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## **Mobile Networked Creativity:**

### **Developing a theoretical framework for understanding creativity as survival**

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#### **Abstract**

Mobile networked creativity is an emergent practice that arises from the ongoing relationships among people and people with technologies—or networked resources. In this paper, we propose a concept of creativity as emerging from networked connections, (im)mobility, and situations of hardship. We focus on how unplanned or emergent uses of digital technologies reveal how creative practices emerge, particularly in the context of mobile technology use where people are physically mobile and yet connected via the internet. We define the concept of creativity as a constant process of becoming, a “recursive organization” that can be seen in groups such as migrants, or people living in disenfranchised communities that survive in make-shift locations such as refugee camps or slums. Contrary to the affluent and capitalistic-embedded traditional ideas of creativity, mobile networked creativity is a practice that is found mostly in situations of economic hardship, power imbalances, and (im)mobilities.

Creativity is a “hot” topic nowadays. An increasing number of trade publications aim at teaching people “how to be more creative,” or how to come up with more innovative ideas. Often embedded into capitalist forms of production and consumption, creativity is used as a catch all word for enticing people to work harder, beat competition, and be successful in the workplace. Several companies, such as Google, institutionalize “innovation time” as a way to support employees’ creativity—for the benefit and profit of the company (Steiber & Alänge, 2013). As such, creativity is frequently conflated with innovation as the spread of new ideas. Innovation, however, comes out of the belief that individuals can be coaxed into being creative (Anderson, Potočnik, & Zhou, 2014). Although some have conceived creativity as an innate and individualistic process that begets innovation (Amabile, 1996; Brass, 1995; Brennan & Dooley, 2005; Paulus, 2002; Perry-Smith & Shalley, 2003), we follow those who define creativity as a networked and social action (Jenkins, 2006; Johnson, 2010). However, in addition, we highlight the types of creativity that emerge when people are in movement and have access to mobile technology devices, but are simultaneously deprived of proper access to networked resources and high-mobility (Cresswell, 2010).

From corporate innovation, technological development, and artistic creation—creativity is frequently associated with novel or “good ideas,” that are achieved by intense personal reflection, concentration, and contemplation. Classical examples are Newton looking at a falling apple, Archimedes having his personal “eureka” moment in the bathtub, or Leonardo Da Vinci painting the Mona Lisa quietly in his studio. These accounts focus on individual acts, rather than access to communication and networked relationships among people, conjunctures, and technologies (Isaacson, 2014). Likewise, Bilton (2006) argues that creativity is not about spontaneous discovery or inspiration; rather, it is about conscious self-management. However, as

Johnson argues, “good ideas” have a long incubation period and require the connection of several minds, as is the case with the history of the World Wide Web that involved several years of development and many people working together. Similarly, the so-called web 2.0, has been extensively studied as a place where information and knowledge production is the outcome of the collective participation or “producers” (Bakardjieva & Gaden, 2012; Benkler, 2006; Bruns, 2008).

As such, technology and media historians alike have considered creativity as a collective and networked practice that develops over time (Abbate, 2000; Hafner & Lyon, 1998; Isaacson, 2014). However, in these accounts, creativity is mostly associated with technological innovation, which is related to consumerist and capitalist practices, and affluent communities in which people have the time (and money) to be creative and to “participate” (Jenkins, Purushotma, Weigel, Clinton, & Robinson, 2009). To challenge this, we suggest that creative practices also emerge in situations of hardship, of displacement and emplacement, at “the borders” of society, where people do not have the resources (materials, time, or money) to be recognized as creative. For example, Masciaac (2015), reporting from the Azraq Refugee Camp in Jordan, describes how *displaced* refugees have taken apart solar cells and rewired them with other cells and spare parts to construct rooftop solar panels in the absence of infrastructure for electricity. Likewise, de Souza e Silva et al. (2011) has described how *emplaced* slum-dwellers in Rio de Janeiro (Brazil) make “gatos” (cats), which are clandestine connections to the city’s utility services in order to get the services for free. Since slums were mostly built illegally on the hills of the city, the government did not feel responsible for providing them with basic services. These practices, however, have not been named creative. They are deemed illegal or subversive, and have frequently been described in the communication literature as appropriation (Bar, Weber, &

Pisani, 2016; de Souza e Silva et al., 2011), or misuse (Farman, 2014). Creativity, then, has not been conceptualized as an aspect of mobile communication and *as the process of networked minds and technologies collaborating for survival*. When slum-dwellers in Brazil or Syrian refugees in make-shift locations repurpose technology to improve their environments, they are not only appropriating technology: they are collectively *creating* culturally appropriate technologies. And they are also re-inventing themselves.

