# Reconfiguring Teaching/Learning/Action/Research: Apparatus for Socio- Spatial Transformation with/in Disadvantaged Rural Regions

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**Abstract:** The following article presents an adapted theoretical and methodological framework used to rethink and analyse social innovation at work in socio-spatial transformation. The framework is operationalised through a novel teaching/learning/action/research programme that supported local and collaborative spatial planning with/in a disadvantaged rural region in the United Kingdom. A *diffractive* reading of Gabriel Tarde with Karen Barad leads to the dimension of 'spatial spread' within the concept of social innovation being reconfigured through the posthuman turn, providing a novel apparatus for collaborative transformation through experiment and situated learning.

Through this apparatus, which draws on advances in critical cultural theory, in particular Barad's 'Performative Posthumanism' the paper reveals how material–discursive practices are agential in the reconfiguration of boundaries and the distribution of agency, calling into question 'stubborn dualities' as in this case, the teacher-researcher, activist-professional, local-nonlocal and human-nonhuman.

**Keywords**: Social Innovation, Situated Learning, Collective Agency, Spatial Planning with More-than-humans

## Introduction

There is growing body of evidence supporting the claim that social innovation is well placed to drive social change, meet local needs and address today's most pressing global challenges (e.g.: Ayob et al. 2017, Defourny et al. 2014, Howaldt et al. 2014). And, how social innovation (SI), is put to work through the social and solidarity economy (SSE) to operationalise territorial transformation (Moulaert et al. 2013) and more recently, addressing local development challenges in disadvantaged rural regions (e.g.: Bock 2012, Christmann 2014, Richter 2016, Noack and Federwisch 2018). However, as the research within this paper shows, local needs do not always align with wider regional, national or global strategies for sustainable development and transformation. While social enterprises, co-operatives, and community based organisations often have strong views about local environments, many non-professional SSE

organisations, especially in disadvantaged rural regions can 'lack specialised knowledge and training (EC 2013). According to further reports, social innovation and the SSE has the potential to drive social change but is hampered by 'insufficient knowledge…, limited support of grass roots and social entrepreneurship activities, poor diffusion and little scale-up of good practices' and further by 'fragmented capacities and skills.'(BEPA 2010). This lack of specific knowledge, expertise and coordination between spatialities can also inhibit the spread of social practices, which according to some literature (e.g. Howaldt and Schwarz 2010) is constituent to the concept of social innovation. This raises the question: how is connectivity made across territories and, can it be improved to co-generate and transfer knowledge and spatial practices supporting the SSE deliver global, regional and local socially innovative and democratic strategies towards low carbon, resource responsible and fairer societies. In this contribution, I develop the assumption that universities, through their unique positions as part of wider research/practice assemblages are well placed to fill the void in 'specialised knowledge and training'; improve spatial connectivity; and, through an experimental learning approach cut together with contemporary design-thinking strategies, directly support the social and solidarity economy deliver carefully conceived yet, novel solutions to address global challenges in/between local situations. To aid this objective, the article sets out a theoretical framework to clarify, analyse and rethink the problem of connectivity, co-generation and spatial spread. It attends to the specific research question; how, within such assemblages do specific practices function to co-generate and spatially spread social innovation within the field of sustainable development and socio-spatial transformation.

Based on recent theoretical advances the paper begins with a brief description of social innovation as a transformative force active within the SSE. The following section illustrates the broad spectrum of SI, highlighting how it is operationalised in territorial transformation and more recently, in the development of disadvantaged rural regions with reference to SDG17. This section ends by bringing to light some of the contradictions at work in sustainable development and spatial planning in the U.K., providing context for the following empirical data under analysis. A short discussion addressing collective learning within SI follows, with reference to SDG 11. The paper plots a precise course showing how social innovation cuts across and connects the social and solitary economy, education/research and spatial planning and transformation. I establish a theoretical and methodological framework to rethink and analyse the diffractive force of spatial spread within social innovation drawing on advances in critical cultural theory, in particular Karen Barad's 'Performative Posthumanism' Here we find the thrust of the argument: by attending to how certain boundaries are enacted, we may begin to pursue a more democratic and trans-disciplinary apparatus for transformation. Through this framework, empirical data from a single case study is analysed to reveal how specific practices enact boundaries in/between the fields of spatial planning, civil society and higher education.

**Social Innovation and Social and Solidarity Economy**

In transformation research innovation and new social relationships between individuals, civil society and states, as well as the economy and science are paramount to supporting transformative change (e.g. UNECE 2012). New forms of social contract and joint responsibility rely on democratic governance, a spirit of participation and an obligation towards future generations and can be enacted through the SSE (WBGU 2011). In parallel to this field, social innovation is described as a process through which social change emerges, where new social relations (e.g.: Ayob et al. 2017) and social practices are intentionally reconfigured (Howaldt et al. 2014) to better satisfy the unmet needs of a society (e.g.: Ville and Pole 2009, Zaph 1989). Such new combinations of practices engendering social change may be regarded as

collaborative and participatory (e.g.: Moulaert 2013, Pestoff and Hulgård 2016), achieving empowerment though democratic governance and co-production (e.g.: Pestoff 2009), and are exchanged through mechanisms of non-linear, social learning (Bock 2012, Howaldt et al. 2015, Moulaert et al. 2013). Novelty is strongly associated with these practices (e.g.: Rammert 2010, Zapf 1989) however, not necessary new universally, but where pre-existing practices spread spatially and become adopted in a new locations (e.g. Christmann 2014). These fields of research clearly overlap through social change, participation and democratic governance, but where transformational research aims towards, as Karl Polanyi (1944) referred a, 'Great Transformation', social innovation can provide insight into the microprocesses and mechanisms agential in change. To this end we may draw out three interrelated dimensions of SI to help orientate the study, these are: *social practices*; *spatial spread* and; *social change*.

