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Digital Geographies of Transnational Spaces: A Mixed-Method Study of Mexico-US Migration

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Digital Geographies of Transnational Spaces:
A Mixed-Method Study of Mexico-US Migration

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Abstract

Digital Geographies of Transnational Spaces: A Mixed-Method Study of Mexico-US Migration

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The central objective of this thesis is to explore how sophisticated information and communication technologies (ICTs) impact Mexico-US migration. In particular, it attends to those ICTs that enable Mexican immigrants in the United States to stay "in touch" with their loved ones in Mexico. Rather than pursue the impacts of these technologies through a singular methodology or theoretical framework, this study employs an array of approaches in order to examine the geography transnational communication across multiple scales. At the level of the individual, I examine how Mexican immigrants living in Austin, TX, incorporate communication technologies into their daily lives. Informed by a series of semi-structured and in-depth interviews, I argue that cellular phone calls, text messaging, and social media platforms enable a passive, routinized transnationalism that allows migrants to maintain a degree of presence both "here" and "there." I subsequently scale up my analysis in order to trace the emergence of digital social media—Facebook, in particular—as a communication tool for dispersed Mexican immigrant communities, and I

interrogate the ways in which digital social media engender transnational social networks. Using place as a guiding conceptual theme, I demonstrate how senses of and attachments to place form the basis of communal social interactions online, and I identify the many different places, both in the US and Mexico, that are involved in particular transnational social networks and migration flows. This study concludes by drawing on recent critical GIS scholarship and volunteered geographic information (VGI) in order to visualize the digital, place-to-place connections between Mexican migrants living in United States and their friends and family members living in Mexico and elsewhere.

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Chapter 1: Introduction

Telecommunications technology once offered only a single mode of long-distance communication—the terrestrial telephone call. Mobile technologies and the Internet now provide multiple channels through which migrants can instantaneously connect to their countries of origin, including text messaging, email, social media websites, and web-based voice and video conferencing. From migrant Filipino mothers 'texting' their children to get ready for school (Parreñas, 2005), to matrimonial websites that cater to Asian Indian parents partnering their child in the United States (Adams & Ghose, 2003), or expatriate Jamaicans using web-based radio to connect with loved ones in the wake of Hurricane Dean (Horst, 2010), advances in information and communication technologies (ICTs) enable international migrants to maintain contact with their homelands to a degree not previously possible.

This thesis attends to those ICTs that enable Mexican immigrants in the United States to stay "in touch" with their loved ones in Mexico. In so doing, this study holds that there are important qualitative differences between today's ICTs and the communication methods that migrants employed just ten or fifteen years ago. As I argue throughout, those differences are significant in three ways. First, and most obviously, modern communication technologies offer a rich sensorial experience through the high-fidelity sounds and images they transmit. For example, many mobile phones and laptops are equipped with built-in video cameras that enable video conferencing and messaging across cellular phone networks and web-based platforms. Secondly, ICT use in both the US and Mexico has

increased dramatically over the last decade. According to a recent report from the Pew Hispanic Center, at least 81% of foreign-born Latinos living in the United States now own cell phones, and nearly 70% report using the Internet at least occasionally (Lopez, Gonzalez-Barrera, & Patten, 2013). On the southern side of the border, as of 2011, at least 43% of Mexicans had accessed the Internet in the past year, up from just 14% in 2001 (Instituto Nacional de Estadística y Geografía (INEGI), 2013). Thirdly, these advancements in ICTs and their widespread proliferation enable individuals to maintain distanciated relationships through multiple, complementary channels, "to the point where copresent interactions and mediated communication seem woven into a seamless web" (Licoppe, 2004, p. 135).

I begin at the level of the individual, by examining how immigrants living in Austin, TX, incorporate communication technologies into their daily lives. Recognizing that access to and literacy in new communication technologies remains uneven and socially stratified (Straubhaar, Spence, Tufekci, & Lentz, 2012), I seek to better understand how migrants position themselves within transnational social networks, and to understand how ICT use in turn shapes migrants' experiences as workers, family members, and community members living apart from their homelands.

Beyond outlining the routines and technologies that characterize migrants' transnational communication practices, a secondary objective of this project is to situate those practices in relation to the broader geographies of Mexico-US migration. I thus scale up my analysis in order to trace the emergence of digital social media—Facebook, in particular—as a communication tool for dispersed Mexican immigrant communities, and

interrogate the ways in which digital social media engender transnational social networks. Here, place becomes the guiding conceptual theme. I consider how senses of and attachments to place form the basis of communal social interactions online, and I identify the many different places, both in the US and Mexico, that are involved in particular transnational social networks and migration flows.

This project draws on three distinct but related bodies of literature to serve as its theoretical foundation. It is firstly informed by the over two decades of scholarship that has advanced a transnational perspective on migration, which foregrounds the different kinds of linkages migrants maintain to their homelands throughout the course of migration (Glick Schiller, Basch, & Blanc-Szanton, 1992; Portes, Guarnizo, & Landolt, 1999). The project is also informed by geographies of media and communication, which seek to reconcile notions of space and place with the ostensibly disembodied technologies that link various people and places around the globe (Adams, 2010). And, thirdly, this project is informed by and builds on critical geographic information systems (GIS), which have developed a set of guiding methodological principles for incorporating GIS into grounded, qualitative research (Cope & Elwood, 2009; Harvey, Mei-Po Kwan, & Pavlovskaya, 2005; Kwan, 2002; Sheppard, 2005). Although I devote extensive space to reviewing these bodies of work in later chapters, I provide a brief overview of the most central theoretical concepts in the next section.

