

Creativity in arts and sciences: collective processes from a spatial perspective

Johanna Hautala

University of Turku, Finland

Oliver Ibert

Leibniz Institute for Research on Society and Space, Germany;

Freie Universität Berlin, Germany

Setting the scene

Creativity lies at the core of academic breakthroughs and masterpieces of art and is increasingly considered as the driving force of industries, economies and knowledge-based society (Florida, 2005; Törnqvist, 2011; Shiu, 2014). It has evolved from a rather specialized topic in (social) psychology (e.g., Csikszentmihalyi, 1997; Guilford, 1950; Koestler, 1964) to a central and interdisciplinary concern across the social sciences and a buzzword in public debates.

In a first approximation, creativity can be specified as a novel and valuable contribution to a particular domain (Amabile, 1996; Csikszentmihalyi, 1997). However, each constitutive element in this definition is contested. *Novelty*, for instance, is not a given quasi-objective quality of objects or ideas. Rather, the degree and extent of novelty have to be negotiated among participants. A historically unique novelty that is distinct from existing contributions is

exceptional. Most ideas only have a relative novelty: they are new in a particular context, such as a region, art genre or epistemic community. However, novelty is only one aspect that is considered in the process of *valuation*. Another question is whether or not a novel output matters in a particular field (Csikszentmihalyi, 1997; Hutter and Stark, 2015). For instance, scientific discovery has, by definition, value for the scientific community. At the same time, it also might be useful for potential users outside academia, which makes it valuable as a market opportunity. The value of creative outputs, in other words, can be measured along different yardsticks by different audiences, and translations between different registers of value frequently occur. Finally, the notion of the *domain* is similarly contested. On the one hand, creativity as a process is domain-specific since it relies on existing knowledge and institutionalized rules of collaboration and evaluation (Baer, 2010; Fasche, 2017). On the other hand, as shown by this theme issue, creative endeavors frequently take place right on the boundaries that separate existing domains, redefining these boundaries and even creating new domains.

The humanities and social sciences including economic geographers increasingly tend to understand creativity as a collective process rather than an output (Fortwengel et al., 2017; Ibert et al., 2015). Along these lines, creative processes are conceived as inherently social and interactive (Hargadon and Bechky, 2006; Langley et al., 2013; Perry-Smith and Mannucci, 2017). The resources required to generate and evaluate novelty are socially and spatially distributed. It is necessary to bring together different people with divergent mindsets and talents (Ibert and Müller, 2015; Page, 2008). All articles of this theme issue apply dynamic, process-related materials and approaches, such as careers of creative individuals (Barnes, 2018; Lam, 2018), creativity in innovation biographies (Brinks et al., 2018) or domain formation (Grabher, 2018; Vermeulen, 2018).

Exploring the spatiality of creative processes around the terms of centre/periphery and mobility/travel

Most disciplines interested in creativity have no primary interest in spatial issues. Yet, space matters in any creative practice. For instance, creative projects recombine people and resources that are distributed within domains and geographical spaces (Hautala and Jauhiainen, 2014; Ibert and Müller, 2015). Thus, it is necessary to identify, access and mobilize resources across distance (Maskell, 2014). Moreover, the presence and absence of actors, devices, audiences, and representations make a significant difference for negotiating value in a particular local setting (Hutter and Stark, 2015).

The traditional approach of addressing space in creative processes is to think about it regarding a socio-material context, or “environment” (Meusburger et al., 2009: 27) for (individual) creative achievements. Places and cities with their particular intellectual cultures, networks, and available resources can inspire (or not) creative individuals (e.g., Drake, 2003; Livingstone, 2003). Individuals internalize elements of the daily environment into the creation process that thus becomes collective and social (Scott, 2014: 569). Similarly, the articles of this theme issue describe creative processes as being restricted and enabled in daily environments in various locations such as Seattle and Detroit (Barnes, 2018), Tokyo and Vienna (Vermeulen, 2018), London (Lam, 2018), Berlin (Brinks et al., 2018) and the Austrian province of Vorarlberg (Grabher, 2018).

