Creativity-related mobilities of peripheral artists and scientists

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Abstract

Creativity and mobility are often connected but rarely studied from a process perspective. In this article, we study the strategies and practices of creativity-related long- and short-term mobilities during the careers of 61 artists and scientists who live and work in peripheral locations. We identified home-based visiting practices, transnational circulating practices, and local (im)mobility practices that facilitate differently the creative outcomes of these artists and scientists. With this multi-case study on creativity-related mobility, we develop a broader understanding of centres and peripheries from a process perspective. In general, to move forward in their careers, peripherally located artists and scientists need to be in contact with the centre

and its key paradigms. The mobilities of studied artists and scientists blur the simplistic division of the world of creativity that is divided into centre and periphery. From creativity-related mobility emerge cores that foster the center's paradigms and edges that challenge the mainstream of the centre.

Keywords: creativity, art, science, centre, periphery, mobility

Introduction

Creativity and mobility are often connected. The international mobility of artists and scientists is generally driven by a goal to achieve internationally relevant creative outcomes. This is supported by the mobility policies and programs that are widespread in art and academia (Baruch and Hall 2004; Ackers 2005; Duester 2014). To move forwards in their careers, artists and scientists need to access and relate to existing creative outcomes, and have connections and mobility outside their everyday realms (Brinks et al. 2017). Geographical accessibility has increased, and artists and scholars living and working almost anywhere can easily access knowledge and ideas created elsewhere, also through the Internet. However, the world is still divided, and there are differences in creative environments. There are globally leading centres setting the mainstream paradigms (Lionnet and Shih 2005) for the arts (see Joyeux-Prunel 2014; Miller 2014) and the academy (see Törnqvist 2004; Jöns and Hoyler 2013). There are also less-central peripheral areas where such mainstream topics and methods are spread and adopted (Valente 1995).

In this article, we build from a process perspective to a more broad understanding of creativity-related mobilities and their connection to centres and peripheries. We study the strategies and practices of creativity-related long- and short-term mobilities along the careers of artists and scientists who live and work in peripheral locations. The research questions are as follows: How do artists and scientists perform their creativity-related mobility between centres and peripheries?, and what kind of creativity-related realms emerge due to these mobilities? By creativity, we mean a process that is socially mediated, relative and flexible, and influenced by biological, biographical, and environmental factors (Csiksentmihalyi 1996, p. 314). Creative outcomes are novel, useful, and valuable within a domain (Amabile et al. 1996; Sternberg 2005). Artists and scientists represent traditionally mobile occupational groups whose mobilities along their careers are expectedly different, although related to achieving creative outcomes. In this article, scientists are those individuals who gain their living from post-graduate work in science or technology. A scientific career is often institutionalized to follow the academic system and related geographical locations of, for example, universities. On the contrary, most artistic careers do not follow such a structured system (Markusen 2006). By artists, we mean those individuals who gain their living from visual arts, performing arts or writing. For our study, we deliberately selected artists and scientists who have produced internationally acknowledged creative outcomes but who started their careers in a periphery and who still mostly live away from the globally recognised prestigious artistic and academic centres.

Centres and peripheries have been applied to understand creativity-related mobilities, but they need to be conceptualized further. Creativity-related studies often sustain the idea of creative centres and failing peripheries (Hall and Donald 2009), even though such a hierarchical and binary geographical system has also been criticised (Coe et al. 2010). Empirical research

concentrates on centres (i.e., cities and clusters) and long-term mobility; whereas, research on peripheries and short-term mobility is lacking (Gibson 2012; de Bloom et al. 2014; Grabher and Ibert 2014). As a result, centres and peripheries are seen as *opposite* realms from where artists and scholars need to choose one over the other. However, from the process perspective, all moves are only temporary, and various mobilities are included in the careers of creative actors. Most artists and scientists are born and practice their activities outside the leading centres. However, those who strive for recognition need connections to a centre. "Being there"—visiting or moving near the key sites (e.g., laboratories and galleries)—and collaborating with the major actors is essential for learning practices and merging into the leading paradigm networks (Collins 2001; Hirvi 2015). This activity allows the learning individual to acquire knowledge from the centre and to support it.