CONCEPTUAL FRAMING

At a time when less than three percent of people had mobile phones, and Internet content behemoths Wikipedia, Facebook, and YouTube were years away from existence, Manuel Castells (1996) proclaimed "the rise of the network society" (pg. 60)—a global transformation of social and economic relations hinged on the power of information and communication technologies (ICTs) to compress time and distance (International Telecommunication Union (ITU), 1999; Manjoo, 2009). The Information Age, according to Castells, would be characterized by global flows of capital, ideas, and people. Crucially, these flows would not operate between nation-states, but between connected individuals and institutions whose communication networks transcended national boundaries (Castells, 1996).

Consider the inextricable presence of electronic media and communication in our daily lives, seventeen years later. As of 2011, there were eighty-five mobile phone subscriptions for every hundred people on the planet, and over thirty percent of the world's population had accessed the Internet in the last twelve months (ITU, 2013). In regions where ICT penetration is at its highest, millions of users remain at least passively connected to cyberspace essentially all the time. It is little wonder then why social scientists of all stripes have been drawn to examine the relationship between and ICT and society.

The Spaces of Transnationalism

The transnational perspective on migration emerged in the late 1980's as a research paradigm concerned with the connections that migrants maintain with their homelands

(Appadurai, 1996; Glick Schiller et al., 1992; Portes et al., 1999). Whereas traditional migration scholarship conceptualized migration as an act of disjuncture, a conveyance of subjectivities from one nation to another, transnational theorists foreground simultaneity, hybridity, and ambiguity (Vertovec, 1999). And while this analytic approach has garnered its share of criticism (e.g., Waldinger & Fitzgerald, 2004; also thoroughly summarized by Vertovec, 2009), research on migrant transnationalism has over the course of two decades enabled researchers to paint a much more nuanced picture of the entanglements of identities, economies, and politics that have emerged from human movements in an era of increasing globalization.

Geographers have contributed to theories of transnationalism by bringing attention to the spaces and places from which individuals and communities carry out transnational livelihoods. These approaches emphasize "the diverse ongoing connections and networks that bind different parts of the world together and are constituted through (and in fact constitute) particular sites and places" (Featherstone, Phillips, & Waters, 2007, p. 383). Feminist geographers in particular have employed ethnographic and participatory methods that draw attention to the smallest geographic unit of analysis—the human body; this research has demonstrated how transnational migration is often experienced as rootedness in, rather than detachment from, place (Hondagneu-Sotelo & Avila, 1997; Mahler & Pessar, 2001; Torres & Momsen, 2005). By "bringing geography back in" to research in transnationalism, geographers have explored transnationalism as a spatial process operating at multiple scales and locations (Mitchell, 1997).

Following the edited volume by Jackson, Crang, and Dwyer (2004), this project understands transnational spaces as dynamic, multidimensional, and both materially and symbolically constituted. It holds that migrants actively produce and reconfigure spaces of interaction, belonging, and meaning through their everyday communication practices. As Jackson et al. (2004) note, a geographic perspective on transnationalism is unique in that it

> "foregrounds the contextual specificity of transnational forms, the different transnational geographies associated with different transnational communities, and the multiplicity of transnational experiences and relations that extend beyond narrowly defined transnational populations" (pg. 4).

My own research extends these efforts by considering everyday transnational communication practices as constitutive of multiple transnational spaces that bridge localities in the US and Mexico. An important dimension of these spaces are the digital social formations that coalesce around attachments to place. As I detail in subsequent chapters, images and videos of traditional cuisine, festivals, and ordinary city blocks as conveyed through social media can bring together thousands of individuals in mutual remembrance and celebration of a sorely missed hometown. In these cases, social media become a vehicle through which the practices of a particular place are collectively reaffirmed and renegotiated. An image of a home-cooked meal or a well-known public gathering place, for example, might provoke protracted discussions about the traditions, meanings, and changing landscapes of migrants' particular places of origin. Social media enable such conversations even while the participants who are engaged in the conversations remain scattered throughout many distant locations. A serious examination of transnational

spaces therefore requires attention to the multitudinous places, technologies, and subjectivities held by the individuals bound up in the production of these spaces.

Geographies of Media and Communication

The emergence of the Information Age presented geographers with a potentially existential quandary: how would space matter in an era of ubiquitous technologies which provide instantaneous communication irrespective of geographic barriers? Far from rendering distance irrelevant, ICTs have created new frontiers in geographic research by altering our encounters with space and producing new spaces of human interaction (Kitchin & Dodge, 2011). The Internet in particular has provoked an evolving discourse on the spatialities of digital media, a debate whose origins perhaps lie in the abundance of spatial metaphors used to describe the early Internet (Craine & Aitken, 2011).

Adams (1997) finds the spatial vernacular of the Internet—virtual frontiers, cities, and rooms; entering, surfing, and building—to be emblematic of a natural human tendency to inflect spatial experience with meaning. That is, ICTs, like places themselves, both foster and are imbued with cultural meanings, and they challenge geographers to refashion definitions of space, place, and scale to accommodate new dimensions of human interaction. Communication geographers rely on the post-structural notion of relational space to understand how space itself is altered by ICTs (Adams, 1998, 2009). In contrast to Western conceptions of Euclidean space as a container of social interaction, post-structural geographers argue that we encounter space subjectively through interpersonal relationships that are inherently marked by power relations (Massey, 1993). Rejecting

Euclidean spatial ontologies, places become "multiplicities—that is, they are made of differing spatial practices, identifications, and forms of belonging" (Murdoch, 2005, p. 18). Relational space does not precede interaction but arises through it, and is not bounded in a physical sense but rather its extent is defined by the complete network of individuals linked together through mutual interaction (Adams, 2009).