However, contributors to this theme issue also go beyond this primarily contextual understanding of space. We asked all authors to use the interrelated spatial concepts of mobility/travel or centre/periphery to interrogate the spatiality inherent in the relational dynamics of social collaboration. Although the initial idea was that each article should focus

on one of the two dual categories, in the process of elaboration, the articles also explored their interrelatedness. For example, throughout their careers, innovators from the margins, like the North American geographer William Bunge (Barnes, 2018) or the Austrian *Baukünstler* craftsmen-architects (Grabher, 2018), were frequently attracted to the respective centres (see also, Ejermo and Hansen, 2015; Hautala, 2015; Törnqvist, 2011). Furthermore, the collaborative practices within innovation processes do not only connect existing central and peripheral locations (Brinks et al., 2018). In the long run, they may even challenge established geographical hierarchies by developing new centres in former peripheries (Barnes, 2018; Grabher, 2018; Vermeulen, 2018).

Exploring similarities and differences between the arts and sciences

Even though the arts and sciences are considered the most emblematic fields for creativity, they are seldom analysed together or compared systematically (Abreu and Grinevich, 2014; Chong, 2013; Miller, 2014; Weisberg 2006). Traditionally, the emphasis has been on the differences. Academic creativity derives from a rationalist calculus and follows strict conventions, like blind peer-review practices or validation of experimental findings, and formal education (Merton, 1987). The aim is to create similarly interpreted knowledge. Likewise, in the artistic sphere, modernist understanding has prevailed since the 18th century. There is a strict and sometimes artificial separation between the fine arts and economic calculus (Fasche, 2017). As a consequence, art was increasingly created for art's sake, and artistic creativity was located mainly in the sphere of aesthetics, where sensual and affective stimuli are experienced and interpreted subjectively (Hutter and Stark, 2015; Reckwitz, 2017). Economic geographers adopted and reproduced this dualistic view by applying the terms of “creativity” and “knowledge creation” to different fields of study: creativity into cultural content production (Markusen et al., 2008) and knowledge creation into more analytical and technological fields

like high-tech industries or natural sciences. Hence, empirical studies in economic geography seldom address similar or comparable research questions across the arts and sciences.

In this theme issue, we seek to challenge the habitual separation between the spheres of art and science and posit that creativity takes place in both spheres. A more recent practice-based research has shown that the fundamental differences between aesthetic and analytic creativity are overstated. For example, knowing in practice is no longer restricted to the Platonian (1976) understanding as “justified true belief”. Rather, from this perspective, intuition, interpretation, embodied skills and socially shared conventions and routines belong to science (Latour, 1987) as they belong to arts. Otherwise, many artists take advantage of scientific methods of exploration and conduct research on their subjects (Scott, 2006; Miller, 2014; Schneider and Wright, 2010). In this logic, the practices of developing a new diagnostic instrument, a new legal service or a new board game become comparable regarding how practitioners stimulate novelty, negotiate value or redefine domains (Brinks et al., 2018). Therefore, the analysis of creativity benefits from challenging the separation of the arts and sciences (examples: Latour, 1987; Schneider and Wright, 2010). This theme issue presents examples from both spheres (science: Barnes, 2018; Vermeulen, 2018; arts: Grabher, 2018), analyses artistic and scientific practices in a comparative fashion (Brinks et al., 2018), and analyses practices of transgressing the boundaries between the arts and sciences (Lam, 2018).