Creativity-related research concentrates on these globally leading centres (Ewers 2007; Gibson 2012); however, interest in peripheral settings has recently increased. Peripheries can be fruitful settings even for such creativity that challenges the centres (Bain 2013, Rodríguez-Pose and Fitjar 2013, Gibson 2014, Glückler 2014, Hautala 2015). Despite a previous research focus on the "brain drain" from the periphery (Beine et al. 2008), many return from the centre. This article answers the need to develop a process perspective on creativity-related mobility between centres and peripheries (Ibert et al. 2015; Barnes 2018; Brinks et al. 2018; Vermeulen 2018). The article contributes to the research on creativity-related mobility in two ways. First, we understand that creativity of artists and scientists is a process along their careers. We analyse systematically temporal and more permanent mobilities of artists, scientists, and their created objects (e.g., paintings and articles) in and between centres and peripheries. Despite the increasing interest in the relationship between the mobility of creative actors and their creativity

(Merriman 2015; Witzgall and Kesselring 2013), such a systematic analysis of the creativity-related mobilities of artists and scientists is lacking. Working abroad for an extended period has been found to increase creativity and quality of outcomes (Fee and Gray 2012; Franzoni et al. 2014; Maddux et al. 2014). However, we address also short-term mobilities that are more common during one's career and whose impacts are less addressed in earlier studies (de Bloom et al. 2014).

Second, we blur the rigid centre versus periphery dichotomy in creativity by applying topographical and topological approaches (see Andrucki and Dickinson 2015). In addition to the traditional topographical approach in which the centre is defined neatly and the rest is periphery, we introduce the dimensions of "core", (i.e., practices and outcomes that support or develop the centre paradigm of a particular domain) and "edge", (i.e., practices and outcomes that challenge the centre paradigm of a particular domain) (Parker 2008, p. 11–12). This topological perspective transforms the centre-periphery division into a less-rigid relational perspective.

Geographies of creativity-related mobilities of artists and scientists

Mobility involves a displacement, the act of moving between locations as an embodied experience (Cresswell 2006, p. 2). In this article, the creativity-related mobility means the temporal changing of an artist's or a scientist's geographical location with the aim of achieving creative outcomes, for instance, relevant pieces of art or scientific articles. In the past 10 years, the study of creativity-related mobilities and locations has increased substantially. A background debate is centred around the "creative class" and how its members, including artists and

scientists, foster the economy and innovation in locations to which they migrate to achieve creative outcomes (Florida 2002; Martin-Brelot et al. 2010).

Creativity-related mobility is a research topic in which scientists have been studied more than artists (Duester 2014; Farinha 2012; Hirvi 2015). In both groups, mobility has been found fruitful in stimulating new ways of thinking and increasing professional experience, creativity, and creative outcomes (Fee and Gray 2012; Maddux et al. 2014). Most research focuses on permanent spatial mobility from one location to another, career mobility as promotion, institutional mobility between universities and industry, or between art practices and management, and cognitive mobility between domains (Schiller and Diez 2012, p. 1322). Not enough is known about temporary mobility (de Bloom et al. 2014). Earlier studies focus on business and knowledge development (Jöns 2009; Maskell et al. 2006) and do not utilize the process perspective and examine the careers of individuals or the creation process before and after mobility.

Artists and scientists are expected to portray different geographical mobilities along their careers. However, careers often include various employers, projects, and geographical locations across boundaries (Arthur et al. 2005). Usually artists and scientists are free to choose, for instance, their collaboration partners and topics. This is important for creative outcomes, since creativity cannot be forced (Csikszentmihalyi 1996). Thus, creativity and the realisation of creative outcomes have distinctive geographies and spatialities, (i.e., they are not evenly distributed and developed) (Gibson 2012; Törnqvist 2004).

Earlier research studying the creation processes of artists and/or scientists in relation to centres and peripheries can be roughly divided into two strands. The first strand is topographical (see Malpas 2012) and considers the key sites in art and science as rather neat geographical

locations. Their central or peripheral position is quite clear and stable (Rabkin and Inhaber 1979; Edwards 2004; Zelnio 2012). The world is divided between successful centres and unsuccessful peripheries (Rodriguez-Pose and Fitjar 2013) with perhaps a grey area between them (Hwang 2008). Today, the centres of art and science are perceived as being located in the Western world and a few rapidly developing regions in Asia. This uneven geography is partly related to the colonialist practices of the past. Recent publications on this strand also have studied peripheries and their creative communities (Petridou and Ioannides 2012; Petrov and Cavin 2012; Bennett et al. 2015), and the detailed inner structures of peripheries (Hwang 2008).

The second topological strand perceives centres and peripheries relationally through their connections (Coe et al. 2010; see Malpas 2012). Networks are the focus of most research (Cattani and Ferriani 2008; Alnuaimi et al. 2012; Rullani and Haefliger 2013). These studies also seek to study peripheries and distances as an asset to creative outcomes—locations that offer sources of new knowledge that can lead to innovations (Rodriguez-Pose and Fitjar 2013; Glückler 2014; Hautala 2015). Although connections play a role in the hierarchical topographies of centres and peripheries, a topological approach dismisses the simplistic view in which networks lead to geographical location-based hierarchies. Therefore, we follow the suggestion by Andrucki and Dickinson (2015, p. 215) and combine topological and topographical concepts. To blur the rigid division of centre and periphery, we study the creativity-related mobilities of artists and scientists along their careers. In general, moving “forwards” and “upwards” in their career often means also geographical mobility—especially for artists and scientists living in periphery. However, talented European workers are strongly embedded in their local labour markets with cultural (language, culture, local know-how, etc.) and institutional (health care, education, etc.) constraints (Martin-Brelot et al. 2010, p. 866). Therefore, such mobility requires

support through a wide set of policies and funding schemes in art and science that aims to increase international mobility in particular.