We can understand transnational spaces between the US and Mexico as dynamic, multi-layered relational spaces that emerge through migrants' transnational communication practices. Such spaces do not easily lend themselves to mapping. Traditional cartographic representations visualize space at a singular point in time from a fixed perspective, while the spaces of electronic media are often ambiguous and contingent. However, new methods for mapping relational spaces have emerged over the last decade, and geographers recognize visualization as a powerful tool for making sense complex spatial relationships (Dodge & Kitchin, 2001).

Indeed, mapping has in the last decade enjoyed a renewed interest in- and outside the academy as analysts have begun to capitalize on the surfeit of geocoded data that is produced by Web 2.0 technologies (Crampton, 2009; Elwood, 2008). Variously addressed as VGI, neogeography, and "big data," these techniques capture digital expressions of place by employing diverse methods aided by intensive data processing (Sui, Elwood, & Goodchild, 2012). Some geographers, however, question the implications of research based on big data—the continuous, high-volume stream of digital information produced through the everyday use of ICTs (Schroeder, 2013). Some (e.g., Kitchin, 2013) have wondered if big data research may presage a return to positivism in the social sciences, a

concern exacerbated by recent literature espousing an "end of theory" and a "big data revolution" (Anderson, 2008; Mayer-Schonbereger & Cukier, 2013; both cited in Thatcher, 2013). Kitchin (2014) has suggested that geographers are particularly suited to grapple with questions of big data research because the discipline confronted similar epistemological crises during the quantitative revolution. As feminists have understood for some time, social science research "from above, from nowhere," risks ignoring marginalized perspectives in its analysis and reproducing hegemonic social forces (Haraway, 1988, p. 598). Studies of ICT carried out through analyses of 'big' communications data are no exception, where little attention has been paid to everyday, embodied encounters with communications technologies. The challenge, then, is to chart a path that utilizes spatial communications data to produce situated and partial geographical knowledges. This requires epistemological and ontological flexibility on the part of researchers, who must develop methodologies that ground these data in particular social contexts and relate them to the experiences of particular individuals.

Critical GIS

Critical GIS offers a promising way forward for incorporating spatial communications data into inductive geographic research (Elwood, 2008; Leszczynski & Wilson, 2013). This body of work emerged in the 1990s as a set of critical responses to the growing popularity of GIS as a mode of geographic knowledge production. These critiques focused on what was perceived to be a return to the positivist epistemologies that characterized the quantitative revolution of the 1960s, and called into question who stood

to gain from the emergent GISciences and who would be left out (Pickles, 1995). In the early 2000s, human geographers built on their critiques of GIS by cautiously experimenting with alternative methodologies and applications for GIS. This work drew heavily on feminist and participatory methods, and largely sought to explore how marginalized perspectives could be given a voice through GIS (Kwan, 2002; McLafferty, 2005; Sheppard, 2005). These critical engagements with GIS have highlighted the limitations of knowledge produced through GIS, and have also articulated a guiding research ethic for incorporating GIS into inductive, qualitative research (Cope & Elwood, 2009). I discuss the outcomes of critical GIS research in detail in the fourth chapter. Important to note here is that there is no singular methodological design for "doing" GIS critically; the connecting thread among critical GIS projects is that they seek to situate GIS as one of many ways of understanding spatial processes (Knigge & Cope, 2006).

RESEARCH DESIGN AND METHODOLOGY

This project comprises three separate yet complementary inquiries into the geographies of the transnational spaces that link Mexican migrants to their homelands. Informed by a series of semi-structured and in-depth interviews, the second chapter focuses on the transnational communication habits of Mexicans living in Austin, TX. Here, I examine the routines and technologies that characterize this group's everyday communication practices, and I describe how migrants utilize cellular phone calls, text messaging, and social media platforms in tandem to stay connected with friends and family in their communities of origin. I argue that these technologies, which have become a

regular dimension of everyday life for many migrants, enable a kind of passive, routinized transnationalism that allows migrants to maintain a degree of presence both 'here' and 'there.'

In the third chapter, I sharpen my focus to explore a nascent mode of collective transnational communication—the hometown Facebook page. These pages serve tens of thousands of subscribers in the US and Mexico, and provide a gathering place for those who seek to remain connected to their communities of origin. Through discourse and content analyses of page posts, I argue that hometown Facebook pages foster place-based social ties, or *paisano* networks, by enabling migrants to actively maintain their hometown affiliations.

I extend this analysis in the fourth chapter by presenting a visual-interpretive study of five hometown Facebook page networks. In this rather experimental approach, I use data-mining software to collect Facebook user location data, and explore those data through the visualization power of GIS. I then evaluate the extent to which hometown Facebook page user locations reflect broader geographic trends in Mexico-US migration, and consider the extent to which visualizations of big spatial data might be integrated into a grounded, qualitative research endeavor.

INTELLECTUAL MERIT AND CONTRIBUTION TO SOCIETY

The project makes a number of contributions to the benefit of the research community and society. Firstly, I advance a methodology which foregrounds the everyday experiences of Mexican immigrants living in the United States, a minority group who have

been largely excluded from participation in public discourse due to their citizenship status. While the dominant headlines in the mainstream news media tend to focus on the Mexico-US border itself, it is my hope that this research project will draw attention to the truly transnational social space that connects Mexico and the United States. The narratives and visual representations I present in the ensuing chapters—though representative of only a small sampling of communities—speak to the vast network of relationships that transcend the Mexico-US border. It is also my goal to provide a research framework which can be repurposed to present the experiences of other marginalized groups, as it is of course likely that migrants of many other nationalities are turning to Facebook as means to maintain family ties and build social capital across borders.