In this paper, we contribute to communication theory by proposing the original concept of “mobile networked creativity” as an emergent practice that arises from the ongoing relationships among people and people with technologies, when they are volatile, vulnerable, and mobile, that is, when they are in situations of economic hardship and have difficult access to mobile technologies. Unlike traditional conceptualizations of creativity, which is normally focused on a novel outcome (an object or an idea), mobile networked creativity is in a constant process of becoming (Deleuze & Guattari, 1987), and has no *a-priori* defined output. In addition, it is a relational practice that is heavily dependent on the mobilities, immobilities, and moorings (Hannam, Sheller, & Urry, 2006) of the communities involved in the creative practice. An emphasis on mobilities, however, does not necessarily mean being in constant movement. It means acknowledging the political and power relationships that make people move or stop moving (Cresswell, 2010). In addition, it is well known today that most of the world’s population, especially in the Global South, access the internet via mobile devices (Donner, 2015). Therefore, the “mobile” in our concept also emphasizes that these practices develop because people are in a symbiotic relationship with mobile communication technologies—which are often people’s instrument for information access, social networking, and survival. Therefore, our main contribution is the focus on how emergent relationships with mobile technologies lead

to creative practices, particularly in situations in which people are displaced/emplaced and also connected via mobile communication technologies (de Souza e Silva, 2006). Mobile networked creativity can be observed in such groups as migrant users or people living in disenfranchised communities that survive in make-shift locations such as refugee camps or slums that are organized in relation to available resources. We consider the examples of refugees (displaced) and those marginalized from urban planning (emplaced). In this manner, those emplaced are displaced members of their own places of belonging (Ahmed, Castañeda, Fortier, & Sheller, 2003). As a result, mobile networked creativity is a practice that is found mostly in situations of economic hardship, power imbalances, and (im)mobilities where access to mobile communication technologies is critical for survival. In conceptualizing mobile networked creativity, we make a unique contribution to the literature in communication theory, in general, and mobilities and mobile communication studies in particular, by focusing on the practices and environments of populations in situations of hardship, who struggle to survive, and who have a different relationship to technology than those communities studied in the so-called Global North. In sum, our concept, on the one hand, is useful to reframe appropriation and adoption as a creative practice, and on the other hand, to reframe creativity as a social, networked, and survival practice.

To develop the concept of mobile networked creativity, we first address how creativity has been traditionally defined in the interdisciplinary field of creativity studies, which includes management, psychology, education, and art, among others. We particularly focus on how these studies have historically defined creativity as an artistic practice, a cognitive process, and a novel idea. We argue that this limited definition of creativity has created an “artistic bias,” that severely impacted how creativity has been understood not only in scholarly circles, but also in

popular knowledge. We then analyze the theoretical frameworks used specifically within communication studies to understand the relationship between people and technology use, such as diffusion, adoption, and appropriation. Although these studies do not talk about “creativity” per se, they do attempt to analyze the different relationships people have with technology. Finally, based on examples of creative mobile practices under situations of displacement and emplacement, we propose our concept of creativity as spatial (it takes place in hybrid spaces), networked (arising from networked interactions among people, and people with technologies), and mobile (where the mobility and immobility of people are mediated by mobile technologies). At very last, we conceptualize mobile networked creativity as a strategy for survival of the displaced and emplaced.

### **The many faces of creativity**

Creativity is explored in many disciplines, such as education, business, psychology, art, and communication, under the common umbrella of “creativity studies” (Long, 2014). Within this interdisciplinary field, those in psychology focus on internal determinants of creativity such as genetics or personality traits, suggesting creativity is something innate that manifests itself (Amabile, 1996). Those in management focus on creativity as strategies to improve marketing campaigns for existing products, suggesting creativity is something yet to be done (Andrews & Smith, 1996). The majority of existing studies on creativity, however, fall into three main trends: those that focus on creativity as an artistic practice, as a cognitive process, and/or as a novel idea. We review these trends, which frequently overlap, to show that these characteristics of creativity have had a “domino effect” on how we perceive creativity today, habitually preventing us from acknowledging other forms of “creative” practices that lie outside of these domains.

*Creativity as Artistic Practice*

Creativity is viewed as a necessarily element of artistic practice. Artists are “supposed to be” creative. Prominent creativity scholars agree that creativity has been related to artistic practices both in the lay and in its theoretical conceptualization (Glăveanu, 2014; Runco, 2007; Wreen, 2015). As an artistic practice, creativity is typically viewed as an a product of the (individual) imagination intended to express original ideas, as “a reflective and inexplicit gift from some other world with a transcendental quality such as power to perceive [and produce] sounds, colors, and other imagined worlds” (Gahan, Minahan, & Glow, 2007, p. 43). This idea of creativity was first documented in 1875 to describe Shakespeare’s work (Weiner, 2000). Following this, trends in creativity studies focused on visual, musical, and literary artists and the aspects of their work or characteristics.