A more central concern for creativity in the periphery

(Economic) Geography of creativity has been preoccupied with celebrating central places (for critique: Shearmur and Doloreux, 2016). Metropolitan regions are ascribed to provide the most beneficial local opportunity structures for creative projects (Florida, 2005; Glaeser, 2012). This core idea originates in urban qualities presented in the seminal works by Simmel (1903) and

Jacobs (1961). However, those contributors in the theme issue who put their focus on the centre/periphery duality (Barnes, 2018; Grabher, 2018; Vermeulen, 2018) are more concerned with the so far widely understudies specific affordances of peripheries for creativity processes (see also: Bain, 2013; Gibson and Brennan-Horley 2016; Glückler, 2014; Hautala, 2015).

The articles in this theme issue advance a relational understanding of centre and periphery instead of using predefined parameters like agglomeration measures or employment statistics. From a relational point of view, the centres enact power to the rest of the domain as they set up values: styles of art and paradigms of science (Lionnet and Shih, 2005). Creative processes occur in a domain-specific and dynamic landscape of central and peripheral places. For example, the map of the emergent domain of systems biology (Vermeulen, 2018) differs from the map of the American Human Geography in the 1960s and 1970s (Barnes, 2018).

Furthermore, collective creative processes may transform peripheries into new centres of creative inquiry. For example, through the seminal works by William Bunge, the run-down Detroit neighbourhood of Fitzgerald turned into the most intensively studied square mile in the Anglophone human geography of the 1970s and served as a reference case for the emerging radical human geography (Barnes, 2018). Similarly, the Austrian *Baukünstler* created a hub of architectural design by embedding themselves in the Vorarlberg region—a region that until then had not shown up as a prominent site in the landscape of professional architecture (Grabher, 2018).

What exactly are the affordances of peripheries for creativity? The most important quality identified by authors in this theme issue is the absence of power and control (see also: Glückler, 2014) or the lack of influence from the mainstream (see also: Hautala, 2015). Thus, “different and challenging forms of knowledge can originate from them, becoming points of contestation

and resistance to the centre's attempts to assert power" (Barnes, 2018). While William Bunge was forced into a peripheral location because the central actors refused to acknowledge his achievements, the Austrian *Baukünstler* (Grabher, 2018) moved deliberately into a region remote from the centre of Vienna to take advantage of the peripheral location.

The articles of this theme issue address remote places as peripheries (Vermeulen, 2018) or margins (Barnes, 2018; Grabher, 2018). Whereas periphery emphasizes remoteness from a related centre, the notion margin stresses the proximity to a boundary (Park, 1928). For instance, did the *Baukünstler* not only move away from the centre (and its dominant institutions) into the periphery but founded their association at the margin—between architects and craftsmen (Grabher, 2018). Indeed, many creative projects start at the margins (or boundaries) of domains (Brinks et al., 2018). Creativity spurs from brokering knowledge across cognitive and cultural boundaries (Lam, 2018). Marginality, in other words, implies the presence of challenging problems and irritating worldviews that provide opportunities for creative responses.

Different elements form the topologies of centres and peripheries in sciences and arts: universities, research sites and laboratories in science (Livingstone, 2003, Törnqvist, 2011), and auction houses, galleries and studios in arts (Fasche, 2017), to mention only a few. Beyond these differences, the articles of this theme issue suggest that the general patterns and underlying mechanisms creating these topologies are similar in the spheres of art and science. Systematic comparisons, such as the "Shanghai list" (ARWU 2015), suggest that only particular universities and galleries, for instance, are considered as centres of their respective domains, while most others remain peripheral. Therefore, the general impression of the sharp contrast between few centres and a broad and diverse spectrum of peripheries and margins is similar in the arts and sciences.