Where social practices[1] are reconfigured meeting specific, often localised needs through which new social relations emerge. These practices are typically diffused, or spread spatiality and together these dimensions, through a participatory framework, engender democratic social change. It is the dimension of spatial spread to which this article attends and aims to add further depth.

**Social Innovation in Territorial Transformation and Rural Regions**

Moulaert et al. (2017) make a compelling case for mobilising the concept of SI in territorial development to 'trigger transformation'. Through an historical perspective, the authors describe SI as a continuum marked on one side by 'a practical organisational stream' as a driver of innovation and value creation, often displayed in social businesses. Whereas, the other side is characterised by 'proponents of a 'territorial development' approach, fostering SI as a concept to meet human needs and aspirations, but also for political mobilisation among vulnerable and marginalised communities' (Moulaert et al. 2017, p.6)[2]. The analysis shows an historic relationship between SI as force in urban neighbourhood renewal and as potential for territorial transformation and reveals a gap in knowledge as to how SI and the SSE is operationalised in rural areas. In Dargan and Shucksmith's 2008 review into social innovation in rural areas and the LEADER programme the authors conclude, it is difficult to promote local development in places with no history of collective action and, how vital both local and external networks are in rural development and innovation. Supporting this claim, other scholars promote an hybrid approach to sustainable local development in rural regions requiring the interdependency of local and external resources, capacities and networks, including rural-urban linkages for success (e.g.:Bock 2016, Ray 2006, Shucksmith et al. 2016) and underpinned by SDG 11A. Furthermore, Howaltd and Schwarz (2010) note, for the success of social innovation 'the cooperation (quality) of heterogeneous actors and the existence of intermediary arrangements regarding the organization of processes of collective learning, knowledge transfer, the exchange of explicit and implicit knowledge and at regional and/or local level seem critical…'. Knowledge readily available to businesses and academics on say, examples of best practices

[1] Social practices, according to some are specific, often repetitive forms of 'action' or 'praxis', 'with intentional or unintentional political implication' (Ortner 1984). According to Schatzki, practices are 'a temporally and spatially dispersed nexus of doings and sayings' (1996), where the individual is only a

[2] Mouleart points out that in 'early 2000's the neighbourhood and community (re)development movement adopted sustainability and food security strategies providing the basis for current social and ecological movements' (p.18).

is harder to reach for local volunteers or local entrepreneurs pressed for time and money (Mercator, 2012). Here we are reminded of SDG 17, which emphases the need for multi-stakeholder partnerships as 'vehicles for mobilizing and sharing knowledge, expertise, technologies and financial resources to support the achievement of the sustainable development goals in all countries' (UN SDG 17).[3] As this literature shows, the force of social innovation in territorial development has the potential to support connectivity not least through 'intermediary arrangements' and 'collective learning processes'. However, where these connections do not already exist barriers to development are evident possessing a significant challenge to sustainable development.

**Sustainable Development, Participation and Spatial Planning in the U.K**

'The purpose of planning is to achieve sustainable development' (DCLG, 2012), reads the first sentence in the ministerial foreword of the National Planning Policy Framework (NPPF), a new tier of local planning policy introduced by the British government in 2012 to promote 'a shift in power away from central government towards local people' (DCLG, 2011). This is followed by, 'Sustainable means ensuring that better lives for ourselves don't mean worse lives for future generations' (DCLG, 2012 p.i). And, 'Development means growth.' (ibid p.i). Through the NPPF the government intended to introduce and redirect the planning system towards a 'presumption in favour of sustainable development', where, 'development that is sustainable should go ahead, without delay' (Conservative Party 2010). The NPPF cites Resolution 42/187 of the United Nations General Assembly which, following the Brundtland Report defined sustainable development as 'meeting the needs of the present without compromising the ability of future generations to meet their own needs' (WCED 1987). Up until the publication of the NPPF, the U.K. had signed up to 5 guiding principles of sustainable development set out in a 2005 strategy, Sustainable Development: Securing the Future.[4] However, despite much criticism (not least from the parliamentary select committee appointed to review the reform)[5] the NPPF refused a comprehensive definition, referring broadly to the three pillars of sustainable development (economic, social, environmental) alighted to but missing the additional detail of the UN Rio+20 summit. The vagaries around what constituted sustainable development continued to haunt the planning reforms and provide uncertainty at local levels. How these rather abrupt and fundamental changes had intended to be carried out and joined-up between administrative levels, remained uncertain.[6] Neither the resources nor skills for this new type of participatory governance were available within all local authorities, nor within the local,

[3] A sentiment echoed in The Lisbon Declaration – Social Innovation as a Path to a Sustainable, Resilient and Inclusive Europe, released by the Social Innovation Community, which states: 'Civil society, non-state actors and local communities are empowered to define and address challenges that matter to them, such as climate change; And, research and innovation gives greater recognition to the contribution of civil society and the wider public; And, mainstream innovators (like technologists, firms and research organisations) take up a key role in driving direct societal benefit'(SIC 2018) .