This traditional idea, however, has been criticized. Creativity scholars argue that this widespread idea that equates creativity with artistic practices, or innate talents, overlooks non-artistic practices, ignores the power dynamics at play, and ignores the fact that some creative ideas are evil or not always good (Glăveanu et al., 2019; Runco, 2007). For example, Sternberg (2018) explains that terrorists and hackers are also creative. Likewise, the displaced and emplaced communities in our examples, which we will address later, demonstrate that creativity is also not individual and/or novel, but emerges from networked connections, situations of power imbalances, and unplanned practices. However, still, for lay audiences, it’s easier to recognize when an artist is “creative” than when an engineer—or a refugee—is “creative.”

*Creativity as a cognitive process*

As demonstrated above, creativity as an artistic practice has been associated with the cognitive process of an individual mind in deep state of reflection. Studies that focus on this view of creativity examine the characteristic of creative individuals to determine if there were particular traits or genetics that influenced their cognitive process (Amabile, 1996; Shalley, Zhou, & Oldham, 2004). Most of these studies focused on memory, attention, knowledge, divergent thinking and used metrics such as IQ tests to identify creative individuals or the Creative Achievement Scale to exact the degrees of creativeness (Runco & Richards, 1997).

More recently, creativity has been expanded to include the cognitive process of not only individuals, but groups of people. For example, the Internet, computers and the world wide web have developed as a product of creative minds working together (Abbate, 2000; Hafner & Lyon, 1998; Isaacson, 2014; Johnson, 2010). And, as Isaacson (2014) points out, “the protocols of the Internet were devised by peer collaboration, and the resulting system seemed to have embedded in its genetic code a propensity to facilitate such collaboration (p. 4). Hence, the so-called web 2.0 has been extensively studied as a place where information and knowledge production is the outcome of the collective participation of users—who Bruns (2008) renamed as “producers” (Bakardjieva & Gaden, 2012; Benkler, 2006; Bruns, 2008). Jenkins, also, coined the term “convergence culture” to describe the types of knowledge that are created when people’s minds from different geographic locations converge via networked digital technologies. Although not explicitly naming it creativity, the production of knowledge and information by networked minds working together via the internet or mobile technologies has also been named collective intelligence (Lévy, 1997) and smart mobs (Rheingold, 2002; Saveri, Rheingold, & Vian, 2008),

As Johnson argues, “good ideas” have a long incubation period, as is the case with the history of the World Wide Web. Tim Berners Lee, Johnson states, worked on the web as a side



project at CERN for over ten years. Likewise, Abbate (2000) demonstrates how the Internet took over 30 years to develop since the post-WWII context. Technology and media historians have considered creativity as a collective and networked practice that develops over time. However, in these accounts, the creative process is mostly associated with technological innovation and the production of knowledge/information. Our idea of mobile networked creativity, however, includes situations in which (1) creativity is not geared toward innovation, and (2) creativity is not intended to produce something, although sometimes something is produced as a byproduct. In addition, instead of analyzing how people *use* technologies to be creative, mobile networked creativity considers people and technologies as part of the same creative networked process, which exemplifies more of a “cyborgian” relationship with technology.

### *Creativity as Innovation*

Creativity and innovation are intrinsically related, and the two terms get conflated (Anderson et al., 2014), despite being different. Innovation refers to the belief that individuals without innate talents can be coaxed into being creative. This can be seen primarily in the effort to foster creativity in the workplace. In management studies, scholars defined creativity as the development of ideas about products, practices, services or procedures that are novel and potentially useful to the organization (Amabile, 1996; Mumford & Gustafson, 1988; Shalley et al., 2004). Conversely, creative practices have been traditionally related to an “absolute true novelty,” while innovation is concerned with the diffusion, or the communication, of ideas that are “relatively novel” (Anderson, Dreu, & Nijstad, 2004). Relatively novel ideas (innovations) are adopted and adapted from creative ideas. But in this view, scholars failed to see that what is adapted is no longer the same as what it was adapted from.

