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### Epistemology of Space: Exploring Relational Perspectives in Planning, Urbanism, and Architecture

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## INTRODUCTION

# Epistemology of Space: Exploring Relational Perspectives in Planning, Urbanism, and Architecture

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**ABSTRACT** *In this special issue, we start from the proposition that space, its uses and transformations are multi-significant and that their study requires an interdisciplinary approach. However, the elaborate division of labour in the sciences has also led to the compartmentalization of knowledge about space in different disciplinary fields with their associated, often idiosyncratic concepts, methods, and theoretical approaches. As a result, there is no shared conceptual system of space and different disciplines mobilize very different conceptions, perceptions, and experiences of space, often leading to mutual misunderstandings and incomprehension, also on the same terms (e.g. social space, urbanism). The development of a shared and interdisciplinary platform for the analysis of space, its use, and transformation is a way to address conceptual confusion. This special issue on the 'Epistemology of space: exploring relational perspectives in planning, urbanism and architecture' aims to contribute to the creation of such platform where relevant questions, concepts, theories, and methods will meet and ultimately synergize into an interdisciplinary relational understanding and analysis of space, its uses, and transformations.*

Lefebvre's famous reassertion of the critical role of space in society and social theory in the 1970s has been instrumental in triggering the current multi-disciplinary interest in the interaction between societal dynamics and conceptions of space (Lefebvre 1974). A variety of disciplines, ranging from human geography, architecture, urban, and regional planning, to sociology, political science, anthropology, and cultural studies, have engaged with the 'social production of space' perspective that emerged from his writings (Soja 1980; Gregory and Urry 1985; Crawford 1995; Low 2000; Davoudi and Strange 2008). In human geography, for example, a variety of new ways of conceiving space have

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been developed to capture new socio-spatial dynamics (such as globalization and the resurgence of localism), amongst which figure most prominently networks (Castells 2000), scale (Smith 1984; Moulaert, Swyngedouw, and Wilson 1988; Swyngedouw 1997; Moulaert and Mehmood 2009), and relational space (Amin 2004; Massey 2005). In spatial planning, parallel attempts have been made to replace a functionalist concept of space with a more social relational one (Graham and Healey 1999; Friedmann 2003; Healey 2007). In architecture and urban design, the shift towards a relational approach to understanding the dialectics of spatial form and social processes is discernable from a growing body of work (Crawford 1995; Dovey 1999; Madanipour 2010; Crysler, Cairns, and Heynen 2012; Yaneva 2012; Khan 2013).

Confronted with this debate-stirring interest in space and the proliferation of a multitude of often competing conceptions of space, calls have been made for more multi-dimensional understandings of space (Sheppard 2002; Jessop, Brenner, and Jones 2008; Moulaert and Mehmood 2009). This requires combining different principles of socio-spatial structuring and focussing on the articulation of different aspects of space such as its typology and morphology, its social embeddedness, its transformative agencies, its relational complexity, or its semantic and experiential capacity. A central concern for such an interdisciplinary analysis is the social and spatial logic behind the categories through which we 'know' and organize our knowledge of space, its uses, and transformations, and how they have been methodologically approached in the different disciplines.

Through a series of explorations in how space is conceptualized and experienced in a variety of socio-spatial disciplines, this special issue aims to contribute to the development of an interdisciplinary platform informed by the limits and potentialities of the relational turn in spatial analysis. The authors of this special issue explore ways to build an epistemology of space that is relational, that has a progressive potential in promoting openness and synergizing diversity, yet which accounts for the forces of closure and spatio-structural selectivity in which policy-makers, planners, designers, and urbanists operate. To this purpose, the authors engage with ethics of planning and design and think through, what epistemology of space, its uses, and transformations can inform democratic and inclusive planning and design practice and transdisciplinary research methodologies.

### **Background and Topics Covered in the Special Issue**

The papers proposed for this theme issue have been written and discussed in the framework of the spatial innovation design planning and user involvement (SPINDUS) research project (see, [www.spindus.org](http://www.spindus.org)) and the conference on the 'Epistemology of Space and its Qualities' organized at the KU Leuven in January 2011. SPINDUS has the ambition to build inter- and transdisciplinary platforms for the study of space, its uses, and transformations. Hence, it focuses on 'How different authors/agencies come to know, seek to shape, identify, and name various qualities and potentials of space?' To answer this question, the research project (1) builds on recent scientific developments, with focus on both theoretical and methodological aspects in strategic spatial planning, urban design, architecture, and social innovation analysis and (2) enters in dialogue with space users and user-oriented perspectives. Among the many papers presented at the conference, only six have been selected to form the basis for this special issue. This selection was organized around two principal themes as criteria: a relational perspective on the use and making of space; and epistemological and ontological questions on how the analysis and making

of spaces are or should be connected. Within these themes, the selected papers raised and addressed a wide range of issues that played a crucial role in the further development of this special issue.