The scientific career is institutionalised (and centralised) around universities that increasingly recruit through the commensurate international metrics of publications, funding, work experience and topics (Kelly and Jennions 2006). There is a clear career ladder for a scientist where most steps, such as Master, Doctor, and tenure, track positions towards full Professorship and require officially accepted merits. International mobility and collaboration networks in general, and international long-term mobility in particular, are highly valued along the scientific career. Some university positions and several funding agencies require such mobility and networks.

In the art scene, mobility has become almost a precondition of artistic development and career enhancement through the quest for information and knowledge, exchange, and interaction, and inspiration and funding (Farinha 2012, p. 30). Some artists migrate permanently (fixed migration), some temporarily (short-term mobility), and some travel from one city to another or communicate or collaborate remotely (ultra- or transmobility) (Duester 2014, p. 112). Artists may have a salaried career if their domains include long-standing organisations such as art schools, opera or theatre houses (Menger 2006, p. 771). However, for most artists, also in this study, the career ladder is not institutionalised around the job titles or particular organisations as it is for scientists. The careers of artists advance through temporary networks bound to key galleries and project funding (Giuffre 1999). Whereas performance and live music shows require artists to move to the location of the audience, such a move is not necessary for painting, writing books or composing music. However, funding agencies, critics, and gallery owners value

international collaboration networks, exhibitions, and sales, which makes them important for the careers of artists.

Centre, periphery, core, and edge

Long historical processes in the spatial division of labour, uneven economic development, educational policies, spatial power relations, migration patterns of talented people, and various path dependencies result in large disparities in the economic and scientific attractiveness of certain locations and institutions (Jöns 2009; Meusburger 2009; Marcel 2013). Van der Wende (2015, p. S71) states that unless there is an extra effort to build capacity elsewhere, the current mobility flows strongly favour the established institutions in a limited number of world regions (Ackers 2005, p. 311). Spatial mobility and location in a key epistemic centre of one's profession have become a status symbol and a sign of excellence in certain professions (Meusburger 2009, p. 139).

A *centre* means a location that has a recognised significance in the development of art or science, a superior hierarchical position to the rest of the domain. A centre exercises substantial power, indicating the major paradigms and trends to follow. In these "centres of calculation" (see Latour 1987), resources are mobilised, existing paradigms are confirmed, and new knowledge is verified and disseminated. In art, the centre defines the style accepted by influential groups. In research, the centre's principle uniform theoretical view is hardly questioned (Törnqvist 2004, p. 234).

Centres are defined through several criteria. Nowadays creative outcomes are measured and attached to a certain organisation and location, thus indicating which concentrations of art and science rise above others. These rankings—like the academic "Shanghai list" (Jöns and

Hoyler 2013; ARWU 2015)—are popular and important. They represent discourses that legitimise creativity-related practices and give credibility to artists and scholars affiliated with the centres. Subjective feelings about the "best places" in art and science are often, but not necessarily, identical.

The studied scientists considered creativity-related centres (i.e., key universities, laboratories, and locations of fieldwork) as significant sites for research activities. The centres formed topological connections such as properly networked research groups with resources and prestigious scientific journals in and around the mainstream paradigms. For the artists, the main centres often matched metropolises with their famous art organisations and galleries, for instance, New York, London, Paris, and Berlin, although the latter was also mentioned as an alternative centre.

When there are centres, there must also be *peripheries*, whose number and extent far exceed that of centres. If one considers that 1% of universities and, for instance, art museums, to be at the top, then 99% of organisations and locations in art and science are in the periphery. Therefore, the majority of scholars and artists are globally not visible and recognised in their domains. Peripheries are the locations of the brain drain from where skilled individuals leave and migrate to centres. Since migrant scientists and inventors outperform domestic ones (Alnuaimi et al. 2012; Franzoni et al. 2014), the winners are those locations that attract these highly skilled immigrants. The global centres in the United States and Europe are attractive, thus peripheral locations and less-developed countries suffer (Beine et al. 2008). However, from a process perspective, temporary transnational movements can also be possible win-win situations, when the highly skilled individuals return from the centre to peripheral locations with new knowledge,

skills, and international networks (Jöns 2009; Saxenian 2002). Creative outcomes also are achieved in peripheries (Gibson 2012; Hautala 2015).