A false order is then established. Scholars conceptualize creativity as a necessary first step for subsequent innovation, while innovation is considered applied creativity (Amabile, 1996; Brass, 1995; Brennan & Dooley, 2005; Paulus, 2002; Perry-Smith & Shalley, 2003). This means that although employees share ideas or develop products and resources with others, the phenomenon is not considered creative until it can be successfully implemented at the organizational level (Amabile, 1996; Anderson et al., 2014). UPS, for example, developed a navigation software to “route its vehicles in such a way that left-hand turns are avoided, thus reducing time spent waiting at intersections for an opportunity to turn across on-coming traffic, UPS has reportedly saved millions of dollars of fuel” (Cropley & Cropley, 2010, p. 305). This was a creative idea because it was adopted and innovated by others. However, others scholars have argued for the reverse relationship between creativity and innovation by locating creativity as the result of innovative resources in people’s social network (Brass, 1995; Brennan & Dooley, 2005; Paulus, 2002). This interchange and interplay between creativity and innovation informs our understanding of creativity to also include the adoption and adaption of ideas, which can be seen in the literature on mobile communication and adoption studies, which we address later.

This juxtaposition helped others to consider creativity as a recursive re-organization and networked process that makes use of available resources (Brass, 1995; Degele, 1997; Kelly, 2010; Leenders, van Engelen, & Kratzer, 2003). More importantly, this debunks the idea that to be creative a person has to do it alone or come up with something absolutely novel or original. We build on this idea to understand creativity as a recursive process that is constituted in the lived conditions and the persons involved. The interplay between creativity and innovation demonstrates that access to resources through mobility shapes creativity by increasing the potential for accessing diverse networks of resources. Moving outside of creativity studies, it is

in the field of communication studies, the recursive relationship between technologies and their uses has been more deeply explored.

### **The communicative frameworks of creativity**

In communication and specifically mobile communication, discussions about creativity are normally related to technology diffusion (Rogers, 1962), adoption (Dourish, 2003; Isaac, Leclercq, & Besseyre des Horts, 2006; Wirth, Von Pape, & Karnowski, 2008), and appropriation (Aricat & Ling, 2018; Bar et al., 2016; de Souza e Silva et al., 2011). Diffusion studies focus on users' initial decisions to engage with emerging technologies (Isaac et al., 2006) and are the predecessor to the more recent studies of appropriation (Bar et al., 2016) that focus on use as a social process. The idea of mobile networked creativity builds on this literature, but also challenges it as we will discuss in the next section.

We maintain that diffusion, adoption, and appropriation of ideas and technologies are all part of the creative process; however, these processes have not always been named “creative.” For example, initial diffusion studies examined how ideas or use of new technology have spread (Rogers, 1962). Just like in creativity studies, adoption of innovations was first analyzed at the individual level, via models such as the Theory of Diffusion of Innovations (TDI) and the Technology Acceptance Model (TAM). These initial studies explored how creativity was communicated through the diffusion of technologies in society. TDI was used to understand the adoption of information communication technologies (ICTs) within organizations. This model was designed to explain the process of technological diffusion and adoption over time (Rogers, 1962). Meanwhile, TAM was developed to understand people's perceptions about adopting ICTs within organizations. This model tried to identify predictors of adoption and diffusion (Davis,

1989). However, these models did not extend to dynamic group settings outside of organizations. Besides, they assumed that adoption is a top-down or linear process (Isaac et al., 2006). As a result, TDI has been partnered with the Theory of Planned Behavior (TPB) and the Unified Theory of Acceptance (UTA) to account for the external and internal factors that influence individuals' behaviors and to explain the variances in adoption (Ajzen, 1985; Venkatesh, Morris, Davis, & Davis, 2003). Yet, TDI and TAM's micro-level approaches, which focused on individuals, were not enough to understand adoption within varying social contexts that include, for example, mobile technology use (Isaac et al., 2006). These approaches overlook issues of power associated with access to infrastructures, devices, and literacies necessary for individuals to make choices to adopt technologies.

In mobile communication, specifically, appropriation models shift focus from individuals to social groups and, therefore, speak more closely to our concept of mobile networked creativity. Studies such as the integrative model of Mobile Phone Appropriation (MPA) are among one of the first to attempt to define appropriation by distinguishing patterns of use. As an integrative approach, MPA tries to account for social relations that might directly relate to individual decisions about use. Wirth et al. introduce a model that predicts future behaviors based on past behaviors. Indicating that new mobile phones usages or patterned uses are context dependent, learned from others, and depends on knowledge about alternative uses.

In an earlier study, Bar et al. (2007) distinguish three phases of the appropriation process: diffusion, adoption and appropriation. Diffusion studies try to understand how technologies spread into societies. Adoption involves the use of technology as envisioned by designers. And appropriation includes users' experiments with technology. These phases are similar to how creativity scholars have conceptualized the process of creativity and how communication

scholars have considered the diffusion and adoption processes. Particularly useful to our conceptualization of mobile networked creativity, Bar et al. (2016) define appropriation as “the process through which technology users go beyond mere adoption to make technology their own and embed it within their social, economic, and political practices” (p. 617). Appropriation is a political process and a negotiation of power and control over the configuration of technology use and diffusion (Bar et al., 2016; de Souza e Silva et al., 2011). Importantly, Bar et al. (2016) take into consideration the power dynamics and political processes that are part of—and propel—the development of appropriation practices.