### *Towards a Relational and Pragmatic Epistemology of Space*

In working towards a shared and interdisciplinary conceptualization of space, we propose a relational and pragmatic epistemology of space. Through this positioning, we clearly acknowledge that neither epistemology of space nor the challenges of socio-spatially innovative and ecological place-making can be addressed through the terminology, concepts, and frames of reference of a single discipline. Intense specialization, alongside socio-economic liberalization, and privatization that have increased the number and range of actors involved in spatial management and development and who have no natural tendency to communicate or collaborate with each other, tend to splinter the fields of spatial knowledge, policy, and practice. Making collective action possible by moving beyond the narrow confines of a single discipline and the isolated perspectives of single actors and stakeholders has become an epistemic and democratic necessity (Madanipour, Hull, and Healey 2001; BonJour and Sosa 2003; Moulaert and Jessop 2012; Madanipour 2013; Moulaert et al. 2013). Specialization and liberalization have expanded and fragmented the fields of knowledge and action, in many cases estranged theory from practice and especially reinforced the separation between the physical and the social space (Khan 2013; Khan, Allacker, and Vandevyvere 2013; Madanipour 2013). There is high need to (re)establish these connections and facilitate the necessary conditions for addressing a host of spatial concerns and problems related to sustainability, climate change, social exclusion, economic deprivation, uneven development, and so on. An epistemology of space, therefore, cannot remain entirely within a predetermined epistemic field; rather the necessary reconnections need to be steered by a relational ontology combined with a pragmatic frame of reference.

Epistemology of space at a general level is a concern with the nature and scope of knowledge about space (Cooper 1999; BonJour and Sosa 2003). This concern is closely intertwined with ontology of space, as the what — vision of existence and definition of something — may be difficult to separate from how — the way we get to know about it (Hollis 2002). The relationship between what and how of space, however, is not fixed but constantly evolving (Massey 2005). The context within which knowledge is developed and the ‘relationship between human thought and the social context in which it arises’ becomes important (Berger and Luckmann 1991, 16). Alongside this notion of contextualization or embeddedness, knowledge is also contextualized in human bodies, i.e. the idea of embodied knowledge (Madanipour 2013). Thus, the forms of knowledge that are produced offer propositions about space, report about other ways of knowing it, and engage in transforming it, with each form having its own epistemological character rooted in the overlapping contexts of personal preferences, relational and institutional dynamics, social conventions, and expert knowledge. Epistemic processes of knowledge production and appropriation are both cognitive and social processes, and an epistemology of space, therefore, cannot remain entirely within a predetermined epistemic field nor can it be enhanced through single-minded scientific practice. Epistemologies of space would then indicate the many different possible ways of acquiring different types of knowledge about space (Madanipour 2013). It is precisely for this epistemic pluralism and the

diversity of contextualized perspectives into space that necessitate a relational and pragmatic approach which we adopt here.

The emergence of a relational approach to understanding space owes to the primary tension between abstract concepts and relationships between phenomena, and to the ambiguity between physical–spatial and social–spatial conceptualizations of space which called for a revisiting of the connections between spatial elements from an encompassing relational perspective. What changed a relational conception of space from its traditional a-relational meaning(s) is its reference to ‘a relation between events or an aspect of events, and thus bound to time and process’ (Blaut 1961), which was ‘perceived by a person or society’ (Mayhew and Penny 1992). Rather than viewing space as ‘a container within which the world proceeds’, the relational concept of space sees it ‘as a co-product of those proceedings’ (Thrift 2003, 96). Rather than detached from any process, space is an integral part of social processes: space, as Lefebvre (1991, 12) argued, ‘in isolation, is an empty abstraction’; ‘abstract spatial form in itself can guarantee nothing about the social, political or ethical content of the relations which construct that form’ (Massey 2005, 101). Without collapsing into total relativism, however, and in order to address a practical orientation to understanding space, we emphasize a relational ontology combined with a pragmatic frame of reference.

In recent years, there has been a resurgence of philosophical pragmatism in philosophy and across the social sciences (Rorty 1982; Baert 2005; Moulaert and Nussbaumer 2005; Unger 2007; Bernstein 2010). Pragmatism emphasizes a practical orientation to understanding, and focuses on problems and their consequences and practical integration of knowledge involving social coordination and deliberation (Bridge 2013). In particular, the Deweyan pragmatism offers a view of space that is relational but one that is inflected through human ‘experiencing’, which has informed a well-established strand of research in deliberative and critical pragmatist urban planning (Forester 1999; Hoch 2007; Healey 2009). Evidences of this shift towards a relational epistemology of space and a pragmatic frame of reference can be witnessed in different disciplines that this special issue is concerned with.

