facial expressions, and technical resources, such as a pen or computer hardware or software (Van Leeuwen 2006: 32). By understanding data as multimodal in a socio-semiotic sense, it is possible to reflect this multimodality in the context of mappings and to integrate it in a fruitful way for analysis. In our approach, we generally pursue the goal of data combination, which also includes interpreting different modes and their connection in the analysis through mapping.

We are convinced that the research on space could only benefit from a multimodal approach, insofar as it allows us to integrate innovative sets of data produced in architecture and planning (Heinrich et al. 2021) and engage us to think more visually.

3.4. Hybrid Modus Operandi of Mapping

The fourth basic assumption for our project is that mapping, as described above, provides an opportunity to overcome the linearity of usual research procedures. Instead of following a linear path mapping enables the steps of data collection, analysis, and visualization of results to feedback into each other for a richer and more nuanced multi-perceptive enquiry. To this end, we want to use the lightness and creativity of mapping procedures in design studies on the one hand and combine reflection on data and data qualities through the use of different methods on the other. We see here two interesting points to develop: the overcoming of the ideal-typical phase of research and the practice of drawing.

The unfinishedness of mapping and its processual quality

Following the assumptions of Grounded Theory (Glaser/Strauss 2008), we understand mapping, as stated above, not as a linear but as an iterative research process in which the phases of data collection and data analysis are not 'cleanly' separated. This is especially important for mapping as a visual method because the map is an object that is produced continuously. The collection of data goes hand in hand with its continuous interpretation. Every form of punctual marking, relating and arrangement of 'things', spaces, bodies, etc. is on the one hand a temporary fixation of meaning, which on the other hand can be transformed again in the further course of collection and simultaneous analysis. The fact that even the map (as a somehow 'final') product as such offers extensively methodological connections for further analysis seems to be of particular quality.

In the course of data collection mapping serves as a visualising research practice to make spatial phenomena (at first completely detached whether they are material, social or temporal) visible. Similar to the spoken, ephemeral word that is fixed in writing, mapping fixates phenomena that can be connected to in the further course of data collection (and evaluation). Maps can be produced in a participative and collaborative way together with study participants (e.g. with children see Singh et al. 2018). Maps and visual representations can also be generated by the researchers themselves later in the process of data analysis (Singh 2018) and thus differ from the mundane perspective of the field actors.

Like a transcript, maps are never completely finished. Rather, the epistemic status of a map is processual and changeable and can be adapted to the situation. Mapping can also be compared in a certain way to the practice of transcribing, which is to be considered from different perspectives: as part of a professional scientific work or as a decision-making process, in the way of its selectivity, its accuracy and the readability of transcripts (Ayaß 2015). All levels cannot be discussed in detail here.⁵ But what is to be made visible and thus made the subject of research is ultimately linked to the question of what and how exactly it is mapped. This includes not only the type of subtlety, but also the more or less implicit or explicit decisions made about which spatial dimensions are included in a map. This can be handled as a general argument at this point. Visualisations such as maps in planning processes or digital renderings in architecture often have only a temporary status. They are adapted and changed with regard to the specific communicative contexts, situations and groups of actors (Mélix/Singh 2021). In this respect, it should also be made clear that the creation of a map is not objective but very much embedded in situational decisions within the interpretative processes of the researchers (positionality).

A central question is what spatial phenomena are visibly transferred and equally what is not made visible⁶. The creation of a map⁷ describes a transformation process in which different forms/types of data and knowledge are transferred into a visual 'representation' (like the spatial knowledge of citizens see Singh/Christmann 2020).

⁵ The question of quality criteria can also be addressed. It is a matter of traceability and transparency. How do I get to the product? And how does it become readable and understandable for others?

⁶ Looking at methodological manuals, it quickly becomes clear that both survey and analysis are usually presented in an ideal-typical way, which undoubtedly has good reasons. Methods are adapted to the respective subject. At the same time, especially the (qualitative) analysis of data on their actual method often proves to be an 'art form'.

⁷ One question that still needs to be clarified aims at the applied sign system of mapping. Are these conventional signs, which are attributed to a professional canon, which can be adapted and be referred to? Or are they part of a "unique adequacy" (Garfinkel/ Wieder 1992) of mapping practice? This is important because we know from research on plans that we work with conventions and that certain signs are accompanied by specific knowledge and meaning. We also find this, for example, in the transcription of language.

