

# Constructing the Field Methodological Reflections for Infrastructuring in Participatory Design

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**Abstract.** Information infrastructures challenge us to open up thinking about Participatory Design (PD) in several respects. One of the ways to address these challenges in PD has been the adoption of the notion of 'infrastructuring'. While existing infrastructuring efforts in PD include new methodological developments related to analyzing the infrastructural phenomenon and developing method support for design, little attention has been given to considering what kinds of empirical landscapes infrastructuring involves and how they can be accounted for in fieldwork-based inquiry and design. This paper puts forward the notion of 'constructing the field' as an attempt to open up thinking about the empirical component in infrastructuring. Constructing the field involves questioning the initial notion of the 'field', extending the field by following the phenomenon, and bounding the field through processes of sensitizing and decision-making. Several conceptualizations of the 'field' offer alternatives for pursuing the phenomenon in meaningful ways yet with different emphases. By constructing the field infrastructuring efforts can both remain situated within specific contextual settings, which is a key principle in PD, and – at the same time – broaden and diversify the field to accommodate for the complex socio-technical constellations and processes reaching over extended scopes that characterize infrastructuring as an object of design and inquiry.

# 1 Introduction

The notion of infrastructuring has been adopted and explored in the field of Participatory Design (PD) as an attempt to respond to the ongoing developments and contemporary challenges relating to the increasingly networked and connected nature of ICTs and society. A recent literature review by Karasti (2014) traced the developments and discussed how the notion of ‘information infrastructure’ (Neumann and Star 1996; Star and Ruhleder 1996; Star and Bowker 2002) has been adopted and adapted by a variety of PD approaches focusing on infrastructuring. In conceptual terms, emphases have shifted towards broadening the focus from mere technologies to their embedding contexts of practice; accounting for the imbrication of the social and the technical as well as the fundamentally relational quality of infrastructure; and extending design towards more open-ended, long-term processes. Existing methodological developments of infrastructuring relate to analyses of the infrastructural phenomenon and attempts to develop method support for design. In contrast, existing literature offers very little reflection on how the empirical settings in and for infrastructuring efforts are considered in methodological terms. Instead, existing literature customarily conceived the empirical component through the notions of ‘the user’ and/or the ‘PD project’.

As said, in existing infrastructuring studies the empirical component is mainly, though rather implicitly conceived in terms of the participating ‘user population’. This is maybe not be surprising as user participation is one of the key principles in PD (Simonsen and Robertson 2012). New conceptualizations of the ‘user population’, such as communities, publics, and commons that challenge and expand the more customary ones, including the worker, participant, and stakeholder, have been adopted. Furthermore, the notion of ‘PD project’, that has routinely offered a straightforward way of organizing and bounding the empirically based PD activities, is becoming less clear-cut with the ideas of extending the scope of what is to be designed, expanding the temporal horizons of PD infrastructuring efforts, and diversifying the sites of these activities (Karasti 2014). Thus, there are obvious changes ongoing with regard to these two central notions that closely related to the empirical component of PD. Curiously, little attention has been given to considering what kinds of empirical landscapes are involved with these altering notions and how they can be accounted for in fieldwork-based inquiry and design in infrastructuring.

This paper finds inspiration in a PD key principle recognizing that PD undertakings always have situated underpinnings and are located within some specific contextual real-world settings (Greenbaum and Kyng 1991), and makes the empirical component of infrastructuring, i.e. the field and the fieldwork, its

topic of inquiry. The paper builds on a methodological insight that has roots in ethnography, particularly anthropology (e.g. Gupta and Ferguson 1997; Amit 2000a), and is widely recognized in qualitative, fieldwork-based social sciences. The insight basically points out that the researcher always ‘constructs the field’. The point this paper aims to make is that PD designers/researchers also always ‘construct the field’ where the PD activities take place and are studied. Therefore, consideration for constructing the field is necessary also in PD, as PD takes place in particular settings and situations with particular people, technologies and resources. Furthermore, reflexively constructing the field is likely to be increasingly important when studying complex, spatially and temporally extended phenomena, such as information infrastructures and infrastructuring. This kind of empirically based reflexive problematization on how the field comes to be has so far been lacking to a large extent in the PD field.

## 2 The notion of constructing the field

In anthropology, the discussions that (re)invigorated the notion of “constructing the field” relate to globalization discourses and reflection on the role of ethnography for studying more extended phenomena, though it has also been reminded that the ethnographer always constructs the field, even in studies of one location/site (Marcus 1995, 1998; Gupta and Ferguson 1997; Amit 2000a).