[4] These are: 1. living within the planet's environmental limits; 2. ensuring a strong, healthy and just society; 3. achieving a sustainable economy; 4. promoting good governance; 5 using sound science responsibly. (SDC 2005)

[5] Consensus provided by expert evidence from Friends of the Earth, Campaign to Protect Rural England, Town and Country Planning Association and officials from DCLG through the commitee was that the definition of sustainable development within the Localism Act and proposed NPPF was insufficient.

[6] BY 2020 councils will have experienced a 60% decrease in funding since 2010, with almost half receiving no funding from central government. (Source: Local Government Association)

voluntary SSE who was expected to deliver local sustainable development (where sustainability was ill defined from national policy level down). Compounding the problem further, the required local capacities are not evenly distributed across U.K. communities, with more deprived neighbourhoods having less resources and skill required to undertake complex planning operations than those in affluent areas, a problem especially affecting disadvantaged rural regions.

**Social Innovation in Teaching, Learning and Research**

As pointed out in the social innovation literature and SDG17 cross-sector collaboration, experimentation and room for social and creative learning provide preconditions for social innovation to occur. Some scholars [7] turn to social learning theories to account for the transactionary procedure within the diffusion of novel practices between human agents, however the following case study shows, a closely connected form of experimental and creative learning developed by Lave and Wenger (1990) may provide further scope. Whereas, social learning as theorised by Bandura (1971) relies on the replication of behaviours between individuals though observation, imitation and modeling (Bandura 1971). Situated learning occurs in a social context and drawing on practice theory provides closer attention to 'learning by doing' addressing *real* problems in *real* situations. Situated learning is more pedagogical in character, where social learning leans towards an examination of how societies stabilise and change overtime. Through the case study, I suggest situated learning offers a more performative and experimental notion of learning and exchange where the emphasis lies on developing novel practices through the reconfiguration of existing ones, rather than solely on the intentional motivations of human actors. Both theories do however share the notion of a feedback between the practices learnt within a context and the effects of those practices back upon the context. Such forms of experimental learning not only serve to provide education and skills in sustainable development aligned with SDG 4.7, but moreover, individuals participate and enact transformation by identifying challenges and developing new skills and practices required to meet them.

**Theoretical Framework: From Diffusion to Diffraction**

The mechanisms at work within spatial spread of social innovation remain somewhat underdeveloped in recent literature often relying on an implicit notion of diffusion of knowledge taken from broader innovation literature.[8] Here, innovations, for example technical innovations are rendered complete prior to knowledge of them being diffused though networks of human actors. Such an anthropocentric view of diffusion where information of innovations is passed between determinate subjects in a linear mode is described by Everett Rogers in his seminal Diffusion of Innovation (1995) where, an individual or unit of

[7] See for example: Bock 2012; Howaltd 2010; and Moulaert 2017

[8] Howaldt et al. 2015 have provided a thorough discussion on the recourse to Tarde's work in contemporary Social Innovation research and practice theory to which this work is indebted. The authors elaborate on spatial spread and refer to the work of Rogers. However, they stops short of introducing theoretical advances from the ontological or posthuman turn to account for the immanent and performatitive aspect of practice. Furthermore the discussion does not attend in detail to Tarde's intrinsic growth but does emphases the significance of the imatitive spread of practices as an overlooked dimension of social innovation.

adoption communicates new ideas to others in the sequence.[9] However, since this milestone publication, scholars across disciplines have begun to rethink the world beyond the human. Nonhuman agents within a network or, assemblage are ascribed equal agency as their human counterparts.[10] This attendance to the agency of the world or, the 'liveliness' of matter (Bennet 2010) beyond that bestowed upon it by human consciousness has a political and ethical dimension taking it beyond postmodern critical theorising (Žižek 2018).[11] As Karen Barad theorises, agency, rather than being an attribute of the human, is instead *performed* in the *intra-action* occurring within *material-discursive* practices. It is through these practices, or *apparatuses* that bodies are constituted and the world is iteratively (re)produced or, *reconfigured* (2007). Through this turn, the spatial spread of social innovation as a real force with real consequences must be thought beyond a representative diffusion of knowledge (about innovations) between determinate human actors. Moreover, the distribution of agency within the production of social innovation must be reconsidered attending to the diffractive propagation of specific (material-discursive) practices (or, apparatus) that serve of co-generate and propel social innovation. [12]

To help rethink the diffusion of social innovation through the posthuman turn, it is to Gabriel Tarde's work we may look. In his Social Laws: An Outline of Sociology (1898) Tarde describes how inventions travel along 'imitative rays' propelled by forces of *repetition;* hindered in their journey by counter-forces of *opposition* (like a competing idea or innovation), and; *adaptation* where many infinitesimal ideas or inventions undergo a 'harmonising synthesis' through a passage of 'gradual enlargement'. It is the imitative dimension of his work that has dominated Tarde's legacy and passed on through diffusion research. However, his law of adaptation may provide a more complex and complete picture of the dynamics of spatial spread in social innovation and the affects therein. Tarde distinguishes between two 'very much inseparable' (Tarde 1893) but distinct forms of spread which he figures as growth, or enlargement. That of extrinsic growth, 'a growth in extension by imitative diffusion', (1893, 115), here we can think of Rogers' famous S-Curve which traces the phased adoption of innovations over time. And the second, intrinsic growth which is, 'growth in comprehension by a series of logical combinations'(115). It is intrinsic growth that is foundational to his law of adaptation and of interest to this particular study. Tarde writes, intrinsic growth is 'the tendency of a given invention or social adaptation to become larger and more complex by adapting itself to some other invention or adaptation, and thus create a new adaptation, which, through other encounters and logical combination of the same sort, leads to a high synthesis, and so on' (115).[13] [14]

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[9] 'The essence of the diffusion process is the information exchange by which one individual communicates a new idea to one or several others' (Rogers 1995, p.18)

[10] See for example: Anderson and Macfarlane 2011, Braidotti 2013, DeLanda 2006, Deleuze and Guattari 1987, Law 1986, etc.