Furthermore, in both spheres, people can be creative not only in the centre but also in the periphery. Rather, the centre/periphery opposition is another example of a necessary shift from dualisms to dualities (Sydow, 2018). In creative processes, Sydow argues in his commentary, contradictory logics co-exist and interact in complex, sometimes surprising ways. In the case of the centre/periphery duality, both types of spaces provide different affordances and limitations as contexts for creative processes: While centrality seems dispensable for the generation of novelty, it is crucial for the valuation of novelty (Barnes, 2018; Grabher, 2018; see also Meusburger, 2015). Furthermore, due to superior power to make judgments of value, the centres may be less open to accepting radically new frames of meaning or may even actively suppress such novelty. Hence, the experimentation with radically new ideas might be easier at a peripheral location where the unfolding novelty is better protected against premature criticism. Against this background, participants typically do not decide to locate their creative projects in either a central or peripheral location. Rather, throughout the observed processes, the participants and the artefacts they create, shuttle between both types of spatial contexts. In doing so, the opposing logics prevailing in centres or peripheries remain in force and become interrelated (Hautala and Jauhiainen, 2018).

Mobility and motility: Crossing boundaries, accessing resources, enacting surprise and experiencing vulnerability

Mobility has been regarded as a vehicle for the transformation of social situations from the modernity onwards (Canzler et al., 2008), and traveling is key to bringing together people, ideas, concepts and resources in the arts and sciences (Straughan and Dixon, 2014, Jöns et al., 2015). Mobility also includes the dimension of motility—the varying capacities of actors (or

objects) to move and the limited access set for their potential mobility (Canzler et al., 2008: 750). Lately, the interest of analysing the relationship between the creativity of actors and their mobility has increased (Merriman, 2015; Vogl et al., 2013). For instance, there is evidence that those working abroad for longer periods reach outcomes of greater novelty (Fee and Gray, 2012; Franzoni et al., 2014; Maddux et al., 2014). However, more research is needed to understand the complex everyday creativity-related mobilities, for instance, temporary mobilities (de Bloom et al., 2014) and the mobility connecting centres and peripheries (Andrucki and Dickinson, 2015). These topics are developed further in the articles of this theme issue.

In creative processes, participants must access and mobilize spatially distributed resources. Their search spurs everyday mobility and results in serendipitous and purposeful encounters. The (dis)ability to specify what is not yet known during the search process affects the participants' motility (Brinks et al., 2018). From this perspective, the isolated view on either centres or peripheries is no longer useful. Rather, both play a significant role in creative processes and are interconnected through temporary mobility. However, mobility also contributes to the dynamics of creating, maintaining and undermining centres and peripheries, as illustrated in this theme issue by the case of the emergent domain of systems biology (Vermeulen, 2018; see also 'centers of calculation' by Latour, 1987). Similarly, the "third spaces of hybridity" (Lam, 2018) are not pre-existing arenas but are relational spaces enacted by artists moving between the domains of arts and academia.

To understand the relationship between mobility and creativity, it is important to connect the underlying cognitive and social processes with movements through space. In the case of the artist-scientists (Lam, 2018), the move across an institutional boundary challenges the participant's professional identity and perception of self-continuity. At the same time, such

moves create new opportunities to broker knowledge across cognitive boundaries. Movement in space, in other words, spurs the individual and collective experiences of ambiguity in the sense of “double-mindedness or bi-sociations” (Koestler, 1964: 36; cited in Barnes, 2018). This is often seen as a precondition for creative ideas. At the same time, such moves increase the vulnerability of a person. The “unsettled” (Lam, 2018) and “ignorant” (Brinks et al., 2018) states of mind that are connected with the creation of new associations across cognitive frames increases the experience of precariousness. In particular, actors involved in radically new ventures often experience exclusion and denial from the community of peers and contemporaries. Despite, or rather, because of his radically new contributions to human geography, Bunge was repeatedly denied tenure (Barnes, 2018). The early members of the *Baukünstler* movement risked their professional existence when refusing to become members of the chamber of architects (which was obligatory to pursue the profession) (Grabher, 2018). Again, this ambivalence of creativity can be found in the arts and sciences.

Loose ends: looking ahead

The emergent topics explored in this theme issue are all but complete. However, we regard this incompleteness (Garud et al., 2008) as a particularly valuable outcome of the theme issue because it provides new opportunities to induce future research on the spatiality of creativity.