From an academic perspective, this project contributes to scholarly research by uniting three theoretical and methodological engagements with digital communication technologies and place. It builds upon the transnational perspective on migration by broadening our understanding of how ICTs are embedded in migrants' transnational communication networks, and in turn how such technologies impact migrants' everyday experiences apart from their homelands. By employing geographic information systems (GIS) in order to visualize transnational communication spaces, this research project heeds a number of scholars' as yet unanswered calls for the development of new tools and methodologies with which to understand the dynamics of transnational migration at multiple scales and temporal resolutions (Brickell & Datta, 2011; Levitt & Glick Schiller, 2004; Rouse, 1991). This research project also contributes to an ongoing discourse in communications geography concerned with how ICTs produce and transform spaces of

human interaction. It provides a novel approach toward conceptualizing relational spaces of communication by focusing on how spaces are produced through transnational migrants' embodied, everyday encounters with ICT. Finally, this research breaks new ground in emerging critical GIS methodologies by develop a proof-of-concept for visualizing electronically-mediated transnational relationships. By treating these disparate approaches as complementary, I seek, in the following chapters, to elucidate the complex relationship between digital communications technologies and place in the context of Mexico-US migration.

Chapter 2: Staying in Touch from Austin, TX

From behind the counter of a small *tienda de piñatas* on Austin's east side, Luisa describes the experience of having seen her mother for the first time in over ten years. "It was difficult, but I was very happy." The two had reunited not in person, but through a video conference on the social networking site Facebook. Like many of the Mexican immigrants I have spoken with in Austin, Luisa uses numerous digital media in order to stay in touch with her family in Mexico. She takes advantage of a monthly cell phone plan that offers unlimited calls and text messages to Mexico, and uses Facebook to exchange photos and share updates with family and friends. She also subscribes to a Facebook page dedicated specifically to her hometown, through which she is able to learn about local happenings and participate in dialogues about community politics. Through her use of digital communication technologies, Luisa negotiates a space that extends far beyond the place she inhabits in Austin. These technologies link her to a network of geographically-dispersed individuals who remain tied to a common place of origin.

Although information and communication technologies (ICTs) clearly play an important role in the lives of many migrants, little research has documented how migrants incorporate ICT into their everyday transnational communication practices. In this chapter, I present my efforts to explore the transnational communication practices of Mexican immigrants living in Austin, TX. Based on survey and interview data, I outline the variegated communication habits of 30 individuals with extant ties to Mexico. In so doing, I consider the multiplicity of technologies, routines, and relationships that contour the spaces that bind Austin, TX, to countless localities in Mexico.

At the core of this research endeavor is a concern for social relationships between extensible individuals, and the technologies that allow those distanciated relationships to endure (Adams, 2005). I seek to understand how migrants use ICTs to stay in touch with friends and family members in their countries of origin, and how shifting mediascapes differentially impact migrants' experiences as workers, family members, community members living apart from their homelands (Appadurai, 1996).

THEORETICAL BACKGROUND: "PLACING TRANSNATIONALISM"

Until the 1980's migration scholarship was dominated by a focus on how immigrants assimilated or were incorporated into their host societies (Levitt & Jaworsky, 2007). Much of this research took as given a positive correlation between migrants' adoption of the cultural norms of their host society and opportunities for upward social mobility (Levitt and Jaworsky, 2007). Implicit in this approach is an understanding that social space—the context of human social interaction—is largely confined to national boundaries, an assumption Wimmer and Glick Schiller (2002) refer to as methodological nationalism. Transnationalism, in contrast, abandons methodological nationalism by exploring how social space persists across (but not in spite of) national boundaries through the ties that some migrants maintain with their homelands (Glick Schiller, Basch, & Blanc, 1995).

Analysts have taken a number of evolving approaches toward conceptualizing transnational social space (Faist, 2000; Levitt & Jaworsky, 2007; Pries, 2002). Levitt and Glick Schiller (2004) view transnational social spaces as transnational social fields, "sets

of multiple interlocking networks of social relationships through which ideas, practices, and resources are unequally exchanged, organized, and transformed" (p. 1010). An individual's positioning within a social field is not fixed but marked by a degree of simultaneous presence both 'here' and 'there' that allow migrants to actuate different social resources depending on a given context (Levitt and Glick Schiller, 2004). Importantly, this perspective implies not only that migrants benefit from access to transnational social networks, but that migrants must also navigate multiple legal, political, and economic forces toward which they often hold a subordinate position (Levitt and Glick Schiller, 2004).

This paradigm is not without critics; many scholars have questioned whether transnationalism is a genuinely new phenomenon, the degree to which transnational practices extend beyond the first generation, and the utility of a term which seemingly applies to an immense range of migrant activities (Waldinger & Fitzgerald, 2004; Waldinger, 2008, for an extended discussion, see Vertovec, 2009). Roger Waldinger has perhaps been the most incisive critic of transnational migration theories. He argues (2008, p. 8) that a focus on migrants' cross-border activities "gets the cart before the horse" when such studies fail to acknowledge that states' powers to regulate flows of people and goods are precisely what drive transnational political and economic formations. He further contends that transnational ties are ephemeral, refreshed only by a continuing stream of new migrants between source and destination. According to Waldinger (2008), in the long-term, transnational contacts will attenuate "as relevant social ties and loyalties get transplanted from old to new homes" (p. 24). Most important to Waldinger (2008) is that

transnational activities take many forms, but "do *not* cluster" (p. 24); that is, while an individual may, for example, send remittances or make frequent visits to their place of origin, these transnational activities are spread out over the life course, and rarely do populations engage all of these practices such that they constitute transnationalism.