“Constructing the field” is a development which organizes around an understanding of the field as ‘constructed’, challenging the notion(s) implying that “the ‘field’ which ethnographers enter exists as an independently bounded set of relationships and activities which is autonomous of the fieldwork through which it is discovered” (Amit 2000b, p. 6). Instead it emphasizes,

“[...] in a world of infinite interconnections and overlapping contexts, the ethnographic field cannot simply exist, awaiting discovery. It has to be laboriously constructed, pried apart from all the other possibilities for contextualization to which its constituent relationships and connections could also be referred. This process of construction is inescapably shaped by conceptual, professional, financial and relational opportunities and resources accessible to the ethnographer.” (Amit 2000b, p. 6)

Thus, the field is reflexively constructed

“by every choice the ethnographer makes in selecting, connecting, and bounding the site and via the interactions through which s/he engages with the material artifacts and the people who define the field. Ethnographers define the objects and subjects of their research during fieldwork, informed by their interests and motivations. Field sites as unbounded spaces of possibilities are continuously ‘carved out’ by the ethnographer in relation to specific resources, situations, and opportunities in the settings.” (Blomberg and Karasti 2013, p. 389)

The empirical phenomenon in interaction with the research interest and resources (often together with the theoretical underpinnings and field of research) inform the construction of the ‘ethnographic object’.

The notion of the field as a ‘naturally’ occurring entity, such as the romanticized far away ‘village’ in anthropology, or the emblematic ‘user participant’ in PD, has become challenged. Similarly to ethnographers, PD researchers encounter increasingly dispersed and mobile populations engaged in more intricate combinations of online and offline activities, as well as conduct projects that are more distributed in time and place (e.g. Öberg et al. 2009). It is particularly in these ‘multi-sited’ (Marcus 1995) or ‘connected’ (Hine 2008) settings, as they are often called in ethnographic literature, that

“to follow people, connections, associations, and relationships across space (because they are substantially continuous but spatially non-contiguous). Research design proceeds by a series of juxtapositions in which the global is collapsed into and made an integral part of parallel, related local situations, rather than something monolithic or external to them.” (Falzon 2009, pp. 1–2)

In other words, in studies of complex and extended phenomena, there is a willingness to pursue connections rather than accepting the field boundaries that might initially seem obvious. The studies often “remain more ambivalent about relevant locations” and actually “make it part of their goal to find out where interesting things might be going on” (Hine 2007, p. 661). Thus, constructing the field intertwines closely with questioning the seemingly obvious boundaries of the field, and thereby focuses attention to the ongoing construction of the ‘ethnographic object’, which, in the context of PD, we may consider calling the ‘object of PD design and research’ (or the ‘PD object’ for short). Pursuing connections offers the possibility of crafting the PD object to engage in a particular argument, or to be significant to an identified context of concern (Marcus 1988).

### 3 Methodological reflections on constructing the field for infrastructuring in PD

Information infrastructure research literature often discusses ‘scaling’ as an inherent and pervasive aspect of studying the complex and extended phenomenon of information infrastructures (Edwards et al. 2009, pp. 370-371). In the context of infrastructuring, the scaling notion, however, appears rather straightforwardly quantifying and limited in its focus on spatial and possibly temporal considerations. This section explores how ‘constructing the field’ can provide a more sensitive notion allowing for more consistently accounting for the actual phenomenon under investigation in infrastructuring.

### 3.1 Questioning the initial notions of the field

It is necessary and worthwhile that the fieldworker questions the initial notions of the field. This is necessary because “it is not always possible to identify in advance where the relevant social dynamics for understanding a particular technology are going on” (Hine 2009, p. 4). One iconic example of this approach is a study of the Zimbabwe bush pump that highlights how the technology is flexibly and variably defined and how the associated fields are very different, as described by de Laet and Mol (2000),

“The Pump is a mechanical object, it is a hydraulic system, but it is also a device installed by the community, a health promoter and a nation-building apparatus. It has each of these identities—and each comes with its own different boundaries.” (de Laet and Mol 2000, p. 252)

Law (2004) makes a similar but even a stronger methodological point. He starts from the proposition that methods in social science are constitutive, rather than reflective of social reality. Thus, according to Law, researcher’s agency should be considered as a constructor of reality. Law urges us, researchers, as constructors of reality to examine our methodological choices for the directions that they push us in, the kinds of biases and exclusions that our choices create, and whether these are desirable ones in our study contexts.