Unlike the predominating optimistic and positive accounts on creative practices in economic geography, the contributions collected in this theme issue highlight the ambivalent nature of creativity. Many aspects spurring creativity also increase individual and collective experiences of vulnerability. While uncertainty, ambiguity, and ignorance have been acknowledged as inextricably intertwined with creative processes, their productivity for

creativity is less well understood. As Sydow (2018) suggested in his commentary, exactly this double-sided nature is a promising area for future research.

The approach to empirically investigate creative processes from the arts and sciences in a comparative manner is a similarly unfinished project. To have a collection of papers that cover both spheres and share crucial similarities is a good first step, as it allows for some comparison across the papers. One tentative result is that the socio-spatial practices cultivating novelty are not radically different in the arts and sciences while the distinct normative frames mobilized in the valuation processes persist. However, the evidence presented in this theme issue remains fragmented. These gaps call for collaborative research projects, which orchestrate the data collected in both spheres in a more structured way to afford a more systematic comparison of findings on creativity in the arts and sciences.

Acknowledgment

This theme issue is based on contributions prepared for the interdisciplinary and international conference “Creativity in Arts and Sciences: Collective Practices from a Spatial Perspective” co-organized by the two guest editors in Erkner (Germany), 7–8 May 2015 (<http://www.irs-net.de/creativity-conference/>).

Funding

We gratefully acknowledge funding received from the German Research Foundation (DFG) (IB95/7–1) and the Academy of Finland (266212).

References

- Abreu M and Grinevich V (2014) Academic entrepreneurship in the creative arts. *Environment and Planning C: Government and Policy* 32(3): 451–470.
- Amabile T (1996) *Creativity in Context*. Boulder: Westview press.
- Andrucki M and Dickinson J (2015) Rethinking centers and margins in geography: Bodies, life course, and the performance of transnational space. *Annals of the Association of American Geographers* 105(1): 203–218.
- ARWU (2015) Academic Ranking of World Universities. Available at: <http://www.shanghairanking.com/> (accessed November 10 2015).
- Baer J (2010) Is Creativity Domain Specific? In: Kaufman J and Sternberg R (eds) *The Cambridge Handbook of Creativity*. Cambridge: Cambridge University Press, pp. 321–345.
- Bain A (2013) *Creative Margins: Cultural Production in Canadian Suburbs*. Toronto: University of Toronto Press.
- Barnes T (2018) A marginal man and his central contributions: The creative spaces of William ('Wild Bill') Bunge and American geography. *Environment and Planning A: Economy and Space*. Epub ahead of print 1 March 2018. DOI: 10.1177/0308518X17707524.
- Brinks V, Ibert O, Müller F, Schmidt S (2018) From ignorance to innovation: Serendipitous and purposeful mobility in creative processes – The cases of biotechnology, legal services and board games. *Environment and Planning A: Economy and Space*. Epub ahead of print 1 March 2018. DOI: 10.1177/0308518X18758327.
- Canzler W, Kaufmann V and Kesselring S (2008) *Tracing Mobilities: Towards a Cosmopolitan Perspective*. Oxon: Ashgate Publishing, Ltd.
- Chong P (2013) Legitimate judgment in art, the scientific world reversed? *Social Studies of Science* 43(2): 265–281.
- Csikszentmihalyi M (1997) *Flow and the Psychology of Discovery and Invention*. New York: HarperPerennial.
- de Bloom J, Ritter S, Kühnel J, Reinders J and Geurts S (2014) Vacation from work: A 'ticket to creativity'? *Tourism Management* 44: 164–171.
- Drake G (2003) 'This place gives me space': Place and Creativity in the Creative Industries. *Geoforum* 34: 511–524.
- Ejermo O and Hansen HK (2015) How important are local inventive milieus: The role of birthplace, high school and university education. *Geoforum* 65: 387–397.
- Fasche M (2017) *Making Value and Career Building in the Creative Economy. Evidence from Contemporary Art*. Springer Briefs in Geography. Cham: Springer.
- Fee A and Gray SJ (2012) The expatriate-creativity hypothesis: A longitudinal field test. *Human Relations* 65(12): 1515–1538.