Building on the political aspects of this work, de Souza e Silva et al. (2011) investigate mobile phone appropriation in the *favelas* of Rio de Janeiro where high- and low-income populations interact to bring about unique uses of mobile media. This study finds that mobile media practices and appropriation reflect and are constituted by social and material conditions. For example, *diretões*, illegally obtained phones with a special SIM card, allowed drug traffickers to call anywhere in the world for free for ten minutes. de Souza e Silva et al. (2011) conclude that appropriation is a political process of reconfiguring the technological system of mobile phones in relation to local cultures and conditions. In a later study, de Souza e Silva et al. (2017) conceptualize mobile phone appropriation as a creative and networked process. In situations where artists lack access to technologies, they make up for it through collaborations. This is similar to Kelly’s (2010) account of the Amish Hackers wherein Amish users will find creative ways to gain access to technologies without having to own the technologies themselves. These examples illustrate a mobile network of creative users who are embedded into relationships with technology as an aspect of their politics and creativity.

Moreover, the literature suggests that creativity is configured through access to networked resources and technologies, specifically mobile technologies. As Keightley and Reading (2014) argue, through mobile technologies, communication happens “on the fly and is decreasingly defined by fixed or determined spatial boundaries” (p. 287). As such, people’s experience of mobility is mediated by different types of mobile media, which has been named in mobilities studies “mediated mobilities” or “mobile medialities” (Keightley & Reading, 2014; Sheller, 2013). Mediated mobilities becomes especially beneficial for understanding creative practices among displaced and emplaced communities who are truly bound by their physical environments. Displaced migrants generally have been able to maintain connectivity on-the-go, sharing ideas and using social media through their mobile devices (Diminescu, 2008; Pellegrino, 2013). Or, emplaced low-income communities have been able to apply for jobs using their phones (Donner, Gitau, & Marsden, 2011) and run business via WhatsApp despite having limited access to high-speed internet and personal computers (Donner, 2004). These communities engage in the maintenance of network ties despite of (and because of) their lack of appropriate access to resources.

### **Defining Mobile Networked Creativity**

Mobile networked creativity emerges when we think of the creative cycle as emergent and ongoing, and where the relationship between people and technologies are symbiotic and co-constitutive. So, rather than focusing on users, we propose a networked context that is equally constituted by technologies, people, and their environment. We offer the concept of mobile networked creativity, a definition that applies to disenfranchised communities who are

networked via mobile technologies, highlighting the power and political issues that are both embedded in and propel creative practices.

As we have seen, although traditional definitions of creativity focused on creativity as a cognitive, artistic, and individual innovation practice, recent literature on creative practices has taken into consideration networked resources (Benkler, 2006; Brass, 1995; Johnson, 2010), infrastructures (Kelly, 2010); and communication (Leenders et al., 2003). However, these studies are not in conversation with each other. They also do not name creative practices as such. As a result, there is no comprehensive definition of creativity that takes into consideration the co-constitutive relationships between people and technologies in the context of their environment—in our case, situations of emplacement and displacement. In addition, recently, critical creativity scholars have argued,

The conceptual and methodological narrowness specific for much theorizing in this area makes the psychology of creativity largely incapable to answer calls for social transformation coming from different parts of the world, in particular from communities that experience colonialism and oppression (Glăveanu & Sierra, 2015).

Following this call, we define mobile networked creativity as a way to take into consideration creative practices “at the borders,” those that emerge from situations of hardship, and people who experience colonialism and oppression.

In conflating creativity, innovation, and appropriation, a confusing yet productive definition emerges that suggests creativity is not a linear process, because recursive organization is an ongoing process. Mobile phones, for example, are designed by developers to engender particular uses. Specific kinds of mobile users emerge based on the device design and functions (Aricat & Ling, 2018; Wirth et al., 2008). Precise locations for use, such as the domestic sphere

(Fortunati & Taipale, 2017), also emerge. Then, unintentional uses emerge that potentially alter the device altogether (Bar et al., 2016). Creativity, however, is not limited to individuals or events, or by the quality of the end product, an individual's intellect, or even add-value. Rather, creativity is a continuous process organized in relation to networked resources, as well as forms of mobility, immobility and moorings (Hannam et al., 2006). Creativity also needs to be analyzed in specific spatial arrangements, taking into consideration the mobilities and immobility of populations, and access to mobile technologies and networked resources, even when—and specially when—this access is precarious. We thus define mobile networked creativity as a spatial and networked process, emerging from social relationships as well as relationships between people and mobile technologies. Importantly, mobile networked creativity emerges from asymmetrical power relationships in situations of political hardship.