[11] As Donna Haraway presents a, '…version of the world as active subject, not as resource to be mapped and appropriated in bourgeois, Marxist, or masculinist projects. Acknowledging the agency of the world in knowledge makes room for some unsettling possibilities, including a sense of the world's independent sense of humor. Such a sense of humor is not comfortable for humanists and others committed to the world as resource' (Haraway 1988).

[12] In a forthcoming publication I elaborate this notion, drawing further on Barad's concept of *Diffraction*, Rogers' concept of *Re-invention,* Uno Yoshiyusa's *Intercultural Refraction* and Deleuze and Guattari's *Assemblage* with Tarde's *Intrinsic Growth* towards a more complete picture of how social innovation 'spreads' with/in a posthuman and immanent world.

[13] Tarde illustrates this adaptive intrinsic growth through the example of the invention of the wheel in combination with the domestication of the horse, both of which he claims spread independently though imitation prior to coalescing harmoniously in the notion of the cart. The new proposition formed through

**From Interaction to Intra-action**

Differing from assemblage theory as advanced for example by Manuel DeLanda where, distinct and determinate elements connect in relations of exteriority (DeLanda 2006), Karen Barad's performative posthumanism is founded on a philosophy of immanence (De Freitas 2017), a 'one-world ontology' (St Pierre 2018) where things are already intra-connected but temporarily separated through the formation and reconfiguration of specific boundaries. In Barad's work boundaries are produced through the intra-action within material-discursive practice that perform categories, such as *nature* and *culture*. This performativity leads to 'agential cuts' through which specific exclusions are made. In Barad's ontology there are no determinate individual entities, instead in a sense all things are already hybrid and incomplete, in a continual process of coming into being. Permeating Barad's work the concept of *diffraction* is deployed in varying ways but always with a sense of waves propagating, intersecting and adapting in the co-production of new phenomena. The concept is illustrated with the diffraction pattern of light waves intra-acting with a razor blade. Under magnification spots of light are seen in areas that should be dark and object boundaries become indistinct as light waves intra-act. Here we are reminded not only of Tarde's imitative rays, but moreover of his description of a social adaptation becoming larger and more complex by adapting itself to adaptations. Like Tarde's intrinsic growth, Barad's ontology is one of interiority, or more precisely 'exteriority within' (Bard 2007, 93) where all relations are intra-active, occurring within a continually changing and expanding assemblage performed through specific (material-discursive) practices, or apparatus. Through this diffractive reading of Barad with Tarde, spatial spread is no longer the discreet citation of an innovation spanning territory; rather, it is a diffractive enfolding and enlarging of intrinsic combinations of adaptations of adaptations.

**Reconfiguring Teaching/Learning/Action/Research**

Before continuing, I would like to introduce a drawing (Figure 1) that maps the interactions (relations of exteriority) within a typical spatial planning project. The illustration depicts the three separate fields I have discussed so far spatial planning, civil society and teaching-learning-research and the practices constitutive of each. As can be seen, the practices are distinct and separate with clear boundaries delineating them serving to reinforce the divisions between fields. As practices move closer to each other a space at the centre opens up for collaboration between fields. Other interactions are of course apparent between practices across fields but always in a relation of exteriority. Through the conceptual framework advanced above, the following case study analyses how such boundaries between fields are reworked.

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the adaption of its constitute parts is no mere summation, as Tarde points out. That is, the product of this particular set of alliances is greater than the sum of its parts. It has the character of multiplicity or as Delueze and Guattari (1983) present near a century later, that of assemblage

[14] In Anti-Oedipus: Capitalism and Schizophrenia (1983) Felix Guattari with Giles Delueze adapt Tarde's example to first illustrate their notion of *assemblage*, where the domestication of the horse, in combination with innovation in riding technology and subsequently techniques combine to become the warrior-horse-bow, a war machine greater than the sum of its parts and possible only, according to Guattari (2009) under the condition of the great steppe. Here we see the adaptation of innovations and their affect not only on practices and constituents of the assemblage, but also affected by and with affect upon the space in which they are reconfigured. And, as Guattari points out, within this assemblage man is more-than-human, becoming a constituent part of the machine (Guattari 2002)

The analysis addresses the specific (material-discursive) practices coalescing around one particular workshop within a three-year project consisting of many other interrelated events and practices.