- Florida R (2005) *Cities and the Creative Class*. New York: Routledge, USA.
- Fortwengel J, Schüssler E and Sydow J (2017) Studying organizational creativity as process: Fluidity or duality? *Creativity and Innovation Management* 26(1): 5–16.
- Franzoni C, Scellato G and Stephan P (2014) The mover's advantage: The superior performance of migrant scientists. *Economics Letters* 122(1): 89–93.
- Garud, R, Jain, S, Tuertscher, P (2008) Incompleteness by design and designing for incompleteness. *Organization Studies* 29(3), 351–371.
- Gibson C and Brennan-Horley C (2016) Putting the boot into creative cluster theory. In: Shearmur R, Carrincazeaux C and Doloreux D (Eds) *Handbook on the Geographies of Innovation*. Cheltenham: Edward Elgar Publishing: pp. 241–254.
- Glaeser, E (2012) *Triumph of the City*. London: Penguin Books.
- Glückler J (2014) How controversial innovation succeeds in the periphery? A network perspective of BASF Argentina. *Journal of Economic Geography* 14(5): 903–927.
- Grabher G (2018) Disconnectedness: A tale about peripherality, outsiders and architectural creativity. *Environment and Planning A: Economy and Space*.
- Guilford JP (1950) Creativity. *American Psychologist* 5(9): 444–454.
- Hargadon AB and Bechky BA (2006) When collections of creatives become creative collectives: A field study of problem solving at work. *Organization Science* 17(4): 484–500.
- Hautala J (2015) Interaction in the artistic knowledge creation process: The case of artists in Finnish Lapland. *Geoforum* 65: 351–361.
- Hautala J and Jauhiainen JS (2014) Spatio-temporal processes of knowledge creation. *Research Policy* 43(4): 655–668.
- Hautala J and Jauhiainen JS (2018) Creativity-related mobilities of peripheral artists and scientists. *GeoJournal*. Epub ahead of print 6 March 2018. DOI: 10.1007/s10708-018-9866-3.
- Hutter M and Stark D (2015) Pragmatist Perspectives on Valuation: An Introduction, In: Antal AB, Hutter M and Stark D (Eds) *Moments of Valuation*. Oxford: Oxford University Press.
- Ibert O and Müller FC (2015) Network dynamics in constellations of cultural differences: Relational distance in innovation processes in legal services and biotechnology. *Research Policy* 44(1): 181–194.
- Ibert O, Hautala J and Jauhiainen JS (2015) From cluster to process. *Geoforum* 65: 323–327.
- Jacobs J (1961) *The Death and Life of Great American Cities*. New York: Random House.