Geographical approaches to transnationalism provide a spatial corrective to many of these critiques. By "bringing geography back in" to research in transnationalism, researchers have sought to reconcile the views of those scholars who have argued that transnational theory disregards the enduring relevance of state actors, while still foregrounding the everyday, embodied experiences of migrants and their relations. In so doing, geographers have built on sociological and anthropological conceptions of transnational social spaces by emphasizing the literal, rather than metaphoric, spaces of transnational networks. Jackson, Crang and Dwyer (2004, p. 3) summarize the geographic perspective on transnationalism as a widening of attention beyond "narrowly defined transnational populations" toward a notion of a transnational space:

> [that] encompasses all of those engaged in transnational cultures, whether as producers or consumers. It includes not just the material geographies of labour migration or the trading in transnational goods and services but also the symbolic and imaginary geographies through which we attempt to make sense of our increasingly transnational world" (p. 3).

In this formulation, transnational spaces are dynamic, multidimensional, and both materially and symbolically constituted. Like Waldinger (2008), Jackson et al. (2004) are preoccupied by the dynamism of transnational ties, but, unlike Waldinger (2008), they find that transnational ties need not "cluster" in order to matter. Rather, the geographic perspective on transnationalism holds that migrants actively produce and reconfigure

spaces of interaction, belonging, and meaning through the myriad transnational ties they maintain, some of which may be ephemeral and shifting, and many of which are undoubtedly modulated by extra-local forces.

The connecting thread in the study of transnational geographies is an attentiveness to the localities in which transnational activities and discourses are carried out and negotiated. For example, Erhkamp (2005) explores the relationship between transnational ties and identity among Turkish immigrants living in Germany. She found that by building places of belonging through transnational consumption practices such as patronizing teahouses, constructing mosques, and distributing ethnic media, Turkish-German immigrants both reinforced their Turkish identities while simultaneously renegotiated what it meant to be German. In this sense, places themselves can become the context through which transnational ties endure, even as immigrants deepen their roots in the "host" country. In sending communities as well, places becomes sites at which local, regional, and transnational actors and discourses converge. Mahler (2003, p. 309), for example, attempts to disentangle the impacts of transnational livelihoods on changing gender norms in Salvadoran communities, and finds that "in the same spaces that transnational forces can promote change, they also can help reproduce local, historically constructed social customs and power hierarchies."

Some migration scholars have thus begun to retune their conceptual language in favor of the term *translocal,* which emphasizes the "the ever variegated localized contexts where transnational networks are maintained, negotiated and sustained in everyday urban life" (Brickell & Datta, 2011, p. 3). In one of the earlier applications of the concept of the

translocal lens, M.P. Smith (2003) explores Mexican migrants' social networks in northern California and Guanajuato. He details the efforts of a regional political party in Guanajuato to solicit migrant remittances to fund the construction of *maquiladoras* in *guanajuatense* communities. Conceived as a development project that would lower migration rates by increasing employment opportunities locally—Smith (2003) found that the project raised migrants' social status by portraying them as successful benefactors, and so ultimately encouraged migration in the sending communities where the *maquiladoras* were constructed. Further, migrants' frustration from their dealings with partisan Mexican state actors motivated them to organize formal hometown associations in California, which became a means through which migrants could directly orchestrate development projects in their communities of origin.

Smith's (2003) case study draws attention to the opportunities and constraints afforded by different places, while at the same time foregrounding migrant agencies within transnational social networks. It is in this sense that Doreen Massey's "progressive sense of place" provides a theoretical undergirding for examining the translocal; places "may be imagined as particular articulations of social relations, including local relations 'within' the place and those many connections which stretch way beyond it" (Massey, 1994, p. 22, cited in Brickel and Datta, 2011, p. 6).

Because information and communications technologies (ICT) enable social interconnectivity across borders—be it in the form of direct telecommunication or interaction through virtual spaces—it follows that their use constitutes the fabric of transnational spaces. Indeed, Portes et al. (1999) asserted that ICT "provide the technical

basis for the emergence of transnationalism on a mass scale" (p. 223), while Vertovec (2004) considered affordable long-distance telephone calls to be "social glue" that enables diasporic communities to maintain social proximity despite geographical separation. Although electronic communications present possibilities for migrants to mitigate certain challenges of living and working abroad, Mahler (2001) reminds us that "communication cannot be presumed and should be problematized" (p. 585). Her sentiment emphasizes the need to ground understandings of ICT in migrants' everyday communication practices and experiences. Indeed, scholars have sharpened their focus to explore the specific ways in which ICT use impacts various dimensions of migrants' experiences abroad as well as their family members left behind. For example, Mahler (2001) observed that a lack of communications infrastructure in El Salvador reinforced power asymmetries between male immigrants in the US and their female partners in El Salvador. Parreñas (2005) calls attention to the complexities of transnational family strategies in her research on the mothering practices of migrant Filipino women. She found that transnational communication potentially softened the emotional trauma that children experience as a result of parental migration, but that access to communications technologies was circumscribed by gender, class, and rural versus urban location. Also examining transnational family strategies, Wilding (2006) warns against the assumption that more frequent communication leads to greater intimacy between distant family members. She notes that, in times of crisis, the use of ICT potentially exacerbates feelings of separation as migrants remain in touch with their families but unable to directly help. These studies

underscore the complex, often unexpected ways in which ICT shape migrants' experiences, and reiterate the need for research grounded in migrants' everyday experiences.