Abandoning ‘the project of an autonomous science of the spatial’ (Gregory et al. 2009, 709) through embracing a relational notion of space, human geography has integrated with other social sciences, focussed on the co-production of time and space, and accepted the unruliness and porosity of space and time (Martinelli, Moulaert, and Novy 2012). In return, other social sciences have embraced a spatial perspective (Soja 1989). This includes the anthropologists who ‘are rethinking and reconceptualizing their understanding of culture in spatialized ways’ (Low and Lawrence-Zúñiga 2003, 1). Interest in the spatial also includes the economists who have a long history of ambiguity in addressing the endogenous character of space in economic development (Moulaert and Nussbaumer 2008) moving between the usual interest in urban economics (Glaeser 2011; O’Sullivan 2012) to the use of space to explain economic processes as in the endogenous growth and development literature (Moulaert and Sekia 2003; Pike, Rodriguez-Pose, and Tomaney 2011).

In the field of spatial planning, a relational view has taken root which stresses connections/relations between diverse meanings, identities, actions, places, and so on (Albrechts, Healey, and Kunzman 2003; Healey 2007). In particular, this relational view is strongly associated with participation and the deliberative element of pragmatism (Forester 1999; Friedmann 2003; Healey 2007, 2009; Hoch 2007; Moulaert and Nussbaumer

2008). A relational approach in planning implies an understanding of space as a social, cultural, economic, political, and ecological construction (Van den Broeck et al. 2013). Such an understanding builds on post-structuralist thinking —e.g. exemplified by a rhizome which develops multiple connections in any direction, in any order, of any size, (see Deleuze and Guattari 1987) — and a relational geography that looks at, e.g. scales as ‘multilayered’ (Massey 2005) sites of interaction between local and global processes and which integrates the legacy of structural radical geography with post-modern and cultural political concepts of human agency as institutionally mediated in concrete spatial systems (Moulaert and Jessop 2012). The new relational approaches, which problematize anti-territorial conceptions, consider space ‘folded’ rather than ‘flat’, construed by mutually interrelated hierarchical and network topologies and inter-scalar processes that cut across territorial dependencies, projects, and aspirations (Jones 2009; MacCann and Ward 2010). Consequently, relational planning practices turn towards the assessment of both physical and social qualities of spaces reflecting on the experiential value of spatial objects, which are identified by perceiving, thinking, and feeling subjects whose socio-subjective perceptions are relational (Schreurs 2007; Van den Broeck et al. 2013).

The experiential valuation and the Lefebvrian conception of space have also been central in the attempts to reconceptualize urban design/urbanism (Sternberg 2000; Banerjee 2001; Madanipour 2006, 2010; Lehtovuori 2012; Khan 2013). In this variegated field of knowledge and practices, the reconceptualization ranges from the revival of some pre-modern conceptions of the art of urban composition to reinterpretations of the modernist aim of delivering healthy and equal individuals, from (means for) codified control of urban form to (critiques on) speculative sprawl, from post-modernist positioning vis-à-vis to neo-structural criticism of spatial organization (Servillo and Schreurs 2013). Various new cultural orientations articulate the field, such as ‘new urbanism’ (Cozens 2008) and its reviving of traditional urban dimensions; ‘landscape urbanism’ (Waldheim 2006) ‘in which landscape replaces architecture as the basic building block of urbanism’ (Scheer 2011, 612); ‘ecological urbanism’ aiming at ‘more just as well as more pleasurable futures’ (Mostafavi and Doherty 2010, 50); or ‘infrastructural urbanism’ where ‘form matters, but more for what it can do than for what it looks like’ (Allen 1999, 57). While moving beyond the three-dimensional focus on urban form making, the need for inclusive and accessible public space through acknowledging the simultaneously material and social character of spatial relations, and addressing urban environmental issues through an integrated ecosystems approach involving transdisciplinarity are seen as major concerns in urban design (Madanipour 2006, 2010; Khan 2010).

In architecture, the abstract concept of space appeared towards the end of the nineteenth century, used as ‘a positive entity within which the traditional categories of tectonic form and surface occurred’ (Colquhoun 1989, 225). From then on, modernist architects and planners tried to shape this entity with the help of geometry and technology (Sert 1944). The concepts with which Le Corbusier reads space include ‘mass’ and ‘surface’, which are shaped through the tool of the ‘plan’ (Le Corbusier 1986, 2–3). This was a rationalist epistemology imposed on a complex ontology to give it an idealized order and shape, and that what determined the relationship between the two was functionality, hence the label functionalism (Madanipour 2013). Up until 1990s, the scholarship in architecture viewed it as an art, and hence treated social factors as only marginally interesting (Markus 1993). Since then, however, the increasing impact of feminist and gender studies, the influence of post-colonial theories and the dissemination of actor-network theory have

paved the way toward a relational approach. This is evidenced through a growing body of work that addresses social questions from an architectural perspective — or architectural questions from a social perspective (Cryslers, Cairns, and Heynen 2012; Heynen 2013; Khan 2011, 2013).