### *Creativity as spatial*

Location-based traffic apps like Moovit allow users to see the real-time location of a bus or train on their mobile phone screens. These apps are supposed to improve traffic flow and decrease users' wait time. However, they need a minimum infrastructure, such as buses equipped with GPS and maintenance. In Rio de Janeiro (Brazil), services like Moovit are notorious for not working properly. Buses' arrival times displayed on the app are often wrong and as a consequence the app is deemed useless. Additionally, bus companies sometimes reduce the number of bus lines circulating in the city or change buses routes without properly informing the population. This was the case with bus 581, a line that goes from Cosme Velho to Gávea, neighborhoods in the South Zone of Rio de Janeiro. Over the course of a few months in 2018/2019, a fleet of several buses was reduced to one line.<sup>1</sup> Consequently, passengers have



waited over an hour at the stops. At some point, in order to help passengers, the only remaining bus driver decided to create a WhatsApp group to broadcast to potential passengers the real time bus locations, departure, and arrival times. The group was not officially related to São Silvestre, the bus company, and did not use any kind of location-based service. Rather, location was transmitted by text, enabling mediated mobility (Keightley & Reading, 2014). The group grew by word of mouth; passengers talked to other passengers at the stops and to the bus driver.

The people in the WhatsApp Bus 581 community did not invent a new technology. But they were, in some respect, emplaced by the new WhatsApp group. Out of the difficulty in urban mobility and lack of public resources, they came up with a creative way to network, repurposing an existing mobile platform (WhatsApp) to replace an inexistent one (Moovit). Through re-organization, they adapted to the lack of proper public transport in their neighborhoods as well as to the issues of time. Similarly, Syrian migrants on route through Europe, exercise creativity to adapt and survive in unknown conditions. In the absence of a major new media outlet, Syrian migrants use mobile phones to communicate insider knowledge about routes, border closings, traffickers or “brokers,” the costs of rides, the availability of spaces on a particular vehicle, and the safety of particular zones (Frouws, Phillips, Hassan, & Twigt, 2016). Like the 581 bus riders, migrants require timely information about space. Official media outlets do not transmit the information that migrants need, nor do they really tend to the needs of migrants. Fittingly, Lukman Derky, a Syrian in France, organized Facebook posts and used GPS systems to broadcast information on missing vessels, to coordinate requests for help for followers in proximity to each other, and to illustrate migration routes (Frouws et al., 2016). The idea and effectiveness of this network increased as followers communicated about this resource.<sup>2</sup> This approach to information sharing allowed migrants from across vast distances and time zones to

arrive at a common understanding of the situation unfolding at sea. Accordingly, creative uses of mobile media applications such as Viber, WhatsApp, Facebook Messenger, and Skype along with GPS enabled or locative media have played a crucial role in assisting migrants with issues of spatial organization.

Mobile Networked Creativity takes place in hybrid spaces (de Souza e Silva, 2006) through the use of mobile technologies and applications. Sheller (2012) argues that mobile mediality unfolds in hybrid spaces, that is, a networked space that emerges across physical and digital domains from the social interactions of people connected via mobile technologies (de Souza e Silva, 2006). What might look like disjointed people and communities are actually held together through a series of networks and infrastructures enabled by people, technologies, and the natural world.<sup>3</sup> The creative process in both examples are supported by and emerges from an infrastructure composed by mobile phones, social media platforms such as WhatsApp and Facebook, cellular networks, city buses, borders, and also social actors—bus passengers, the bus driver, and migrants.<sup>4</sup> By looking beyond the individual and previous notions of creativity, we find that *creativity is essentially implicated as a networked spatial practice*.

The creative practice requires space as a medium for it to develop and further emerge and is therefore a type of mobile mediality, a new form of spatiality that is mediated by mobile technologies and supports creative practices (Sheller, 2016a). According to Sheller, mobile medialities “create the conditions for generative cultural and spatial practices that are transforming fundamental dimensions of contemporary urban culture and urban space” (p. 309). In the bus 581 example, the creativity of the bus driver + passengers is shaped by and emerges from the spatial and cultural environment of Rio de Janeiro, a large urban space marked by

massive traffic jams, heavy public transport use, a negligent municipal government, and solidarity among citizens.