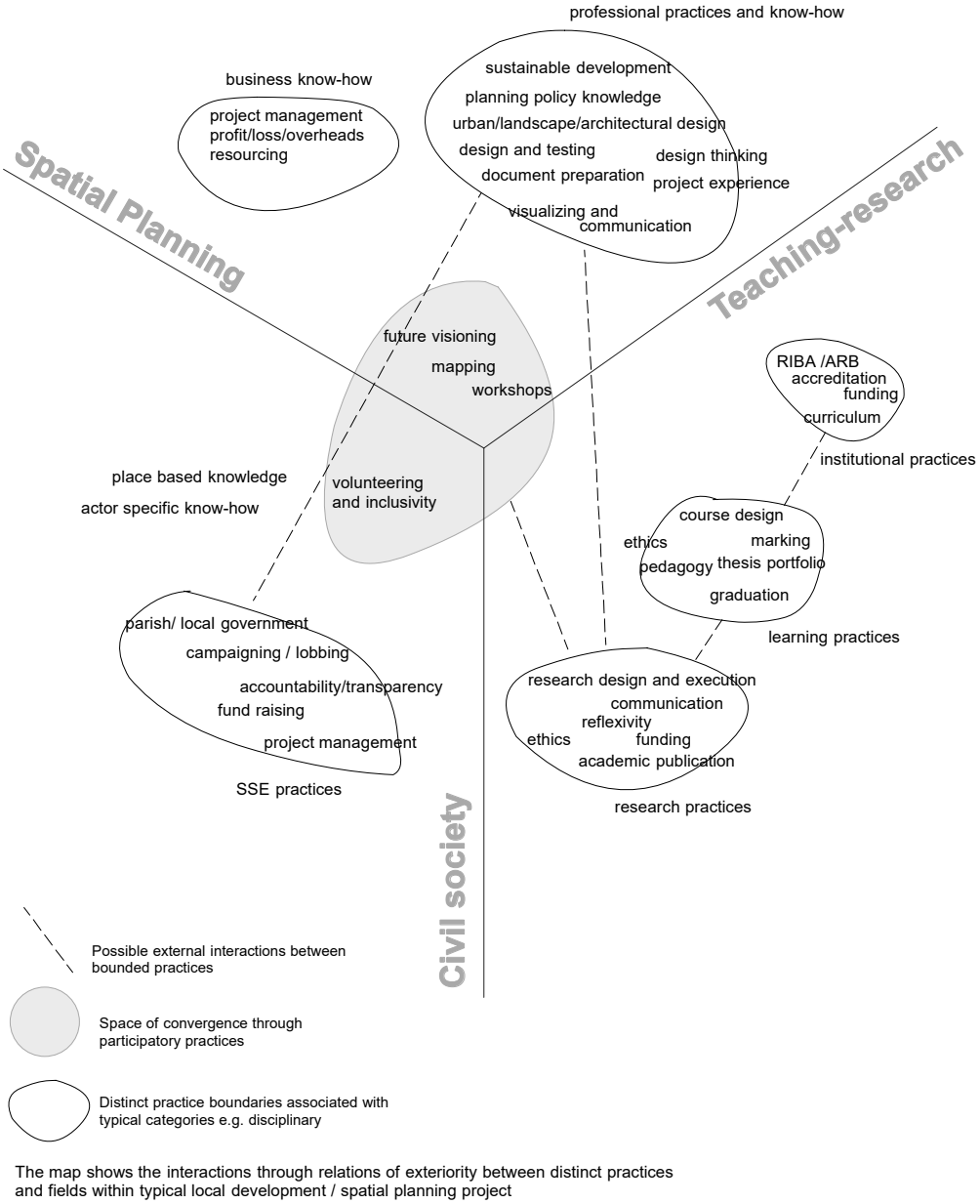


*Figure 1. Interaction Map*

Within the context of the new planning policy framework sketched out above, a group of academics and practitioners from the spatial planning field and construction industry designed a novel action-research and learning programme at a London university. The project acted as an intermediary, where together students, staff and other professionals supported disadvantaged communities in rural South-east England co-produce and deliver a new spatial development plan. Through a call for participants, three villages

were selected from a shortlisted to prototype the program. The region was selected as it displayed typical challenges associated with disadvantaged rural regions across the U.K. and Europe such as, perceived threats due to broader demographic changes and urbanisation processes and long-term lack of investment, access to resources were restricted and a lack of local capacities and finances were evident. Academic staff in the group had previously experimented with teaching programmes in which MA architecture students were given access to *real* situations and *real* challenges within communities. However, thus far the solutions conceived by students and teaching staff and had had little impact beyond the academic context. The new prototype programme combined situated learning practices, spatial planning practices and advanced co-design methods in participation. By linking to wider professional network students were provided with access to extensive skills and resources beyond the university context. The program facilitated a reciprocal relationship with the three villages developing novel practices for teaching and learning whilst simultaneously co-generating solutions jointly identified local development challenges in the context of planning reforms. Here we are reminded of the dimensions of social innovation set out above where novel (material-discursive) practices are spatially spread (now a process of diffractive enlargement), to reconfigure new social relations through participative (intra-active) procedures.