*Addressing Space: Socio-spatially Innovative and Ecological Place-making*

If the epistemology of space is built around a relational pragmatic understanding of physical and social forms and uses of space in order to conceive transformative potentialities, it would pave the way for a socio-spatially innovative and ecological place-making. We propose such an understanding of space and its connection with place-making, as necessary for addressing spatial quality. This proposition is complex because the relationship between space and place, and between environment and users is heavily influenced by (inter-subjective) cultures, and is fundamentally dynamic since ‘[s]ocio-cultural schemata are the primary determinants of form even on those scales [regions, cities, settlements] and in turn affect the images and schemata that mediate between environment and people.’ (Rapoport 1982, 28). Besides the tension between the extension and perceived homogeneity of modern (sub)urban space and the rootedness and distinctiveness of place (Heynen 2004), such dynamic suggests that both politics of place and conceptualizations of cities and regions should be revisited so as to capture ‘their plural connections [. . .], multiple geographies of affiliation, linkage and flow [. . .] and spatial formations of continuously changing composition, character, and reach’ (Amin 2004, 34–40). Moreover, focussing on socio-spatial configurations connecting space and place implies a specific positioning towards contemporary values (e.g. environmental sustainability and justice, spatial equity, etc.). Therefore, place-making, as the production of a meaningful public realm (Banerjee 2001) and as the definition of proper public or collective spaces (de Solà Morales 1992), goes beyond the physicality of the environment and implies a specific society and modalities according to which this society perceives, conceives, and lives its spaces (Lefebvre 1991). Thus, place-making through deliberative and participatory exploration of innovative spatial potentialities in a socio-ecologically meaningful way becomes a major societal challenge.

The relational pragmatic perspective can be exemplified with what Healey calls the ‘collaborative place-shaping efforts’ (Healey 2010) involving social and spatial innovation (Moulaert et al. 2013) and a critical role for urban design in reshaping spaces through inclusive place-making processes (Banerjee 2001; Madanipour 2010).

There is a considerable overlap between these conceptions and discussions in the pragmatist planning literature, especially over the nature of plan-making (Hoch 2009; Healey 2010). Hoch (2009), for example, develops an idea of plan-making that works from the practical reasoning of making plans in everyday life to emphasize the social learning aspects. He suggests how planning practice, rather than being based on the traditional notions of rational ‘consistency’ in the traditional rational-comprehensive plan should instead look to an idea of ‘coherence’ (Donaghy and Hopkins 2006). In achieving coherence across understanding space, place- and plan-making, theory and practice are linked with real cases for which the agenda of the analysis and related solutions are tailored to their specific socio-spatially embedded context. Such an approach is diametrically against the idea that a priori principles could articulate rules for creating proper cities and urban environments, rather it responds to the conditions of complexity, indeterminacy (Buchanan



1992), and irreducible uncertainty (Bertolini 2010) that characterize the built environment. Our approach clearly privileges the social learning tradition (Friedmann 1987), systematic methods that ‘move continually between parts and wholes’ and pragmatic holism (Healey 2009, 287; Moulaert and Mehmood 2009) in linking a relational pragmatic epistemology of space with a socio-spatially innovative and ecological place-making.

The authors of this special issue present a diversity of perspectives that explores this link, engage with ethics of planning and design, and in the process offer an expanded view on what kind of epistemology of space, its uses, and transformations can inform democratic and inclusive planning and design practice. While mobilizing different philosophical backgrounds and competing perspectives, they are united in their call for closer collaborations between the spatial disciplines for unfolding a productive dialogue that can pave the way for synergistic dealing with the challenges ahead in the ways we understand, articulate, use, and transform space.

### **A Transactional Perspective**

Unfolding an understanding of spatial quality as socio-spatially innovative and ecological place-making requires a conceptualization that is cognizant of a relational pragmatic epistemology of space. In order to shed light on such a conceptualization, and expand on the notions of spatial quality involved, the first article in this special issue by Gary Bridge draws on philosophical pragmatism, and especially the work of John Dewey and also examines the Hull House settlement (Jane Addams and colleagues, Chicago) as an illustration of transactional experimentalism, to develop a transactional perspective. Transaction (Dewey 1958; Dewey and Bentley 1991) suggests co-constitutive, ongoing relationships between humans, non-humans, objects, and environments (relationships which are in process and on a continuum, rather than sharply distinct) (Bridge 2005). Such a relational and processual idea of space-time also connects to a naturalistic understanding of the relationship between organisms and the environment (Sullivan 2001, 1), which for humans means experiencing provisional identities subject to revision, and constituted by the multiplicity of their relations with the environment. Spatial quality in this perspective is seen as both the medium and the outcome of these more dispersed rationalities in transactional space.