Geographers have also brought attention to the 'virtual' spaces of transnationalism. The Internet has created new opportunities for communication between migrant diasporas and their homelands, as well as new communication opportunities within and among diasporas themselves (Benítez, 2006). Online communicative practices enable new means for maintaining collective cultural identities (Adams & Ghose, 2003; Parker & Song, 2006; Pries, 2013; Skop & Adams, 2009; Wilding, 2006), acting politically (Hickerson, 2013; Nagel & Staeheli, 2010), and finding employment (Benítez, 2012). Further, by examining Internet-based transnationalism through a geographic lens, scholars have drawn parallels between the social construction of virtual and physical spaces. Adams and Skop (2008) found internet activities among Asian Indian immigrants in the US to be differentiated by gender, and observed emerging virtual spaces of inclusion and exclusion reproduced through real social contexts offline (see also, Adams and Ghose, 2003). Empirical geographic research of the dynamics of virtual spaces of transnationalism thus points to the need to ground studies within the (often multiple) physical place contexts of actors who are coming together online.

STUDY AREA

Situated in central Texas, the city of Austin serves as the nexus of a rapidly growing metropolitan area approaching 1.8 million residents, and is frequently cited among the fastest growing cities in the United States (US Census, 2010; Torres et al., 2013). Due in

part to robust government, education, and technology sectors, Austin's economy remained largely resilient to the global economic recession, with monthly unemployment rates averaging 5% from 2005 through 2012 (Texas Workforce Commission, 2013). Employment opportunities have likely contributed to the city's rapid population growth, which have brought an increasing number of foreign-born workers to the area. From 2005 to 2007, the city witnessed a 19.1% increase in foreign-born residents, 7% higher than national averages for the same time period (Lenoir, 2011).

Among the 155,000 Austin residents born outside the United States, more than half are of Mexican origin, making Mexicans by far the largest immigrant group in the city (ACS, 2011). Importantly, research has shown that many Mexican migrants stay in regular contact with family members living in Mexico. A 2005 survey of Mexican migrants found that 54% of respondents spoke with their families in Mexico at least once a week (Suro, 2005) and more recent data suggests that rate is increasing. As noted earlier, a March 2013 report from the Pew Hispanic Center found that 81% of foreign-born Latinos living in the United States own cell phones, and nearly 70% report using the internet at least occasionally (Lopez, Gonzalez-Barrera, & Patten, 2013). These rates reflect a 17% increase in cell phone ownership and a 35% increase in internet use over the course of just three years (Lopez, Gonzalez-Barrera & Patten, 2013).

DATA AND METHODOLOGY

This project's methodological foundation follows from Strauss and Corbin's (1988) guidelines for building grounded theory. Grounded theory allows qualitative researchers to

develop inductive, context-sensitive theory by way of an iterative process of data collection, coding, and analysis (Strauss & Corbin, 1988). Well-suited for examining the complexities of human action, grounded theory prescribes a process of open and axial coding whereby dominant themes are continuously articulated and narrowed. Most importantly, the theory that emerges from this method is implicitly "grounded" in the actions and experiences of research participants. A grounded theory approach is thus ideal for circumstances where the phenomenon of concern is rooted in the everyday knowledge and experiences of the research participants.

Field research took place in Austin, Texas, over a six month period beginning September of 2013. Research participants were first asked to complete an open-ended survey, the goal of which was to gather information related to the person's migration history and everyday communication habits. The 15-question survey asked respondents to provide information about their city and country of origin, the amount of time spent in the US, the frequency with which they communicated with family members and friends living elsewhere, and the types of media they relied on for long-distance communication. At the conclusion of the survey, respondents were asked of their willingness to participate in a follow-up interview, for which they would receive a $20 H-E-B gift card. A total of 30 surveys were collected, with six participants consenting to in-depth follow-up interviews.

Study participants were selected following a hybrid purposive and snowball sampling method (Biernacki & Waldorf, 1981; Marshall, 1996). Participation was initially solicited at random to passersby at two shopping districts within predominantly Latino census tracts in Austin, with an acceptance rate of approximately 10%. Research

informants in turn suggested additional potential research sites frequented by Austin's Mexican community. In all, survey participants were recruited at six locations across Austin, including a gas station specializing in money transfers to Mexico, a weekly flea market, three Mexican groceries, and the E. Cesar Chavez district with its many *tiendas de piñatas*.

Participation was open to any consenting 1st or 2nd generation Mexican adult. Although participants occasionally provided a referral to a friend or family member who would be willing to participate in the study, most respondents were approached at random and had no ties to other survey respondents. In all, 28 Mexican-born and 2 American-born children of Mexican immigrants completed the initial survey. Six of those participants consented to at least one in-depth follow-up interview. Follow-up interviews were conducted in Spanish at locations convenient to each participant. The average interviews lasted 90 minutes, during which respondents were asked to discuss in detail their most recent communication experiences, including their preferences for particular communication devices, the languages in which they communicate, and the time and place(s) where they carry out various communication activities.

As shown in Table 1.1, survey respondents vary widely in terms of age, time spent in the United States, and number of return trips made to Mexico. Women are slightly over-represented in the sample, constituting 60% of respondents. Additionally, young to middle-aged respondents (ages 35-54) make up a full 60% of respondents, with no survey participants older than 64 years.

Sex	
Male	40% (n=12)
Female	60% (n=18)
Nativity	
First-generation (immigrant)	93.3% (n=28)
Second-generation (child of immigrant)	6.7% (n=2)
# Return Trips	
0	40% (n=12)
1-5	36.6% (n=11)
6-11	13.3% (n=10)
>10	10
Age	
18-24	13.3% (n=4)
25-34	16.7% (n=5)
35-44	33.3% (n=10)
45-54	26.7% (n=8)
45-55	3.3% (n=1)
54-54	3.3% (n=1)
55-64	3.3% (n=4)

Table 1.1 Characteristics of 30 surveys collected from Sep 2013 to Feb 2014.