For constructing the field, Law’s point suggests questioning the initial notions of the field that guide the researcher’s understanding and assumptions about the field, working across the immediately ostensible boundaries, and following the phenomenon and exploring its connections in the field to become aware of the inevitable biases and exclusions created. Thus, in infrastructuring, the fieldworker should not accept taken-for-granted ideas about the technologies/infrastructures nor the user notions that centrally contribute to how the field is conceived. Instead, s/he should question whether the extents, inclusions, exclusions and boundaries associated with these notions really are as they at first appear, and to engage with the situations that are found to be able to more appropriately account for what they mean within their field and for their study.

### 3.2 Extending the field: Following the phenomenon and diverse conceptualizations of the field

Central in constructing the field is willingness to follow the phenomenon of interest within and through the ‘empirical landscape’, i.e. the field. Several conceptualizations of the field exist in social science literatures, particularly in anthropological, ethnographic, and science and technology studies literatures. The conceptualizations offer alternatives for pursuing the phenomenon in meaningful ways yet with different emphases, by placing particular interest in specific properties of the field. The following selection introduces ones that seem immediately relevant for infrastructuring in PD.

In *spatially oriented* conceptualizations of the field, strategies of following connections, associations, and putative relationships (Marcus 1995, p. 97) are at the very heart of constructing the field. ‘Tracking’ strategies have been put forward as modes of constructing the multi-sited space that include following strategically selected entities, including the person, the object, the metaphor, the story, the biography, or the conflict across sites (Marcus 1995, pp. 105–110). Though spatial orientation is the traditional and most widely used way to conceive the field in social sciences, in PD infrastructuring it has not received similar attention. There are some explorations with different (kinds of) places/spaces, e.g. three different living lab innovation milieus, ‘The Stage’, ‘The Neighborhood’, and ‘The Factory’ at the Malmö Living Labs (Björgvinsson et al., 2012). More prominently in infrastructuring literature, however, a variety of concepts are used for the expanded user populations to capture, define, and extend the scope that infrastructuring may have, including publics, agonistic public spaces, and commons (Karasti 2014).

*Temporally oriented* notions of the field often go conceptually hand in hand with the spatially oriented ones, but are nonetheless less common. According to the proponents of temporally oriented ethnography, a field has “fundamental temporal properties that need to be examined *ipso facto* and not only by reference to a spatial trope” (Dalsgaard and Nielsen 2013, p. 8). Dalsgaard and Nielsen suggest “that the field, as a confluence of different times and temporalities, emerges rather as a dynamic force of becoming that shifts in intensity and clarity, depending on the ethnographer’s immediate position and immersion” (Dalsgaard and Nielsen 2013, 6). Temporally oriented ethnography not only “implies a particular attention to the methodology of studying local (social and ontological) imaginaries of time”, it also “unpacks the (multi-)temporality of the relationship between fieldworker and the field” (Dalsgaard and Nielsen 2013, 1). Temporal considerations of the field are becoming visible in infrastructuring through the criticisms of ‘PD projects’ as temporally bounded, short-term time-framed organizing entities that give rise to extending towards more open-ended, long-term processes. There is an increasing awareness of the ongoing and unfolding processual nature of design, whereas emphasis still remains on the future horizon and the past temporal horizon - in the form of, for instance, the installed base - receives less consideration (Karasti 2014).

*Mobilities* is an orientation to constructing the field that directs attention to how people, objects, images, ideas, practices, information etc. move, are blocked from movement, or become immobile in order to avoid the privileging of notions of boundedness and the sedentary (Büscher et al., 2011). A core commitment of mobile methods is to move with subjects of inquiry, often as participant observers

(Büscher 2013), but researchers may also follow objects, images, ideas, information, and connections. Furthermore, ethnographers are required to purposively create the occasions for contacts that are ‘episodic, occasional, partial, and ephemeral’ as they study mobile individuals, diffuse processes, and dispersed and/or fragmented social networks (Amit 2000b, pp. 14–15). So far, the mobilities orientation has not received attention in infrastructuring, but would definitely provide interesting purchase to the complex lived practices of mobility and (im)mobilization (Büscher et al., 2011) associated with infrastructuring.