## Research Methods and Ethical Matters[15]

Innovation biographies, initially developed by Rammert (2010), trace the history of an innovation, often technological but more recently social (e.g. Butzin and Widmaier 2012) in a biographical mode from conception, through development and spread. Textual biographies are usually reconstructed through qualitative interviews and document analysis and can be triangulated with actor-network or constellation diagrams. Traditional innovation biographies however have a bias towards a linear chain of cause and effect in the very biographical nature of the method. In attempt to overcome this restriction and to shift focus from human actors towards a more complex distribution of agency within (material-discursive) practices, I introduce a more spatial and experimental[16] mode of research through map making. Adapting the innovation biography, I locate, map and analyse the specific practices within the case study attending to how boundaries where performed, as shown in Fig II. An analytical mapping of the specific practices and their constituent parts reveals the formation and diffusion of specific boundaries, including those between disciplinal fields. Mapping data are gathered and triangulated through a participative action-research with notes, interviews and extensive document analysis gathered through the duration of the programme. This form of analysis and theoretical framework brings into light assumptions that may otherwise remain obscure and provoke fundamental philosophically orientated questions.[17]

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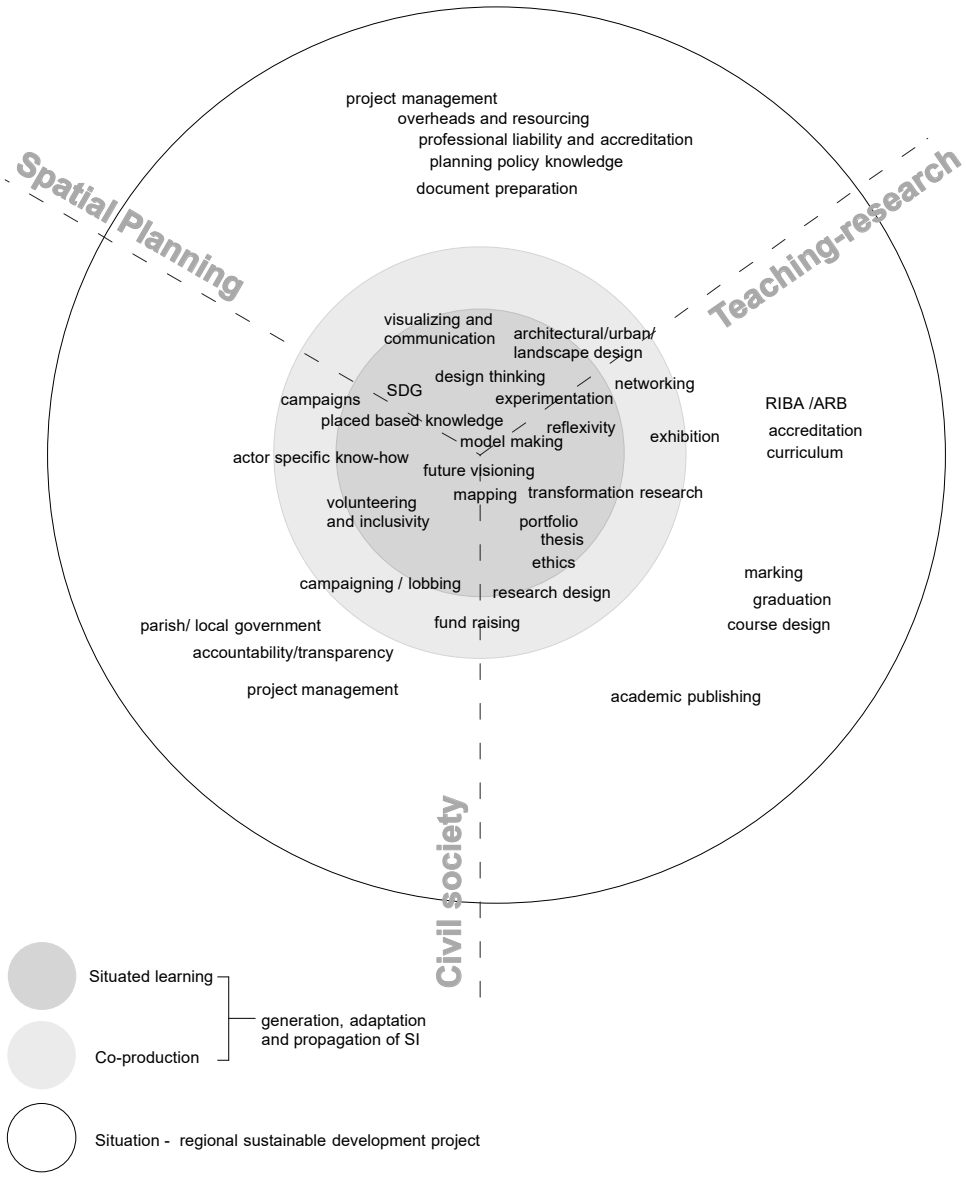
[15] The author of this paper was a researcher/practitioner in the action-research programme. Action orientated research has received much criticism for the postionality of the researcher within the object of investigation, however Barad's performative posthuman framework rejects the notion of objective separation maintained in the pursuit of research, but rather attends to the agential role of the agencies of research in the materialisation of phenomena. (Cf. Barad 2007).

[16] Here I refer to Elizabeth St Pierre and Elizabeth de Fretias invitation to a more experimental approach social science research, one that supports a project of mapping rather than tracing. See for example St Pierre's New Empiricism (St Pierre 2018)

[17] This mapping method is currently being developed within the research programme RurAction (see acknowledgements above) and the Hybrid Mapping Working Group hosted at TU Berlin and in collaboration SFB 1265: Re-Figuration von Räumen.




The map shows the intra-action in/between specific (material-discursive) practices serving to erode boundaries between disciplinal fields.