- Jöns H, Mavroudi E and Heffernan M (2015) Mobilising the elective diaspora: US–German academic exchanges since 1945. *Transactions of the Institute of British Geographers* 40(X): 113–127.
- Koestler A (1964) The act of creation. In: Lindsley D and Lumsdaine A (Eds) *Brain Function and Learning*. Berkeley: University of California Press, pp. 327–346.
- Lam A (2018) Boundary-crossing careers and the ‘third space of hybridity’: Career actors as knowledge brokers between creative arts and academia. *Environment and Planning A: Economy and Space*. Epub ahead of print 1 March 2018. DOI: 10.1177/0308518X17746406.
- Langley A, Smallman C, Tsoukas H and Van de Ven A (2013) Process studies of change in organization and management: unveiling temporality, activity, and flow. *Academy of Management Journal* 56(X): 1–13.
- Latour B (1987) *Science in Action: How to Follow Scientists and Engineers through Society*. Cambridge: Harvard University Press.
- Lionnet F and Shih S (2005) *Minor Transnationalism*. Durham: Duke University Press.
- Livingstone D (2003) *Putting Science in its Place: Geographies of Scientific Knowledge*. Chicago: University of Chicago Press.
- Maddux W, Bivolaru E, Hafenbrack A, Tadmor C and Galinsky A (2014) Expanding opportunities by opening your mind. *Social Psychological and Personality Science* 5(15): 608–615,
- Markusen A, Wassall G, DeNatale D, Cohen R (2008) Defining the Creative Economy: Industry and Occupational Approaches. *Economic Development Quarterly* 22(1): 24–45.
- Maskell P (2014) Accessing remote knowledge—the roles of trade fairs, pipelines, crowdsourcing and listening posts. *Journal of Economic Geography* 14(5): 883–902.
- Merriman P (2015) Mobilities I: Departures. *Progress in Human Geography* 39(1): 87–95.
- Merton R (1987) Three fragments from a sociologist's notebooks: Establishing the phenomenon, specified ignorance, and strategic research materials. *Annual Review of Sociology* 13(1): 1–29.
- Meusburger P (2015) Relations between knowledge and power. In Meusburger P, Gregory D and Suarsana L (Eds): *Geographies of Knowledge and Power*, pp. 19–74.
- Meusburger P, Joachim F and Edgar W (2009) *Milieus of Creativity: An Interdisciplinary Approach to Spatiality of Creativity*. Dordrecht: Springer.
- Miller A (2014) *Colliding Worlds: How Cutting-Edge Science is Redefining Contemporary Art*. New York: WW Norton & Company.
- Page S (2008) *The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies*. New Jersey: Princeton University Press.

- Park R (1928) Human migration and the marginal man. *American Journal of Sociology* XXXIII(6): 881–893.
- Perry-Smith JE and Mannucci PV (2017) From creativity to innovation: The social network drivers of the four phases of the idea journey. *Academy of Management Review* 42(1): 53–79.
- Plato (1976) VII Theaetetus. 7th ed. Cambridge: Cambridge University Press.
- Reckwitz A (2017) Practices and their Affects, In: Hui A, Schatzki T and Shove E (Eds): *The Nexus of Practices: Connections, Constellations, Practitioners*. London: Routledge, pp. 114–225.
- Schneider A and Wright C (2010) *Between Art and Anthropology: Contemporary Ethnographic Practice*. Oxford: Berg.
- Scott A (2014) Beyond the creative city. *Regional Studies* 48(4): 565–578.
- Scott J (2006) *Artists-in-labs: Processes of inquiry*. Berlin: Springer.
- Shearmur R and Doloreux D (2016) How open innovation processes vary between urban and remote environments. *Entrepreneurship & Regional Development* 28(5–6): 337–357.
- Shiu E (2014) *Creativity Research: An Inter-Disciplinary and Multi-Disciplinary Research Handbook*. London: Routledge.
- Simmel, Georg (1984 [1903]) *Die Großstädte und das Geistesleben*. Berlin: Wagenbach.
- Straughan E and Dixon D (2014) Rhythm and mobility in the inner and outer Hebrides: Archipelago as art-science research site. *Mobilities* 9(3): 452–478.
- Sydow J (2018) From dualisms to dualities: On researching creative processes in the arts and sciences. *Environment and Planning A: Economy and Space*.
- Törnqvist G (2011) *The Geography of Creativity*. Cheltenham: Edward Elgar.
- Vermeulen N (2018) The choreography of a new research field: Aggregation, circulation and oscillation. *Environment and Planning A: Economy and Space*. Epub ahead of print 1 March 2018. DOI: 10.1177/0308518X17725317.
- Vogl G, Witzgall S and Kesselring S (2013) *New Mobilities Regimes in Art and Social Sciences*. London: Routledge.
- Weisberg RW (2006) *Creativity: Understanding Innovation in Problem Solving, Science, Invention, and the Arts*. New Jersey: John Wiley & Sons.