For human organisms, argues Bridge, transaction occurs as a dynamic process at various levels of communication between them and their environment: at a physical, social, or cultural level. This anti-Cartesian approach does not divide human organisms into ‘mind’ and ‘body’ but rather sees them as a continuum of response to the environment: as body-minds. Qualitative senses of the environment are experienced directly and as wholes and may have qualities of, for instance, foreboding, joyousness, and melancholy. Building upon a transactional idea of space ‘that has strong affinities with approaches to relational space in which the boundaries between objects and space are dissolved “objects are space, space is objects”’ (Jones 2009, 491), Bridge (2005) formulates an idea of ‘transactional rationality’ as ‘the emergent achievement of a form of social coordination over diverse impulses, norms and dispositions in response to a problematic situation.’ An important component of this transactional rationality is communicative social learning, which is strongly represented in deliberative and critical pragmatist planning theory (Friedmann 1987; Forester 1999; Hoch 2007; Healey 2009). This perspective gives an idea of space and spatial quality that is itself communicative and connective, where

spatial quality might be seen as a form of transactional thickness of connection and communicative activity (Bridge 2013).

Understanding space as an essential quality of transaction between organisms and their environment implies that spatial quality does not reside in the objects themselves (in aspects of urban design) nor wholly in people's subjective feelings towards them (significant in participatory approaches). Seeking spatial quality from this perspective, suggests Bridge, might not involve blueprint plans or elaborate designs but rather a pragmatic audit of where and how communicative energies prevail and how those conditions might be enhanced in different planning and design projects. Design aesthetics as communicative action between the feature, building, or landscape and an audience but also crucially as a catalyst between audiences, could be seen as a marker of spatial quality. Design and aesthetics as a democratizing communicative tool trialled in a participatory way could enhance spatial quality. The cumulative and rhythmic aspects of space mean that seeking spatial quality may involve incremental interventions or planning elements that act as catalysts to enhancing connectivity and qualities of transaction in the future. Aspects of planning and design may be provisional and experimental, as the quality of space is not something that necessarily needs to be carefully worked up and finalized before implementing it but could be done by trial and error, by piloting different arrangements, as for example, the nature of plan-making (Hoch 2009; Healey 2010; Hopkins 2012). To move even further towards Dewey's goal of a 'planning' rather than 'planned' society, Bridge concludes that the idea of spatial quality might relate to a reconstituted idea of rationality that has radical democratic potential in understanding social innovation, urban design, and strategic planning.

### **A Strategic-relational Institutional (SRI) Perspective**

Unfolding pluralist conceptions of space in planning processes requires a greater understanding of the spatial dynamics of actants and their institutional frames. In this regard, the second paper by Pieter Van den Broeck, Mona Abdelwahab, Konrad Miciukiewicz, and Jean Hillier develops a SRI perspective through exploring the connections between the recent relational contributions to strategic spatial planning theory and the SRI approach. For an empirical substantiation, the Cultural Park for Children in Cairo is examined as a case.

Underpinned by the shift from government to governance in planning (Albrechts, Healey, and Kunzmann 2003; Healey 2007; Moulaert and Mehmood 2009), post-rational strategic spatial planning has become much more a mode of integrating complex agendas through a relational epistemology of planning and space. From this perspective, space and spatial quality are produced as a result of collective place-shaping efforts (Healey 2008, 3) that involve various human and non-human actants in different relations of power through subjectivation, organization, and practices of signification (Hillier 2011) performing complex interrelations and multiple space-time relational dynamics (Healey 2006). To this relational approach, an SRI perspective adds the examination of how particular institutions may privilege (but not determine) some actants, some actions, some strategies, etc. over others (Jessop 2001; Van den Broeck 2011). An SRI perspective sees planning as part of a dynamic institutional field of actants in institutional frames, which analyses spatialities of actants and institutional frames, questions whose space and spatial qualities are being developed and structured by which spatialized institutional frames, and explores

existing power relations and power structures. An SRI perspective privileges a pluralist imagination in planning processes and regards planning/design as a collective learning process in space, in which non-conventional and disadvantaged activities and actants can have an impact on the planning agenda and its spatial expressions. Expanding existing relational perspectives in planning theory with the SRI perspective, Van den Broeck et al. identify several dimensions for empirical analysis of spatial transformation that are useful for both strategic spatial planning theory and practice, such as institutionalized perceptions of space, power and ethics, scale, social space and materiality, (post-)representation, and spatial dynamics.