Centres determine the paradigms in various domains of science and art (Lionnet and Shih 2005). Eventually, centres and peripheries become rather durable institutionalised locations through which the hierarchies of domains are constituted. However, mobilities of artists and scientists both foster and dismantle these centre-periphery relations as we indicate in our empirical section. Namely, the goal of an artist or scientist is to achieve a creative outcome. Since creative outcomes are defined as "novel" to a domain, they *must* either supportively develop the centre paradigm forward or challenge it (Parker 2008, p. 11-12). An outcome in art or science that repeats the existing one is not novel, thus, it is not creative in the domain. Also an outcome that does not connect to the domain remains unobserved and ignored.

Starting from the creative outcome, we come to the concepts of the core where the center paradigm is fostered, and the edge where the center paradigm is contested. These blur the rigidity of centre and periphery in the context of creativity-related mobilities of artists and scientists. The *core* includes practices and outcomes that support the domain-related centre and its paradigms but also pushes these substantially forwards. A core thus supports proactive creativity—driven by internal motivation—in which individuals actively search for problems, topics, and methods that they can develop further (Meusburger 2009, p. 105; Unsworth 2001, p. 291). However, those discontented with the paradigms and hierarchies proposed by the centres relate to an *edge*—practices and outcomes that challenge the domain-related centre and its paradigms (Parker 2008, pp. 11–12). The edge is the site of alternative perspectives, practices, and audiences that is motivated by a strong inner drive for achievement (Kim 2010, p. 579). At the edge, there is a potential for revolution in selected domains. Thus, over time, an edge can eventually become a

centre. Center, periphery, core, and edge form interrelated dimensions of domain position and location. They are topographical (i.e., located precisely according to their geographical coordinates) but also topological (i.e., formed relationally through their connections) (see Malpas 2012). Encouraged by previous suggestions (Andrucki and Dickinson 2015, p. 215), we combine topographical and topological approaches to develop further the creativity-related centres and peripheries.

Materials and methods

This article analyses scientists and artists through four case studies based on a larger research project, "Knowledge Creation Processes", which follows the processes of knowledge creation in space and time in arts and sciences. Thus, this is an exploratory multi-case study that understands the creation process in its context (Stake 2006). All studied individuals started their careers away from the globally prestigious artistic and academic centres. Nevertheless, they produced internationally acknowledged creative outcomes. They have performed creativity-related mobility during their career. At the time of the empirical material collection, most lived in a periphery; although, some artists were interviewed during their stay in Berlin—a city some considered a centre of their domain.

The 34 scientists in science or technology consisted of two sub-groups:

1. Case Finland Distinguished Professor (FiDiPro) (2007–2014):
    - Research groups are led by foreign distinguished "star" professors with a part-time affiliation to a peripheral university in Finland.
    - 17 scientists from four research groups in two universities in Finland outside the world's top-200 universities (ARWU 2015).
    - 38 interviews and CVs of the studied researchers.
2. Case University Centre in Svalbard (UNIS), Norway (2013–2015):

- Location of the UNIS, far beyond the Polar Circle, is geographically distant from the leading universities.
- 17 scientists.
- Electronic survey (17 responses), unrecorded interviews and CVs of the studied scientists.

The 27 artists in visual arts, performing arts, and writing consisted of two sub-groups:

3. Case artists working in Lapland, Finland (2012–2013):
    - Lapland on both sides of the Polar Circle is the northernmost part of Finland and Europe and geographically far from any (art) metropolis.
    - 11 artists.
    - 11 interviews and CVs of the studied artists.
4. Case Finnish artists visiting or living in Berlin (2014–2015):
    - Berlin is in some aspects peripheral in the arts, but in another aspects central with substantial art domains (Alfken et al. 2015).
    - 16 artists, of whom nine live in Berlin permanently, and seven stayed there temporarily. All originate from peripheral towns or countryside in Finland.
    - 16 interviews and CVs of the studied artists.

First, we formed basic categorisations of the 61 individuals studied. We considered their career stage, productivity (i.e., the quantity of output) and creativity (i.e., the quality of output) (Tables 1 and 2). Early career researchers are PhD students, and middle-career researchers have a doctoral degree and work as post-doctoral researchers, assistant or associate professors, or professors. Early-career artists (35 years or younger) have some years of experience working after graduation. Middle-career artists have worked for at least 10 years after graduation, and many of them hold a long-term funded position. Late-career stage artists and scientists are near retirement and at least 60 years old. These categories are rather wide and, for instance, the work duties of post-doctoral researcher and full professor are different. These categories were

informative for describing individuals within their key mobility practices. We use more detailed work titles when relevant. For considering the quality (i.e., creativity) of their creativity-related outcomes, we formed value categories through indicators that the artists and scientists mentioned as being relevant to their domains (Table 2). Therefore, we study the creative process in relation to creative outcomes, much like Amabile et al. (1996) and Cattani and Ferriani (2008).