STAYING IN TOUCH: FINDINGS FROM THE SURVEY

The survey responses shed light on the everyday communication practices that tie Austin's Mexican population to their friends and family members in Mexico. The survey focuses on two dimensions of transnational communication: the frequency of communication activities, and the specific communication technologies migrants utilize to communicate transnationally.

The Pew Research Center's Hispanic Trends Project (formerly the Pew Hispanic Center), provides empirical data regarding Mexican migrants' communication activities. Three recent studies provide a reference dataset within which to situate this project's

findings: the 2005 "Survey of Mexican Migrants" (Suro, 2005), the 2010 report on "The Latino Digital Divide" (Livingston, 2010), and 2013's, "Closing the Digital Divide: Latinos and Technology Adoption" (Lopez et al., 2013). Below, I compare my own findings to the trends recognized in these earlier studies. In the discussion that follows, I draw on qualitative interview data to further detail the everyday transnational communication practices of Mexicans living in Austin.

Frequency of Transnational Communication

A key survey question relates to the frequency with which respondents communicated with friends or family members living in Mexico. Sixty-six percent of respondents communicated with friends or family members in Mexico at least once week. These findings reflect somewhat higher communication frequency than the Pew Hispanic Center's 2005 *Survey of Mexican Migrants*, in which 54% of survey respondents reported talking with their family in Mexico by phone at least once a week. The 2005 Pew Hispanic Study further notes that 46% of migrants with at least 10 years of US residence spoke to family members in Mexico on a weekly basis. This project found that 65% migrants who had been living in the US for ten or more years were communicating on a weekly basis, or at roughly the same rate as all other respondents.

Given that nearly a decade has passed since the 2005 Pew Hispanic Center study, and more recent research (Lopez et al., 2013) has observed dramatic increases in Latino technology adoption in just a few years, we would expect an increase in the frequency of Mexican immigrants' transnational communication activities. While the responses do not

reflect significant differences in the frequency of phone calls, text messaging, or Internet communication on a *weekly* basis from those patterns observed in the 2005 Pew Hispanic study, 27% (n = 8) of this study's respondents reported *daily* communication with family members and friends living in Mexico versus 12% in the 2005 study. Notably, every individual who reported daily transnational communication reported that they use the Internet. This finding suggests that social media and email contact may play a role in fostering more frequent transnational communication, as discussed in more detail below.

Telephones, Fixed and Mobile

Vertovec (2004) observed that long-distance telephone calls serve as the "social glue" of transnational communication. Survey results from this study suggest an amendment to Vertovec's addage: *cellular phone* calls serve as the "social glue" of transnational communication. Of the 29 respondents who communicate with family members or friends in Mexico, all of them owned cell phones, and 90% (n = 26) used their cell phone for transnational communication. A corollary to the popularity of cell phones is the frequency with which respondents send text messages to friends and family members in Mexico. Twenty-five of the twenty-six respondents who used cell phones also reported sending text messages to communicate transnationally. Although some respondents (38%; n = 10) continue to rely on landline telephones for international communication, many noted that cell phones had recently become equally, if not more, affordable. Respondents

frequently mentioned the availability of a $10 monthly cell phone plan that allowed for unlimited calls and text messages to Mexico[1].

Internet Media

While less prevalent than telephone communication, many respondents use the Internet to communicate with family and friends living in Mexico. In all, 53% (n = 16) of respondents reported using the Internet for transnational communication. Respondents were further queried about three specific forms of Internet communication: email, social networking sites, and Internet-based telephone providers. Thirteen percent (n = 4) of survey respondents reported sending email, while 20% (n = 6) used Internet-based voice or video platforms to communicate transnationally (e.g. Skype). By far the most popular mode of Internet-based communication were social networking sites; more than half of respondents (53%, n = 16) reported using social media, with all respondents specifically mentioning Facebook as their social networking site of choice. Respondents were also queried regarding their use of other social media—including Twitter, MySpace, and Orkut—however no respondent reported using these sites.

The Pew Hispanic Center (Livingston, 2010; Lopze et al., 2013) has tracked the increasing percentage of US Latino Internet users, and the Mexican government has noted rapid increases in Internet use among its residents (INEGI, 2011). The survey responses thus confirm what the usage metrics on both sides of the US-Mexico border would suggest:

[1] Although most carriers offer calling plans to Mexico, Boost Mobile seems to be the most popular. In addition to affordability, Boost Mobile specializes in pre-paid phone subscriptions, which do not require proof of legal residency.

the Internet has become an important means by which Mexicans living in the US stay in touch with non-migrants in Mexico. Importantly, the survey responses disaggregate Internet usage in general and point specifically to the predominance of social networking sites in transnational, Internet-based communication between the US and Mexico. I discuss the implications of this trend in the following sections.

TRANSNATIONAL COMMUNICATION PRACTICES IN DEPTH

Mobile digital media—including phone calls but also text messaging and social media platforms—are a regular dimension of everyday life for many Mexicans living in the United States. This fact is reflected in the communication habits of people I spoke with in Austin, and is echoed by recent national surveys conducted by the Pew Hispanic Project (Lopez, Gonzalez-Barrera, & Patten, 2013). The cellular phone, of course, is central to these communication practices; it makes possible the three most popular modes communication (voice, text, social media). Crucially, the portability of cell phones means that transnational communications are not restricted to the home, a pay phone, or wherever a fixed telephone line is available. Instead, cell phone users send communiques from essentially anywhere at any time.