From this expanded view, Van den Broeck et al. argue that planning (practice and theory) is not a monolith operating within institutions, but both agency and institutions. This implies analysing planning and transformation processes as institutional dynamics in which continuity and discontinuity, institutional stability, and institutional transformation interact. Their examination of the Cultural Park for Children in Cairo illustrates the complex search for creative solutions, dreaming alternative futures through collective place-shaping efforts. Their analyses show how three predominant socio-spatial configurations of actants and their institutional frames interacted and conflicted, and how this interaction has produced the spatial transformation of the park since 1992. These empirical observations, together with the SRI-based theoretical analysis leads the authors to advance an argument for an inclusionary co-emergence and co-production of physical and social planning, in which perspectives on physical transformation are developed together with perspectives on social transformation in their different cognitive, organizational, socio-political, socio-economic, cultural, and discursive dimensions.

### **An Architectural Theory Perspective**

Building theoretical capabilities for addressing socio-spatially innovative and ecological place-making requires a multi-dimensional understanding of the interaction between spatial and social constellations. Acknowledging the need for a shared scholarly paradigm capable of explaining such interaction, the third paper in this special issue authored by Hilde Heynen presents a model that identifies three important ways to conceptualize this interaction: space seen as receptor, as instrument, or as stage. In the framework of this model, relevant literature from architectural history and theory is confronted with voices from anthropology, sociology, and cultural geography unfolding similarities and parallels, but also divergent sensibilities and contrasting understandings, which together make up a rich matrix of theoretical positions.

Socio-spatial dialectics have been at the core of a range of disciplines across social sciences. Over the last decades, however, the increasing influence of gender studies, post-colonialism, and the dissemination of actor-network theory have given rise to quite an array of architectural and design studies probing into the interrelations between buildings and social forces (Crawford 1995; Dovey 1999; Madanipour 2010; Crysler, Cairns, and Heynen 2012; Yaneva 2012; Khan 2013). Taking stock of which underlying theoretical ideas inform these positions on the relationship between (built) space and social processes, Heynen develops the idea of grouping them into three models while clearly stipulating her understanding and use of the term 'space' as 'the physical reality of the built environment, to buildings, to interiors, to urban spaces, and to the way these entities interrelate'.

In the first of these three models, Heynen argues, space is seen as a relatively neutral receptor of socio-economic or cultural processes, such as in anthropology and in social geography, where an active role to social and cultural processes is given, the imprint of which can then be detected in spatial appearances (e.g. Lawrence and Low 1990). Using indicative verbs such as ‘reflect’, ‘express’, and ‘embody’, this model produces interesting ways of ‘reading’ space, generating highly sophisticated methods of deciphering the social meaning of spatial phenomena. The second model in Heynen’s paper regards spatial articulations as possible instruments in bringing about particular social processes. Using verbs such as ‘organize’, ‘structure’, and ‘shape’, this model reflects on the capacity of space to unfold a spatial order with certain desired behaviours (e.g. Oscar Newman’s *Defensible Space*, 1975; Foucault’s analysis of Bentham’s design for a panopticon prison, 1991).

The third model that Heynen develops in her article aims at integrating aspects of the first two in envisaging the built environment as a stage on which social processes are played out. In the same way as the staging makes certain actions and interactions possible or impossible within a theatre play, Heynen argues that the spatial structure of buildings, neighbourhoods, and towns accommodates and frames social transformations (Latour and Yaneva 2008; Hughes 2009; Yaneva 2012). In such a conceptualization, the impact of social forces on architectural and urban patterns is recognized, while at the same time, spatial patterns are seen as modifying and structuring social phenomena. The difference with the first model — space as receptor, which social scientists and anthropologists tend to adopt — is that the agency of spatial parameters in producing and reproducing social reality is more fully recognized. The difference with the second model — space as instrument that architects and planners are more inclined towards — is that the theatrical metaphor is far from deterministic. Heynen advances the ‘space as stage’ model as most productive in its capability for integrating diverging perspectives, and thus interdisciplinary exchanges for working towards the gradual rapprochement between the spatial disciplines and social sciences.

### **A ‘Research by Design’ Perspective**

Building methodological capabilities for addressing space, spatial qualities, and unfolding socio-spatially innovative and ecological place-making require inter- and transdisciplinary methods that are capable of exploring interpretive as well as transformative capacities of our socio-spatial environment. In this regard, the fourth paper by Loris Servillo and Jan Schreurs explores a ‘research-by-design’ (RbD) perspective. While reflecting upon the methodological capacity needed for pursuing spatial quality, they argue that a participatory RbD process is characterized by creative-abductive reasoning that fits with the methodological logic of pragmatism (Bertilsson 2004) understood as a social philosophy of collective action and knowledge-building. They advance RbD as a heuristic process for co-production of knowledge about specific characteristics and potentialities of socio-spatial contexts in order to critically conceive transformations aimed at achieving spatial quality.