Table 1. Basic information on the artists and scientists.

Produc-tivity	**Occupatio-nal group**	**Indicator***	**N**	**Career stage (N)**	**Case (N)**
High	Artist	> 50	10	3 early; 4 mid; 3 late	4 Lapland; 6 Berlin
	Scientist	> 80	8	4 mid; 5 late	4 FiDiPro; 4 UNIS
Medium	Artist	20–50	7	2 early; 2 mid; 3 late	4 Lapland, 3 Berlin
	Scientist	20–80	10	1 early; 7 mid; 1 late	6 FiDiPro; 4 UNIS
Low	Artist	< 20	10	5 early; 3 mid; 2 late	3 Lapland; 7 Berlin
	Scientist	< 20	15	11 early; 4 mid; 0 late	7 FiDiPro; 9 UNIS

* Scientists: publications. Artists: lines of artwork or exhibitions. If the work precludes exhibitions (e.g., jewellery and felt designing), lines of artwork were considered. One line of artwork means, for instance, a set of jewellery within a shared theme.

Table 2. Creativity (i.e., quality) of the outcomes of artists and scientists.

Creativity	**Artists**	**Scientists**
Repeated international recognition	≥ 2 prizes (or respected grants allowing ≥ one year work) of which at least 1 (nomination for) international prize	≥ 2 publications in the highest level international scientific journal* of which at least 1 >200 citations
International recognition	1 prize or 1 positive critique in the leading Finnish newspaper, Helsingin Sanomat	1 publication in the highest level international scientific journal*
Aims at international recognition	Clear aim to reach international recognition, aims to continue career	
Settles to local recognition	Satisfied with very local activity at the end of career or considering the change of career	

* According to the official publication forum ranking in Finland (JUFO 2015).

Second, we identified the key mobility practices for each individual through interviews, surveys, and CVs. The qualitative interviews covered creation processes, mobility, and career. The non-standardised survey questions concerned the dis/advantages of working in the centres, peripheries, and Svalbard and if and how the scientists challenged or supported existing paradigms. We considered both long-term moves (over a year) and temporary mobility (from a few weeks to months) of the studied artists and scientists when they strove for creative outcomes. Third, within each mobility practice, to describe the aim of individual mobility, we used the concepts of centre, periphery, core, and edge. The individuals named which sites they considered to be their centres (and peripheries). In this article, the center paradigms represent the widely applied and accepted methods, practices, and theories that are used to create a scientific outcome; as well as widely applied and accepted methods, practices and themes to create an artistic outcome. The individuals reflected if and how their (current) creation process could be represented as a core or edge, which is when they also described the center paradigms (Table 3).

Table 3. Relations between centre, periphery, core, and edge.

	Core	*Edge*
Centre	Aim to support centre paradigms, being in the centre	Aim to challenge centre paradigms, being in the centre
Periphery	Aim to support centre paradigms, being in the periphery	Aim to challenge centre paradigms, being in the periphery

Creativity-related mobility strategies and practices of artists and scientists in peripheries

The studied artists and scientists had three creativity-related mobility practices. These practices indicated which mobilities they use to advance one's career at a particular career stage. The

home-based visiting practice and the transnational circulating practice were similar between the artists and scientists, but their strategies differed in details. The local (im)mobility practice was performed only by the artists.

The *home-based visiting practice* is the most common in our sample. It was performed by nine artists and 24 scientists at the early (18 individuals) or mid-career (12 individuals) stage. It consists of a temporary international mobility from a peripheral home-base to global key cities or sites of research or art. Due to their early career stages, the productivity of artists and scientists varied from low (17) to medium (11). However, they are an internationally upwardly moving group: outcomes of 17 individuals had already been recognized as creative internationally. These artists and scientists were only starting to learn the key actors in their domain centres. Many experienced the exclusiveness of the centres and realized that it is not easy to migrate from periphery to the centre. Their creative outcomes are measured according to the standards of the centre. It is challenging to gain the acceptance of the centre's actors (Glückler 2014). Therefore, rather than a permanent migration to the centre, the early career artists and scientists prefer to visit centres either personally or by distributing their creative outcomes at these locations.