### *Creativity as networked*

Mobile networked creativity can be a network of subversive acts and actors. In the above-mentioned example of the WhatsApp Bus 581 group, people were legally using a mobile platform in a creative way. But illegal uses are also common. Black markets for technology are not new in Brazil and other developing countries (de Souza e Silva et al., 2011; Ilahiane & Sherry, 2008). Stolen and pirate cell phones are frequently sold at the Uruguaiana market in Rio de Janeiro (de Souza e Silva, Damasceno, & Bueno, 2019). More recently, the popularity of location-based apps and electric scooters in large cities like Rio de Janeiro and São Paulo led to several types of black markets and subversive practices. Scooters, meant to be rented through the apps, are being increasingly sold in online platforms such as Facebook Marketplace. They are stolen from the streets and advertised online for as much as 250 USD. These scooters mostly no longer work as intended—rental location-based public transportation are turned into stand-alone private traditional scooters. Thieves disable the tracking system, and, in many cases, use the stolen scooter to steal cell phones in the South Zone of Rio (Guimarães, Leitão, & Soares, 2019). As Bar et. al. (2016) suggested, cannibalistic appropriation occurs when users appropriate the device and make it their own. But in this case, it is not just a class of users, it is a network including thieves, buyers, sellers, scooters and mobile devices that enable various combinations of creative appropriations. Multiple creativities occur simultaneously.

Mobile networked creativity is thus a social process that occurs not when people get networked *via* technologies, but *with* technologies. At the Zaatari Refugee Camp in Jordan,

estimated by the United Nations to be second largest refugee camp in the world, the roads in the camp are unpaved. Yet, reports indicates that over 1 in 5 refugees in Jordan are disabled, and walking is the number one disability (*Removing Barriers: The Path towards Inclusive Access*, 2018). To deal with the lack of mobility infrastructure, Safwan Harb, a disabled refugee, used spare parts to produce an “electronic wheelchair” that is part bicycle and part scooter (Copestake, 2016). Harb multiplies the idea of the “wheelchair” into the variation that it has become. The end product itself has large seat, headlights from a scooter, and three wheels for stability. Using a network of parts, Harb created his wheelchair with spare bicycle and scooter parts, then wired a 12-volt battery for power, and installed a hand-controlled brake system similar to one on a bicycle. It’s not quite clear if the origin of the idea is the bicycle or the wheelchair. Harb’s process and his “wheelchair” exemplify the networked process of creativity: Harb is not a user of his bike/scooter—he became also the product of the technology he invented and part of it; a Harb/bike/scooter. Harb’s creation can be replicated and essentially improve the mobility of disabled refugees at the camp. Harb’s wheelchair is not a completely original idea—it does not come out of nowhere—and it is not a final product—it will continue to become something else through constant re-organization: for instance, the 12-volt battery could be replaced by solar energy, which has been popular at the camp.

As such, the creative process unfolds as a network. Networks are spatial structures (de Souza e Silva & Frith, 2010). They connect elements (or nodes) across space in emergent processes that are in constant state of flux. In a network, it is impossible to isolate nodes, since each node influences each other and are constitutive of the connections (paths) that link them. Nodes are also not only people (Latour, 1996). In the initial example, nodes are the scooters, the cell phones, Facebook Marketplace, Rio de Janeiro streets, along with the urban and digital

infrastructures that support the network. The ongoing and emergent network (or creative process of the stolen scooters) is ignited by a series of related factors: the lack of public power in policing the streets, the lack of regulation online for selling stolen items, a large low-income class without economic power to purchase new technology, and a social acceptance of these clandestine connections. This network of technological and social relations is what facilitates creativity.

### *Creativity as mobile*

Our examples so far focus heavily on mobility—urban mobility, the mobility of networks, and mobile technologies. Mobility and mobile practices are at the core of how creative practices unfold. It is how people move through space to encounter new resources for re-organization. Mobility, thus, is an integral component of creative practices. However, as Hannan, Sheller and Urry (2006) point out, for some people to move, others need to stay still. In our case, the very lack of mobility—social, physical, and economic mobility—or forced mobility (in the case of refugees) is what facilitates creativity. For example, the *celular pai-de-santo*<sup>5</sup> (father of saints' cell phone), as it is called in Brazil, is a common practice in countries that have the calling-party-pays (CPP) policy for cell phones. According to this policy, customers who own pre-paid phones (which are the majority of the population, but mostly lower classes) do not need to have credits in their phone in order to receive calls. People own—and use—phones but their phones “just receive” calls, leading to the practice of “beeping” (Donner, 2005), where users without credits call another phone, but hang up before the other person picks up. This is not the way phones are intended to be used. But the alternative uses allow people to be part of the mobile society, although these users are deprived of the full benefits of membership. Their phones cannot call,

and they cannot use the internet or receive data—except when using free wi-fi—and will not have the same access to information of someone with a full subscription that includes unlimited data. A Pokémon Go player in Rio told us that she stopped playing for many months because her phone did not have any credits. Not playing Pokémon Go might not have as harsh social and political consequences, but it comes with broader implications: it represents a segment of people who are counted as being mobile users, but in fact lack the ability to “move” properly, that is, they lack mediated mobilities (Keightley & Reading, 2014). These people cannot communicate with the same speed and easiness and are, therefore, emplaced or immobile within their communities. As a result, people get creative to access mobile technologies, but still will have a different kind of access.