From its roots in design theory, RbD or a designerly way of knowing/enquiry (Cross 1982, 2007; Gell 1984; Schön 1988) is a growing area of scholarly interest (De Jong and Van Der Voordt 2002; Brenda 2003; Friedman 2008; Khan 2011) which is typically used for exploring spatial potentialities and limitations of a particular site or area. Of

particular interest is its spatially integrative potential for inter- and transdisciplinarity (Khan, Allacker, and Vandevyvere 2013), combining normative and scientific stances derived from different disciplines and fields of knowledge with stakeholders sensibilities, critical reasoning, and practical experiences connecting research to explorations of transformative capacities in a social learning experience (Schreurs and Martens 2005).

From a methodological perspective, a participatory RbD process would typically involve a collaborative development of diagnostic, analytical, and projective capabilities for understanding, (re)thinking, and (re)visioning a project-based or an area-based approach to spatial development that is inherently scale-sensitive and context-specific. Not only architects, planners, landscapers, sociologists, anthropologists, ecologists, and technical experts in general, but also policy-makers, public administrations, real estate actors, and private investors involved in the spatial transformation are part of the (decision) making processes. These actors, together with researchers, civil society organizations, local residents, and users in general of the area in question, are seen as stakeholders and participants in the RbD process. While engaging with the complexity of the socio-spatial context, and dealing with the wicked nature of (spatial) problems (Rittel 1973; Verma 2011), as a critical pragmatic form of knowledge-building and social learning (Forester 1999), an RbD process raises a full set of disciplinary and ethical issues, such as democratic participation, legitimacy of the decision-making and implementation process, and quality of the physical result.

In developing the methodological capabilities of RbD as an 'abductive' heuristic for spatial quality, Servillo and Schreurs stress its abductive reasoning and the creative capacity. RbD does not aim at the elaboration of an ideal formal model for a spatial context, but at the identification and the assessment of (re)new(ed) socio-physical features and their practical effects in the light of possible environmental, socio-cultural, economic, and institutional developments. Sharing spatial interpretations, concepts, and creative solutions for the built environment through RbD among experts and stakeholders is not only a matter of legitimacy and ethics but also of meaningful conceptualization of transformative hypotheses. In this way, RbD can provide the antidotes to overcome dominant discourses on spatial quality. The transformative propositions in the name of community interest and tailored to the socio-spatial characteristics of the context, the gathering of interests around new forms of spatial configurations and at the same time the disclosing of alternative transformative forces in local innovation and co-production processes are the core strategic factors of RbD. Strengthening them would certainly positively affect the pursuit of spatial quality.

### **Transgressing Epistemic Boundaries**

Neither epistemology of space nor socio-spatially innovative and ecological place-making can be addressed through the terminology, concepts, and frames of reference of a single discipline. Alternative and innovative ways of addressing them could be unfolded through crossing the lines that delineate a range of academic disciplines (geography, planning, architecture, and social sciences) and professions involved in understanding and transforming space. In this regard, the fifth paper by Ali Madanipour develops the perspective of transgressing epistemic boundaries through investigating three possible ways: rethinking the core concepts through a relational ontology, resorting to meta-disciplinary paradigms, and engaging in dialogic practices. While acknowledging the problems

involved in these crossings and their interactions, he advances the argument that epistemic practices are both cognitive and social, and need to be addressed through dynamic and democratic multiplicity.

In adopting a relational ontology for rethinking space, Madanipour argues that a relational ontology of space is indeed inclusive of the range of physical and social phenomena and their relationships with one another (Lefebvre 1991; Bourdieu 2000) that are not fixed and unchanging, but constantly evolving (Massey 2005). In this view, we are confronted with a diversity of perspectives and forms of knowledge from different disciplines and practices that seem to multiply epistemic boundaries. Transgressing them, argues Madanipour, requires broadening the conceptual core of a discipline through resorting to meta-disciplinary epistemic paradigms; and at the institutional and discursive level, resorting to dialogic practices.

Meta-disciplinary paradigms offer basic concepts and umbrella conventions, a common ground, and an integrated epistemic sphere for developing new relations between disciplines and professions. For example, the influential paradigms in literary theory, such as phenomenology, structuralism, and post-structuralism (Eagleton 1983), may also be found in sociology, geography, planning, architecture, and so on. Positive science, for example, has provided a strong backbone on which many sciences have based their epistemic foundations. More directly relevant for spatial analysis, Lefebvre (1991) used the conceptual framework of production to locate space in its political economic context, but also drew on phenomenological analysis to show how it finds meaning, hoping to integrate the mental, physical, and social aspects of space into a single coherent framework. Meta-disciplinary paradigms open disciplinary boundaries for transgression at a structural level, which can penetrate deep into the concepts and practices of professions and disciplines, but they have their own risks.