The *transnational circulating practice* is performed by 10 artists and 10 scientists. Most are at their mid-career (10) or early career (6). In general, they were the most productive and creative. In the sample, two-thirds (67 %) of the most productive and over half (55 %) of those who have created outcomes with repeated international recognition belong to this group. Most individuals went through two steps. The first was a long-term move to a centre where (s)he established a core or edge position. The second step was to circulate internationally between the centre and periphery and their respective audiences, peer communities, and/or affiliations. After moving to a centre, its fierce competition made some artists and scientists experience a "shock" and a "loss

of identity". According to some, a good reaction was to align and follow the topics and working practices of the centre and to aim for a core position there. Fewer artists and scientists challenged their domain's mainstream research or art. They created an edge position facilitated by their transnational circulating between the centre and the periphery.

The *local (im)mobility practice* was performed by eight artists near retirement and none of the scientists. These rather immobile artists moved locally to the outskirts of their domains mainly inside larger peripheries (Lapland) and also in peripheries inside a centre (Berlin). For example, three studied artists living in Berlin had entered the centre when they were younger. However, they failed to continue as productive creative artists for various reasons, such as dedicating time to their children and families. Although they continued to live in Berlin, a broader centre for the arts, they disconnected from the art life of the centre and created art only occasionally. In general, their productivity was low (4) or medium (3), and their outcomes were not recognized internationally. Due to the international character of our sample of scientists, none of them performed local (im)mobility practices, although it is regular among many stabilized academic staff members.

The relevant creativity-related mobility practices between a centre and a periphery (large circles) are presented in Figure 1. It shows also detailed strategies how artists and scientists apply core and edge through creativity-related mobility between centre and periphery. Each creativity-related mobility strategy and practice of artists and scientists widens the realm of centres and peripheries. In our sample, the artists implemented more diverse mobility strategies and practices in comparison to scientists. The artistic career is often more entrepreneurial as the more institutionalized scientific career.

Figure 1. Mobility strategies and practices by artists (left) and scientists (right).

Artists: many different mobility practices between centres and peripheries

The key strategy of the artists performing the *home-based visiting practice* was to combine edge and periphery in their home base, and move their art temporarily to a centre and its core to gain acknowledgement and to challenge the mainstream of the centre. An illustrative example is a group of Lapland artists with their unique topics of Lapland's culture and nature. They turned their experienced smaller, everyday topics into broader societal issues, from local forest to global climate change and from local indigenous life to immigration and depopulation in Lapland. Combined with the personal styles of these internationally awarded artists, the topics brought novel perspectives to the centre. They performed at the edge of their domains and pushed the mainstream forward, thus gradually creating a core. These artists needed to live in periphery to be creative because the closeness to their artwork topic sustained their creativity processes. To overcome the disadvantages of their location, they used the Internet, for example, to reach audiences and to sell their artwork.

A tranquil periphery allows for focused work and rebellious approaches (Joyeux-Prunel 2014: 5). In a periphery free of fierce competition, one has more opportunities to start and fail. To gain deeper insight on their artwork themes, the artists took regular "field trips"; however, those trips were most often taken to peripheral places and not the centre. One artist had moved during his career mainly from one peripheral Arctic location to another. Another artist had a former boss who was a globally acknowledged artist of the domain in the centre. This artist was able to create her own style only after moving from the centre to a periphery. However, the connection to the centre was important for these artists. They used residencies and art

exhibitions, and they participated in competitions abroad regularly. Most preferred to visit the centres personally with their artwork objects to reach all potential new customers.

The strategy of the artists performing a *transnational circulating practice* was to create art that is unique and exotic. It is not rooted in any recognizable location, but it is circulating between the centre and the periphery. These artists sought key cities with a vivid art scene and important organisations of their domains. For instance, Berlin is an exciting metropolis having (at least) "two of everything", in and out of the former wall. Long-term positions in Berlin represented the core for these artists: acting and singing in traditional plays and shows for a wide audience and slightly taking forward the play, character, or music.

However, there were also five artists without a solid long-term contact. Instead, they took advantage of the low living costs in Berlin and the support from the Finnish funding system (Hirvi 2015). They attached into an edge that challenged the common strategies of being an artist in Berlin. In the beginning, they established a long-term central position (or place of living and working for these five artists), and then they started or continued their temporary transnational circulating practice to an audience in a periphery. In particular, they visited its core with the key galleries, museums, shows, and events that pushed forward the current mainstream domain art. For the artists in an edge position, the periphery had a unique natural and cultural atmosphere that facilitated to develop or present creative outcomes in a novel setting. For example, the beauty of live music was realized in unique places experiencing "a whole another meaning through […] environment". The practice took advantage of the distance between the source of creativity and the audience. For instance, Berlin "inspires" and "stimulates thought" of the Finnish artists based there. It was possible to create art in Berlin that was considered attractive

and took the art domain forward in Finland by keeping a fruitful distance from their Finnish audience, whom they regularly visited (Hirvi 2015).