*Figure 2 Intra-action Map*

**Analysis: Modeling and Boundary Making Practices**

Perhaps less commonly known to non-spatial planning professionals, scale models are often used during a design phase of a project to experiment and test proposed interventions. Here, a three-dimensional description of say a neighbourhood is made where houses, roads, public spaces etc. are constructed out of

wood, paper, card or other material at a scale appropriate to judge how a new physical intervention relates to the wider urban context. In contrast to presentational models, which are often static representations of a singular vision, this practice of modeling is open ended, exploratory and experimental.[18] There is a dynamic relationship between the proposed intervention and the wider context within the model, of course the human hand is a part of this apparatus, but where agency is not a sole attribute of the designer. There is room for unintentional and unexpected relations to emerge with/in the model. What seems like a very material practice relies as much on a discursive dimension not least through the verbal communication of ideas with colleagues. This communication engages in discourse outside of the localised situation often relating to particular schools-of-thought in which the designers position themselves which in turn co-produce 'the object of which they speak' (Foucault 1971).

The case study intended to share such generative practices with/in communities to facilitate a democratic, co-operative and co-productive 'learning' environment. To this end, a co-design workshop was conceived where the generative and experimental modeling practices outlined above were taken out of the expert's studio and brought to the village for all to participate in. The co-design workshop centered around an elaborate three-dimensional scale model of the existing village built by students and staff from card, wood and paper. Crucially, no proposed interventions were produced prior to the workshop. As ideas and proposals were co-generate in the three hour workshop by all those present they were quickly prototyped from card and foam and placed into the model for consideration. This facilitated an immediate and transparent critique between experts, students, staff, community etc.. As an interviewee pointed out, trust grew through the fact there was no a preconceived solution presented during the event, rather the 'experts' and 'students' alongside 'locals' critiqued the proposals as they materialised through the workshop. The co-design practices were adapted from other city based participative projects to suit the specific needs locally. The adaption and co-generation of these practices and their enactment served, in part, to diffuse the rigid boundary often reproduced between expert and laypersons. Furthermore, through the spread and adaption of the practice (from city to rural region) a new, albeit temporary connection was made across the apparent rural/city divide. A difference in relations was observable at the end of the event where a new camaraderie was evident which was less perceptible at the beginning, where antagonisms between local/expert-other were observable. Furthermore, as Barad points out, discursive practices are not confined to the 'lab' and intra-act with concepts and discourses extending beyond the physical space in which the apparatus is situated (2007). This has multiple connotations and consequences, one of which is that the boundaries of apparatus are not fixed and through discursive practices extend spatially. This is evident in the apparatus of the co-design workshop, where the practices extended beyond the room in which the event took place and indeed the particular temporality of the event. The workshop took place in summer 2016 which coincided with the lead up to the EU referendum in the UK. At the time, some of the

[18] In spatial planning practices, scale models are often used to display a determinate proposal within an existing built context. Here, the scale model is a rather static tool, a representation with more or less singular purpose, to communicate one group's vision (usually the designers) of a location to another group (either the users, clients or planning authorities etc.) Within this set of common practices a clear boundary is reinforced between the model makers and those asked to accept the intervention presented within it. Such boundaries usually follow a division between project roles and often along disciplinal lines.

national media aligned with the leave campaign[19] aimed to (re)produce a division between 'rural working class' and 'metropolitan' or, 'liberal elite'[20] to bolster an argument for leaving the EU.[21] During the workshop these discourses could not be ignored and were performed locally through placard and posters displayed in gardens and windows reiterating affiliations with the leave campaign. The results of the referendum show the village voted leave. Furthermore, comments on the co-design workshop posted on an internet forum reveal some distrust towards the intentions of the workshop. We begin to see the tension here between the gradual diffusion of place-inscribed boundaries through certain practices (e.g. trust and camaraderie gained through developing and participating in shared practices) and the violent agential cuts serving to exclude and (re)produce divisions (e.g. local/nonlocal, rural/urban). This brings to the fore the power of such apparatus beyond the intentionality to carry out participative spatial planning.

A further concrete example of boundary making practices performed with/in the apparatus of the workshop can be seen in the significant shift in position with regard to development. The workshop begun with a strong and vocal anti-development sentiment within the group, but through the course of the event this position moved as an opening up towards additional housing at the edge of the village was experienced. It was evident that the model, associated practice of prototyping and critique was agential in this shift. This was manifested in the gradual erosion of the settlement boundary that circumscribes the village. A symbolic red line performed through local planning policy with very material consequences, not only to more development but also ingrained in attitudes towards nature and the built environment more generally. The material and discursive boundary of the village separates green space from built space, which, in this oft performed duality we can more broadly say represents the familiar nature/culture divide. In U.K. planning law and in the imagination of parts of the population, (particularly those concerned with the protection of rural environments) this boundary is more-or-less sacrosanct with a long and contested history affecting urbanization processes and the morphology of the U.K. However, in the case, the immovable 'red line' shifted through the course of the workshop to speculate on a significant extension to the village crossing the existing settlement boundary. We can say through the apparatus of the workshop, the space of the village began to be reconfigured in the imagination of those present and simultaneously in the physical space of the model (through prototyping). This new space was propagated through the repetitive practice of council meetings and minutes over the course of the following year and, would it not have been for a competing, oppositional force a year later (here we are reminded of Tarde's repetition, opposition and adaptation) this new space would may well have actualized in planning policy and eventually resulted in reconfiguring the 1:1 space of the village. The symbolic dimensions should not be overlooked here. Through the apparatus a mental boundary had been reworked expressed in the acceptance of new development but with more profound consequences. The rigid cut between nature and culture, enshrined in planning law and routinely performed had been called into question. In doing so, not only were the perspectives of the human subjects reworked, but also the positionally of the human subject in relation to the object of nature was addressed. At first glance, from a sustainable development perspective, building on green field land may not be considered best practice, but this critical

[19] E.g. 'If you believe in Britain, vote Leave. Lies, greedy elites and a divided, dying Europe' MailOnline 26th June 2016

[20] E.g.'May Savages Liberal Elite'. Daily Mail. 5th October 2016

[21] Within this discourse, the 'privileged elites' who represent and are represented by the metropolis (London, the seat of political power) were out of touch with the needs and desires of the white working class, embodied by disadvantaged 'rural' areas, left behind by the prosperous 'city elite'.

repositioning serves another purpose that is, to shift the ingrained ideas which perform a separation between human and nature through which nature is easily accepted as an inert resource, available for human consumption.