The third possibility of epistemic transgression, argues Madanipour, comes in the form of dialogic practices in which lower level connections are made through inter- and trans-disciplinarity. While multi-disciplinary collaboration produces what 'is no more and no less than the simple sum of its parts', whereas interdisciplinarity aims to create a common understanding of an issue by integrating separate theories, concepts, methods, and data into a new whole, an integrative outcome that is more than the sum of its parts (Stokols et al. 2008; Wagner et al. 2011, 16). Madanipour argues that epistemic self-reflection and inwards transgression could be a product of interdisciplinary collaboration, necessary for questioning the values and assumptions inherent in the disciplinary epistemic practices (Tuana 2013). However, it is transdisciplinarity in which 'a fundamental epistemic shift' takes place, in which the participating parties are able to produce a coherent reconfiguration of the situation (Austin, Park, and Goble 2008, 557). What sets transdisciplinarity apart is the integrative quality and scope of its research products, such as new hypotheses and theories (Stokols et al. 2008) and trans-sector collaboration in which problems are addressed through the participation of a wide range of stakeholders in society (Klein, Mitcham, and Frodeman 2010), creating the possibility of producing an overarching synthesis that goes beyond any single framework.

Thus, if a relational ontology necessitates an inclusive conception of space and spatial knowledge across disciplines, dialogic practices may offer open and flexible ways of crossing the boundaries of knowledge. If meta-disciplinary paradigms establish overarching levels of conformity, dialogic practices may offer short journeys within these

paradigms, or excursions to pave the way for new paradigms. They may appear to be open and exploratory, but may be part of what Schumpeter (2003) called creative destruction, as an integral element of a system at work to renew itself.

### A Meta-framework to Address Spatial Quality

The last article (by Moulaert, Van Dyck, Khan, and Schreurs) in this special issue presents the methodological framework that has been used in the SPINDUS project. The overall aim of the SPINDUS project is the development of practical and pedagogical planning and design methodologies to assess, evaluate, and implement spatial quality (Segers et al. 2013). SPINDUS works with a multi-dimensional concept of spatial quality through an interdisciplinary (involving different research fields in a jointly built methodology) and transdisciplinary (involving different types of actors) approach. The fields privileged in SPINDUS are territorial development through social innovation, strategic spatial planning, and urban design. The multi-dimensional concept of spatial quality emerging from the dialogue between these fields is hosted in a meta-theoretical framework. The built-up of this framework is explained in this article and involves *four steps*.

To arrive at the assessment and reproduction of spatial quality from the perspective of the use of space by different types of users, in a *first step* the authors seek to understand how the three fields conceptualize space and use these conceptualizations in their respective methodologies. ‘What have been the significant contributions of each of these fields to the analysis of spatial quality?’ is the question they try to answer in this first step.

From this open-agenda reading of space, significant synergies in the analysis of spatial qualities across the three fields have emerged and have inspired the authors for a more systematic cross-reading of the literature (*step 2*) according to eight core themes reflecting the complexity of the use of space: social space, materiality, ownership of space, types of space, scale, nature and environment, representation of space, and ethics. The cross-reading of these themes leads to opportunities for interdisciplinary conceptualization, an important driver of the meta-theoretical framework which will be expected to host at the same time a shared conceptualization of spatial quality as well as set the methodological beacons for the methods to be used in addressing spatial quality in concrete places and spaces in the SPINDUS research.

*Step 3* — as an illustration of how connections between themes offer analytical value addition — focuses on the cross-reading of two of these themes, namely *social space* on the one hand and *nature and environment* on the other. These themes are probably the ones that incorporate the greatest challenges to move spatial quality analysis, assessment and improvement beyond the State-of-the-Art.

The final *step 4* builds on the synergies between the three fields and recent progress in trans- and interdisciplinary methodology to work out the meta-theoretical framework that is expected to address the multi-dimensional nature of spatial quality as well as the methodological innovations needed to address it. The meta-framework includes a broad ontology shared by the three fields on how space and place are organized and reproduced, and what the roles of the different actors are in the analysis, assessment, and making of space. It applies a relational perspective combining the different meanings of spatial relationality as explained in the previous articles in this special issue. The meta-framework combines physical, ecological, socio-cultural, and socio-political features of spatial quality and

connects these to a diversity of actors, their socio-institutional settings, and their spatial practices.

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