The strategy of the artists performing *local (im)mobility practice* was either to live a peaceful life with a modest income in an enjoyable social and natural environment (Bennett et al. 2015), or to create an alternative, rebelling practice of art. Most studied artists run companies to sell their artwork. One internationally recognized Lapland artist decided to choose a good life in Lapland. She created unique products that were sold exclusively in her store in the middle of a national park in Lapland. She refused to widen her business or to employ staff to produce several pieces of one product. Now her work is more demanded than she has time to create. Outside such success stories, the challenge for most artists is to reach novelty and value for creativity that is rather personal (Root-Bernstein and Root-Bernstein 2004). The resulting outcomes are not considered creative or novel in the domain, which is why they do not represent core or edge. Rather, their (im)mobility strategies include forming small centres in peripheries and living in peripheries of centres. Examples include persistent mimicking of a topic or technique that is uncertain in Lapland's winter conditions, and locally inspired artwork that is labelled "kitsch" in the centre. The Berlin-based artists near retirement work "when feel like it" but do not reflect their outcomes into the domain centre anymore. The Lapland artists have become commercially successful in local periphery and have built small centres there with buildings, equipment, events, and networks, and can employ (temporary) personnel to support their activities. As long as a good life in the periphery is possible, the opinion of the domain is ignored:

> Someone might say it's Lapland-kitsch. So what? We are different from others, people remember us, and this makes us do business like hell. (Lapland artist)

Scientists: focused mobility practices between centres and peripheries

The strategy of the scientists performing the *home-based visiting practice* was to move themselves temporarily or their publications permanently to a centre and its core, combining core and periphery as a home base. For many scientists in our sample, the home-based visiting was practiced in their early careers to climb in their institutionalised career ladder. This was common for those who were not yet qualified enough to establish a long-term position in a centre. In addition, some aspired to a bohemian or family-oriented lifestyle outside the hectic centre (Borén and Young 2013; Bennett et al. 2015). Their option was to continue to live in a periphery and to establish a core there by building a strong collaboration with a core in a centre. For this, they needed to perform temporary mobility by attending conferences, visiting research organisations, and conducting field research for empirical data.

Science and technology often require special expensive equipment and laboratories. These are usually found in centres, where the mainstream paradigms are created, and in the cores, where they are pushed forward. Moreover, key scientific conferences are most often held in the centres with good logistic connections and accommodation capacity. Therefore, visiting centres benefitted the scientific creativity processes as scientists learned to use the advanced laboratory equipment, built key collaborations, and enjoyed instant feedback from established scientists of the centre.

The scientists performing the *transnational circulating practice* had been able to establish a position in a centre. In fact, most were affiliated with two universities—one in a centre and another in a periphery. Within this mobility practice, two strategies were conducted. The first aimed to build a core into a periphery. This would support the science that is conducted in the core of a centre by being able to widen the resources, spread the research topics and

methods of the initial core, and gain more references. This was the idea of the FiDiPro projects in which the foreign star visiting professor moved from the core of a centre to a peripheral university in Finland. Such opportunity was motivated because the professor could harness the unused resources in a periphery to support and widen his earlier long-built research group that was located in the core of a centre. One FiDiPro professor described how his researchers in a peripheral university were first shocked by his requirements regarding the large amount and high quality of work. Eventually, they learned the high standards that they had not been used to perform while in a periphery. Learning these standards was important for the peripheral scientists involved in the FiDiPro projects, but they also appreciated novel research topics gained through the visiting professor. For the FiDiPro professors, besides additional resources, the stays in Finland allowed a temporal escape from their administrative duties to focus on research: "It's like heaven [*periphery*] and hell [*centre*]". One successful FiDiPro project transformed an earlier peripheral university in Finland into a core, a key domain hub for training international PhD students.

The second strategy for transnational circulating practice among scientists was to combine edge and centre, as well as edge and periphery. These scientists regularly visited the empirical source of their creative outcomes: This was the field in the periphery. For example, several professors affiliated with UNIS in Svalbard spent 10–20% of their working time in a remote and peripheral location in their academic domain each year. Nevertheless, they emphasised the possibilities of collecting rare data in Svalbard due to its "unique field work opportunities", "location under the dayside aurora", the "northern lights" and "access to field sites and facilities". Such circulating practices challenged the existing paradigms and took them forward by focusing on topics "where data are scarce, and paradigms are built on a few

observations". Most merits of such novel findings went to the centres outside UNIS and Svalbard, where their fieldwork data was analysed and reported. The key articles were affiliated first to the centre and second to the UNIS, a local and more peripheral university site in Svalbard.