From a scientific perspective on the production and use of visualisations, maps could be described as epistemic objects into which (hybrid) knowledge is inscribed in different ways. The use of lines, dots, photos, even the integration of text-based legends, interview material or video clips successively enriches these objects with knowledge. Against this background, it should also be clear that transformation does not mean a complete transfer, but that a map is used to a) show a certain section of reality and b) that is also a result of a “communicative construction” (Knoblauch 2020).

‘Designerly’ ways of knowing

When we reflect on mapping and maps, we must first reflect on practices of drawing, because it is the basic tool of mapping. This becomes clear when we look at the disciplines that are most familiar with maps and mapping: architecture, urban planning and geography. In the social sciences, drawing as a way of thinking about a phenomenon is not yet a central methodological tool. We think that in opposition to the usual dismissal of drawing as an artistic practice (Hurdley et al. 2017), drawing as a designerly way of knowing can be a powerful tool to generate hybrid knowledge.

Designerly ways of knowing offer a third culture in contrast to modes of knowing in the science and humanities (Cross 1982). Design, it is argued, has its own epistemological logics, methods and tools, which do not fit into these other epistemic cultures (Knorr Cetina 1999). Here, through the application of planning, inventing, making, and doing, design is concerned with the conception and realisation of new things through an appreciation of material culture (Cross 1982). Similarly, a ‘third’ way of producing knowledge is set forth by Serres (1997) who evokes the metaphorical ‘half-breed’ figure of the troubadour to describe a hybrid knowledge combining humanities and sciences. What sets this third way of knowing apart from other epistemological cultures is its ability and desire to embrace ambiguous, poetic, metaphorical, affective and non-linear forms of knowledge, knowledge produced outside of Modern rational ideology founded on the values of the Enlightenment. At best, this third, or hybrid mode can open a space for alternative ways of knowing, for example ‘epistemologies of the south’, which until now have been deafeningly silenced from dominant, capitalist, colonial and patriarchal ways of knowing of the global north (Santos 2018).

Design thinking has evolved from its early articulation with many mutations steeped in unreflected, highly contestable tools and methods operationalised for the market serving neoliberal ideologies. However, there are other examples where design thinking is being used to serve another goal, e.g transition design, design for social innovation (Manzani 2015). These alternative, communal forms of design aim to support autonomy and to think together of other possible futures (Escobar 2018). Haraway

refers to this speculative fabulations, where telling different stories differently is a powerful way to redesign the world (Haraway 2016). These are distinctly spatial forms of designerly ways of knowing, where what is at stake is new relations and ways of being in the world, or indeed new worlds altogether. In this spatial mode of designerly ways of knowing, it is acknowledged that design designs back (Willis 2012), that is where humans design spaces and tools including maps and these spaces and tools in turn redesign us. This form of knowing accepts the distribution of agency (Barad 2007) and the liveness of matter (Bennett 2010). It means to take seriously the role of aesthetic, the role of affect and emotion, the creativity that impregnated our knowledge production practices.

4. Conclusion

Under the label “Hybrid Mapping Methodology” we understand a mapping approach which, as a hybrid form of both visual, spatial and social science tools, enables multi-perspective data collection, analysis and finally visualisation of research results. We see hybridity in four dimensions: the interdisciplinary inspiration between architecture, planning, sociology, anthropology and geography; the hybridity of spaces; the integration of heterogeneous data types and especially of quantitative and qualitative data; the methodological transgression of the phase division of data collection and -analysis and presentation of results.

Hybrid Mapping means serious reflection, experimentation and discussion on how a relational understanding of space can be reconciled with material and territorial dynamics articulated in mapping procedures at the interface of different disciplines. Data sessions with maps are collaborative and similar to those in videographic approaches (Meier zu Verl/Tuma 2021) they can be central in offering different readings to allow deeper analytical reflections. At best the groups discussing maps are disciplinary diverse. The creation of such cartographic or map-like visualizations is linked to (embodied, visual, epistemic etc.) practices that have implication on method and action in empirical research, data collection and analysis, and the visual ‘product’ itself. Since the maps we create and discuss do not necessarily coincide with classical cartographic products and contents, we move at right angles to existing deconstructivist and representational views of maps. It is not necessarily a matter of approximating a certain reality of an existing space in the form of a territorial representation, nor of critically questioning how such a space, such a territory, was produced by cartographic means. This results in a constant tension, especially when it comes to the (collective) analysis and negotiation of what hybrid mapping is.