*Co-presence* has been put forward as an alternative to the notion of “co-location” that dominates the spatial trope (Beaulieu 2010). Co-presence “decentralizes the notion of space without excluding it. It opens up the possibility that co-presence might be established through a variety of modes, physical co-location being one among others” (Beaulieu 2010, p. 454). Co-presence as an approach to doing fieldwork generates new prospects for constructing the field that may not be strongly tied to a physically defined space and face-to-face interaction. As a focus of fieldwork it elaborates upon “the streams of practices” (visible in interactions and inscriptions, i.e. texts and traces) that the ethnographer follows in highly mediated and distributed environments. Co-presence suggests an interesting new orientation for constructing the field in infrastructuring. It foregrounds the relationship between fieldworker and the participants, and highlights the centrality of the interaction that achieves presence in a setting. Thus, a key issue for constructing the field becomes a distinct epistemic strategy of “establishing co-presence” that leads the fieldworker to ask, “How can I establish co-presence?” Co-presence as an orientation to constructing the field seems particularly relevant for settings of infrastructuring where online and offline connections are pursued back and forth, for fully online settings, and for instances of distributed PD. Öberg et al. point out the challenge for PD in relation to distributed design: “participation [...] was originally developed with a focus on co-located design activities. This view of activity was developed to allow users and designers to collaborate face-to-face, building on their mutual learning through the design process.” (Öberg et al. 2009, p. 23)

### 3.3 Bounding the field: Sensitizing and making decisions

The bounding of the field into a manageable constellation becomes an issue of great importance because following the vast phenomenon may appear unbounded and never-ending. The activities of extending and bounding suggest a delicate balance, dynamic and changing as the fieldworker learns more about the phenomenon and refines her research interests.

The bounding of the field involves sensitizing and making decisions. Deciding where/when/how to start, what avenues to pursue, and where/when/how to stop (Hine 2009, p. 2) can be an intrinsic part of the fieldworkers attempts to ensure that her research questions are both coherently addressed and adapted to the empirical landscape that emerges. At issue are also decisions about bounding the study in reach and depth, in other words, whether to pursue a particular set of connections outward, and whether to drill down in a particular place/event to more depth (Hine 2009, 17). A set of fieldwork boundaries is the outcome of a project rather than its precursor.

Working out methodologically these issues is also bound up with where one perceives a study should travel analytically (Hine 2009, 2). In the PD context of design and research, the sensibilities of the notion of infrastructuring (Karasti 2014) could be used in a more thorough and exploring manner to discern emergent qualities dependent on particular sets of local dynamics and give shape to the process. Furthermore, the variety of recently adopted user notions used for expanded user populations to capture, define, and extend the scope that infrastructuring may have should be empirically explored and scrutinized. PD researchers should engage in reflecting on the notions in relation to constructing the field, in association to questioning, extending and bounding the field.

The questioning, extending, and bounding that go into “constructing the field”, all direct attention to the construction of the PD object. They encourage to deliberately pursue alternative, more situated and context dependent ways of formulating the objects of PD design and inquiry. The notion of constructing the field offers a sensitive approach to portraying social life as lived without claiming an objective or total depiction (Hine 2008, p. 55), rather it is inherently partial and aims to increase consciousness of this partiality, and the fieldworking researcher’s reflexive role in constructing the field.

## 4 Summarizing: Constructing the field in practice

Constructing the field, in practice, takes shape through the initial and continuing planning of fieldwork, the reconsideration of research and design topics through processes of learning over time, and contributes to the ongoing refinement of the ‘PD object’ in the context of the unfolding and at least partially improvisational and serendipitous fieldwork responsive to the conditions of real-world settings. The fieldworking researcher is engaged in an ongoing reflexive process, questioning the seemingly obvious initial understanding(s) of the field, extending the field by following the phenomenon under investigation, and bounding the field into a manageable constellation both in reach and depth by sensitizing and making decisions. The variety of conceptualizations of the field allow for

choosing and combining methodological ideas and ways of thinking that are suitable for the variety of empirical settings and environments where infrastructuring takes place. Ethnography and PD are by tradition both committed to methodological flexibility and adaptation of methods to the circumstances, and this is essential in infrastructuring. More comprehensively, adaptation of long-standing modes of PD practices, techniques, methods and approaches to more complex objects of study is needed. Furthermore, infrastructuring necessitates more reflexivity on the part of the fieldworking PD designer-researcher.

## 5 Conclusion

Constructing the field offers a methodological development for infrastructuring to remain situated within specific contextual settings which is a key principle in PD, and – at the same time – to broaden and diversify the empirical field (and the PD object) to be able to address design and research problems that cannot be accounted for, in the words of Marcus “by remaining focused on a single site of intensive investigation” (Marcus 1995, p. 96). Giving full attention to constructing the field as a central methodological consideration may result in creative designs of infrastructuring efforts that are able to address contemporary challenges of our increasingly connected environments. Let’s explore, challenge and further develop the notion of constructing the field in practice, in and through actual infrastructuring efforts.

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