Discussion: towards a creativity-related mobility framework

We suggest that the world of creativity being divided into centre and periphery is too simplistic. The analysis of creativity-related mobilities along the careers of artists and scientists diversifies the simple rigidity. Such mobility is not only to visit something somewhere but to push the mainstream paradigms further or to seek alternatives for them. Through the creativity-related mobility practices emerged cores that foster the centre's creativity and edges that challenge the mainstream of the centre. The creativity-related mobility is also the key to advance one's career in art and science.

As a result of the analysis, we illustrate the creativity-related mobility (CREMOB) framework (Figure 2). The framework starts with a domain-specific centre and periphery (Figure 2, two large circles). In science, for example, there are central geographical locations such as Harvard and MIT in North America and Oxford and Cambridge in Europe (ARWU 2015). The geography of such locations is less precise in the arts but includes global cities such as New York, London, and Paris, which are famous for their prestigious art galleries, museums, and institutions. In specific art domains, there also are other important locations such as St. Petersburg for ballet. In general, artists are attracted to locations with vibrant art scenes in which it is possible to find the necessary spaces and organisations to support creativity (Drake, 2003). A greater density of institutions increases the diversity and variety of services and cultural arrays

(Hall 1998; Törnqvist 2004, pp. 230–231). Peripheries, in turn, are outside centres: at their outskirts (Bain 2013), in a countryside, in less-performing cities and towns, or in an isolated location such as Svalbard (Gibson 2012).

Figure 2. CREMOB framework.

When looking inside these centres and peripheries, the complexity increases. Our analysis shows that artists and scientists usually leave and enter centres and peripheries with a particular aim. Their goal may be to challenge the mainstream (thus, form an edge) or to take the mainstream forward (thus, form a core). This means, for example, that a visiting scientist from Finland does not simply enter the MIT in Boston (centre), but a particular forward-moving research group of the domain there (core). In the everyday work, the scientist seeks to engage in discussions and learn practices that, after returning to a periphery, will help to establish a core there. However, we also recognized peripheries inside centres and centres inside peripheries. There, scientists and artists withdraw to the outskirts of their domains and just focus on a good life outside competition and novelty. In such places, domains fall behind the state-of-the-art in science and art.

Our analysis demonstrates the benefits of peripheries for creative processes. Their domain-specific details are visible through the CREMOB framework. An important location is a *core-in-periphery* that allows temporal disconnection from the dominance and rush of impulses of the centre (Hracs 2009; Hautala 2015). There are slack times and space for self-reflection, focus, and failure that need not be reported to the traditional centre. Furthermore, an artist or scientist in a periphery can support critical and rebellious ideas that challenge the mainstream of the centres in art and science. Some find the unique atmosphere in a periphery as fruitful in

regards to bringing novelty instead of the mainstream, thus developing an *edge-in-periphery*. For example, artists in Lapland and scientists in Svalbard, all of whom, according to the academic literature, conduct their creative practices in peripheral places, transformed their locations into edges challenging the mainstream paradigms in their domains. In addition, in peripheries also are gradually emerging centres that connect to the traditional centres in science and art.

Conclusions

This study contributes to the current creativity-related research by addressing creativity-related mobilities in a processual way along the career of creative artists and scientists. We also blur the rigid and fixed division between the centre and periphery in creativity processes and show how centre and periphery in art and science are relational with particular topographies and topologies. First, the creativity mobility (CREMOB) framework demonstrates how the creativity settings and domains are dynamic and supported by the creativity-related mobilities of artists and scientists. Instead of a world divided into centres and peripheries, there also emerges cores in which the centre paradigms are pushed further, and edges provide an alternative and challenge such paradigms (see Figure 1). The novel perspectives emerge also in peripheral settings. For example, artists or scientists in a periphery are sometimes attractive to the centre due to their unique data, unused resources, or different viewpoints. We support the emerging—yet still thin—discussion that considers periphery as a possibility and asset for creativity and novel knowledge (Gibson 2012; Bain 2013; Rodriguez-Pose and Fitjar, 2013; Glückler 2014; Hautala 2015).

Second, for the studied artists and scientists located in periphery, the creation of high-quality research and art was realized through three mobility practices: the home-based visiting

practice of early-career artists and scientists, the transnational circulating practice of mid-career artists and scientists, and the local (im)mobility practice of late-career artists. In our sample, locally (im)mobile scientists were missing because our sample focused on internationally oriented scholars. The studied 61 artists and scientists is a small sample. Nevertheless, it is important to broaden the focus from the Nobel Prize winners and other rare star artists and scientists who have most frequently been analysed in earlier research (Törnqvist 2004; Miller 2014), as well as their scientific research results and artwork travel. The individuals in our sample did not aim for the top-ranked centres, and they did not originate from the furthest peripheries. This is the case with the majority of professionals globally. In addition, to understand the process and impact of creativity-related mobilities, it is important to study them throughout their careers.

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