Refugees and migrants deal with issues of mobility as a result of politics and lack of access to proper infrastructure. Realizing that mobile phones serve as a powerful resource for migrants, governments such as those of Germany and Denmark are using smartphone data as a method of asylum-evaluation decisions, surveillance, and deportations (Meaker, 2018). But migrants have found creative ways to “digitally hide themselves.” Some keep up to thirteen different SIM cards hidden on various parts of their body during travel. Similarly, other countries such as Bangladesh have placed SIM card bans for non-citizens in efforts to target (Rohingya) refugee populations (Aggarwal, 2017). The government demands identity cards for the purchase of SIM cards and fines phone companies for not following this ordinance. As the Rohingya find ways to coordinate about migration, governments are finding ways to prohibit their uses and in turn their mobility and mediated mobilities. For refugees, mobility is crucial for survival, thus, to survive, mobility unfolds creativity.

Here we compared two situations of emplacement and displacement, which are the result of uneven mobilities (Sheller, 2016b). The first example refers to emplaced slum-dwellers, who are defined by lacking mobility—they are not part of the “global elites” (Castells, 2000). Slums in Brazil were originally created by migrants from the Northeast of the country, who came to the South in search for better jobs. They occupied the hills in the city, areas with no land ownership, and in doing so, were displaced by excellence. But then they became emplaced in those areas because economic hardships make it hard for them to move somewhere else. On the other end of the spectrum, we have forced migrants, displaced populations who are in constant movement. All of them do not have proper access to mobile infrastructures but need them to survive and network.

### **Conclusion: Mobile Networked Creativity as a politics of survival**

As we have demonstrated, mobile networked creativity is spatial, networked, and mobile. The examples from emplaced and displaced populations, including slum-dweller, refugees, and migrants demonstrate how creativity occurs and is practiced to prevent such an amputation from society. It is the very reality of being socially invisible or excluded from the network society (Castells, 2000) that drives creativity. Creativity as a spatial, networked, and mobile force pushes these practices forward. Migrants and refugees are constantly moving. They are the nomads per excellence (Deleuze & Guattari, 1987), but they are also constantly prevented from moving. This friction becomes then an essential part of the creative process. Similarly, slum dwellers in Rio are socially invisible, with very little possibility of social and physical mobility. But their creative practices help them transcend their contiguous space. Thus, creativity emerges from systems of power struggles and friction against normative forces.

Mobile networked creativity can be applied to many different situations in which creative practices emerge as a product of a networked sociotechnical process that develops around people and mobile technologies in situations of hardship. Our examples demonstrate that networked resources accessed through mobile technologies facilitate the creative process and, moreover, that mobility, which affords access to diverse resources and other networks, is what makes creativity situationally unique. Thus, mobility and networks are sources and reasons for creativity. We conclude that creativity includes the adoption and adaption of ideas that promote and/or sustains a community's survival. The creativity of displaced and emplaced communities such as those of refugees and slum-dwellers have shown what it takes to survive within a system. Sometimes it requires working with tools that are not necessarily designed for their survival or use, and sometimes it requires adapting tools and designs that are appropriate for their survival. We suggest that the disenfranchised have the power to engage in creativity, and that displaced and emplaced communities survive and engage in community advocacy and care as a result of mobile networked creativity.



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## Endnotes

<sup>1</sup>A few regular passengers affirm this was because the bus company wanted to cut expenses. Popular press sources note that the bus company went bankrupt. See: <https://oglobo.globo.com/rio/linhas-de-onibus-desaparecidas-na-urca-voltarao-circular-neste-sabado-23048964>.

<sup>2</sup>Frowns et al. (2016) report that, at the time, Derky had over Facebook 58,000 followers.

<sup>3</sup>Following Kelly (2010) and Turkle (1995) we see technology and humans not as separate entities, but co-constitutive of each other. We create our technologies and they create us, in an ongoing and recursive process.

<sup>4</sup>We could also extend this network to WhatsApp designers, employees of cell phone companies, etc., but this analysis is outside the scope of this paper, as we are focusing on the smaller localized networks.

<sup>5</sup>In Afro-Brazilian candomblé religion, pai-de-santo is the priest who receives the spirits from beyond. In a similar fashion, the cell phone pai-de-santo “just receives” calls.