We understand this paper as a manifesto for the production of hybrid knowledge through the practice of hybrid mapping. Therefore, we have outlined the core aspects

of our programme in this paper. By presenting our methodology, we were keen on staging our epistemic, (social)theoretical assumptions and our scientific-political posture about knowledge production. Because our paper gravitates around the assumption that new methodologies combining research and praxis are required in response to an emerging yet perceptible shift in the production of knowledge. This shift towards a transformative society calls for the renewal of social sciences to move beyond their solely analytical mode, in which science has traditionally been the producer of knowledge for society, towards the co-production of knowledge with society for new future realities. This is at once a provocative and potentially radical recasting of roles, and one that must be carefully considered and which we also want to shape. We think that such cooperation between design and social sciences are acutely welcome, especially for the field of spatial research, insofar as empirical research on space is reaching its limits in view of the transformation space is currently undergoing. The empirical starting point of a specific hybrid knowledge plays an important role in social science spatial research, as a transdisciplinary understanding of space and spatial production in the sense of design is increasingly emerging.

The idea of hybrid knowledge serves us as a “sensitising concept” (Blumer 1954) because, on the one hand, it results from the combination of qualitative and quantitative approaches and the interdisciplinarity of its developers or, consequently, from the transdisciplinary production of maps. On the other hand, there is another dimension that seems important to us, but which we can only hint at here and develop further elsewhere. In a methodological sense, this is the performativity (Denzin 2003; Jones et al. 2008) of – especially in our constellation of interdisciplinary – (social and) spatial research with hybrid mapping.

Research on visualisations and maps testifies to an intensive examination of the question of what epistemic status visual artefacts and objects occupy. They are often assumed to fix reality; a map is then primarily a product that allows a specific understanding, which is equated with an intended meaning. As we suggest in our text, however, we are much more interested in their open-ended processuality, their provisionality and interactive changeability, which is based on the fact that even scientific knowledge is not ‘set in stone’. It is often underestimated that there is also a recipient side that processes and interprets scientific knowledge independently: Texts, images and other artefacts interact performatively with their readers and viewers, whether in science, art or literature. In terms of social theory, maps may not become actors but ‘a stone of impetus’ and thus objects of social communication and subjective appropriation. This is certainly linked to insights from the social mediation of art. One either follows the canon of interpretation, i.e. institutionalised knowledge, or one’s own idiosyncrasies of aesthetic art perception, which is not to

be equated with an 'anything goes' – because subjective appropriation also has a method.

Of course, we offer interpretations by producing maps and putting them 'into the world'. We obviously want to have effects on the world with our maps – to change or at least to irritate views of reality. As sociologists, we can take on the perspective of architects and planners, how worlds and futures are created as changeable and, conversely, how the social as a relevant constant gradually diffuses (theoretically or methodologically) into the aforementioned disciplines.

If we now assume that hybrid maps are unfinished and processual entities that do not represent prefabricated templates and hard interpretations of scientific results – that means reconstructions and immovable truths – but rather unfold their effect primarily in performative reception, then the view of knowledge and how it is constituted also changes. So: what kind of knowledge emerges here in the reciprocal process of our visual thought-provoking and subjective appropriation? Our provisional answer: a hybrid one. But how it is constituted and how it can be studied and what status it has for social reality are methodological questions that we can only hint at here. In any case, it needs to be clarified to what extent the conventionality of classical social research can be subverted in order to make the hybrid maps we produce accessible intra-, inter- and transdisciplinary as pragmatically changeable and negotiable artefacts. The shared understanding of the in-completeness and processual openness of hybrid maps may also be a key and chance to our interdisciplinary collaboration.

Acknowledgments

We would like to thank all our inspiring guests, who attend to our working group between 2018-2021: Diana Lucas Drogan (TU Braunschweig); Jean Hillier (RMIT University, Melbourne); Antje Lehn (Akademie der Bildenden Künste Wien); Dagmar Pelger (UdK Berlin); Jörg Stollmann (TU Berlin); Zuzana Tabačková (TU Berlin); Anneke Treffers (Hogeschool van Amsterdam Urban Technology).

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SFB 1265
Working
Paper

No. 9

ISSN: 2698-5055

DOI: <https://doi.org/10.14279/depositonce-18197>

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Funded by Deutsche Forschungsgemeinschaft

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