**Lines of Flight**

I have shown how reforms to national planning policy served to create confusion and misalign local, national and international goals for sustainable development. Specifically, where local desires towards development did not align with national economic agendas under the contested umbrella of sustainable development. Where local knowledge, capacities and skills were unable to cope with the pressures brought about through planning reforms an innovative programme developed through a university was initiated as an intermediary to support and contribute towards the development of the SSE and co-produce local spatial planning policy. I have shown how the programme exhibits traits associated with concept of social innovation and how it aimed to facilitate and stimulate social innovation locally whilst spreading practices spatially connecting regions. The concept of social innovation cuts across usual disciplinal fields connecting spatial planning, civil society and experiential teaching/leaning practices in an effort towards sustainable transformation. The approach exemplified in the case study and reworked through the theoretical frame of this paper clearly has scope to be reproduced at other universities and in association with the UN's HESI. Furthermore, the paper provides an adapted theoretical framework through which social innovation and spatial spread have been rethought opening up a new dynamic space for further inquiry, and where ethical and philosophical matters may be considered. Finally, the notion of participation (core to the concept of social innovation) was been reworked from relations of exteriority, exemplified by interactions between determinate actors or disciplines, to relations of interiority characterised by intra-action, where agency is distributed and performed through (material-discursive) practices. As illustrated in Figure 3, practices, fields and categories usually thought to be distinct and separate are enfolded into a diffractive and expanding apparatus at work in socio-spatial transformation.

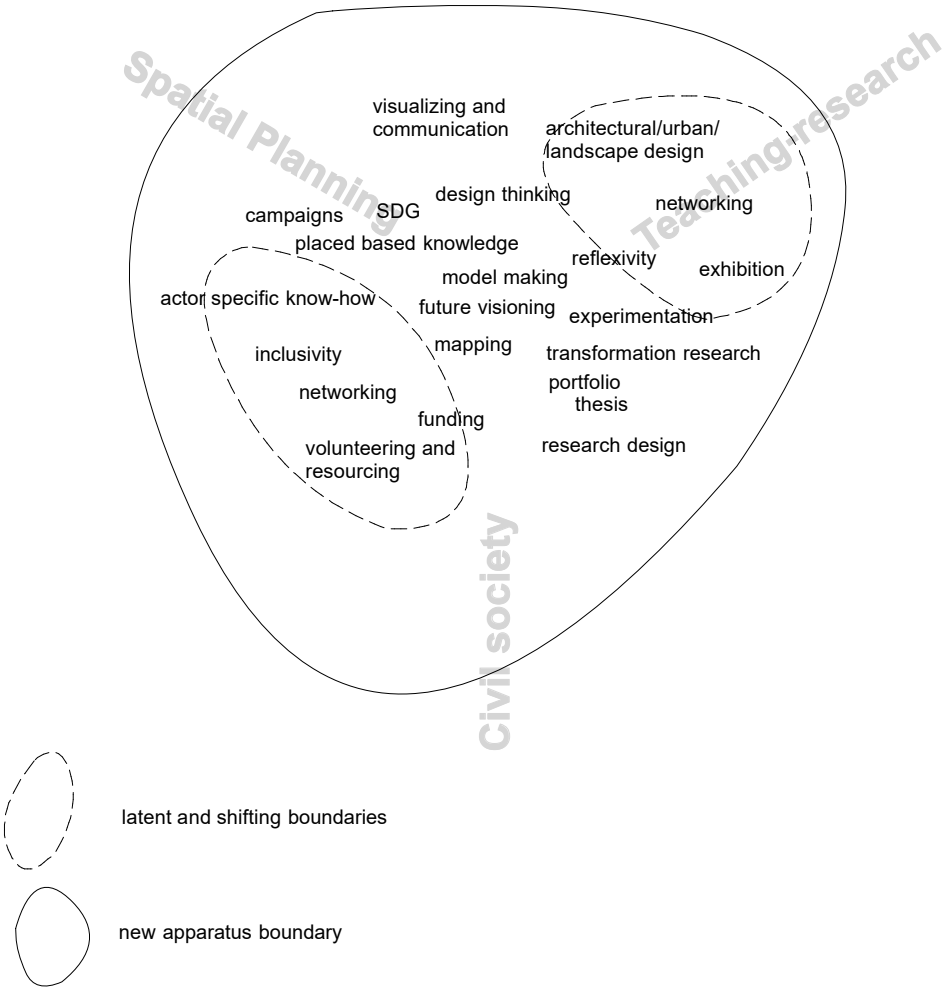



*Figure 3. An abstracted model of novel apparatus in social innovation and transformation. The diagram depicts how practices are connected in a relationship of interiority where previous boundaries between fields are reconfigured.*

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