Text messaging exemplifies the anywhere, anytime, style of communication that cell phones enable. When queried about their text messaging habits, a number of respondents noted they had earlier that day sent or received a 'text' with a friend or family member in Mexico, and in one case a respondent received a message from a cousin during our interview. Respondents expressed a preference for text messages because they found

sending text messages to be more convenient than making a phone call. Respondent Aurora explains,

> For little things, just to say hello or to check in on someone, it's much easier to send a text. I work at night and my sister works during the day, so it's just easier to send a text. We talk on the phone a couple Saturdays a month but for everyday things we send text messages. Sometimes I send a photo of my daughter, [or of] our cousins who live in Austin, even our dog. I send her many photos.

Aurora's comments exemplify a sentiment about text messaging that many respondents shared. No respondent communicated with family members exclusively by text message; instead, text messages serve as a means of staying in touch between phone calls. For Aurora, a key benefit of text messages is that they are asynchronous. That is, she can send/read messages at her convenience, rather than coordinate a time to call her family members in Mexico. Text messages are, in effect, supplementary to other channels of communication, a trend Haythornthwaite (2001, 2005) refers to as media multiplexity. As Haythornthwaite (2005) has found, relationships marked by high multiplexity are characteristic of stronger social ties, and participants in this study echo those findings. Respondent Yolanda suggests that text messaging has caused her to feel closer to distant family members:

> Before my sister-in-law had a cell phone...our conversations were very, I don't know...formal. She was living in San Luís [Potosí], and I am here. We would talk for a few minutes when she called [to talk to my husband]....so it was always a short conversation, only one or two times a month. When she got her cellular [phone] (and this was at the time when she had her first daughter) we started sending text messages. Now when she calls us my husband has to kick me off the phone! [...] We are much comfortable with each other now.

For Yolanda, text messaging has allowed her not only to maintain relationships with kin in Mexico, but indeed strengthen those relationships. Importantly, she describes how this

process is contingent on the availability of multiple communication channels. However, not all respondents praised text messaging as a convenient mode for staying in touch. David, a sixty-three year-old mechanic from Veracruz, found text messaging to be a unnecessary. "It's not worth the trouble," he explains:

> If my daughters [who are both adults living in Mexico City] want to talk to me, they know to call me. I always have my cell phone with me; they can always call me and I will answer. When I first started using a cell phone [my youngest daughter] wanted me to send her a text message, but, you know, that does not interest me. [I told her,] 'Why send these messages? I have a phone with me all the time so that you can call me.'

David's perspective reminds us that the technologies a person chooses to employ in their transnational communication practices are highly contingent. The affordances of one particular mode of communication—be it convenience or sense of "presence"—are subjective, and likely to change over time. David finds the portability of cellular phones to be their chief advantage over landlines, but sees no benefit in exchanging intermittent text messages.

Social Media Websites

In addition to calling and texting, social media add another layer of multiplexity to migrants' communication habits. Facebook is by far the most popular social media platform among respondents, which users almost exclusively access through the use of their cellular phones. Many respondents referred to the ease with which they were able to stay in touch with distant family members with Facebook. Indeed, of the eight survey respondents who reported communicating with family members on a daily basis, six of

them were Facebook users. Respondent Fernando describes the growing popularity in Facebook use among his family members:

> "I've been using [Facebook] for a few years. I signed up before anyone else in my family. [I created my account] on the computer, but now I do it all on my phone. At first my cousins [in Guanajuato] thought I was crazy for putting my information [online], now we're talking all the time on Facebook....Sometimes we talk on the phone but it's usually on Facebook. That way everyone knows what everyone else [in my family] is doing."

Fernando echoes a number of respondents who note that Facebook has only recently become an important mode of transnational communication. Facebook, like text messaging, offers asynchronous communication in the form of direct messaging, but it also facilitates the sharing of messages, images, status updates, and hyperlinks within friend and family groups. In this sense, Facebook affords a high-degree of "pervasive awareness" (Chen, 2013) of one's social network. That is, members of the same social network are highly aware of each other's activities by virtue of the continuous stream of content they share with each other. This is precisely the phenomenon that Fernando describes when he notes that "everyone knows what everyone else is doing".

Part of Facebook's appeal is the content-rich environment it provides users. Respondents cite exchanging photos as well as video chatting to be among Facebook's popular features. Luisa, for example, regularly uses Facebook to exchange photos with family members throughout the US and Mexico. While showing me an image of her nephew's birthday party in San Luis Potosí, she explained,

> [I use Facebook] for the photos. We're all posting photos of our families all the time. Our children are growing up and doing new things, so everyone likes to see what's changing, what's new.

Luisa has also used Facebook to video conference with family members. When she spoke with me, she had recently used Facebook's video chat to speak to her mother. She explained that her mother doesn't use the Internet, so she enlisted the help of a neighbor to set up the call. She describes the experience, "It was very emotional. I hadn't seen her since I crossed [the border] 10 years ago. We were both crying. It was difficult, but I was very happy." Luisa's responses suggest that Facebook's sensory experience plays an important role in maintaining users' ties to their friends and family members. Pictures, audio, and videos of distant friends and family members evoke a heightened sense of presence not afforded by phone calls alone. Luisa's experience importantly reminds us that a heightened sense of connectedness concomitantly entails a more palpable sense of separation, and that the technologies that enable transnational communication can elevate the emotional strain of separation. We must be careful not to overlook the affective dimensions of ICTs by romanticizing their novelty and ingenuity. Research on "long-distance intimacy" underscores the conflicting and unpredictable outcomes of communication in transnational contexts, which are often circumscribed by class, legal status, and gender (Parreñas, 2005; Wilding, 2006; also, see Skrbiš 2008). Indeed, Wilding (2006) puts forward that women generally carry the responsibility of maintaining transnational family ties, even when the ties in question are those to a husband's family. So-called kin work (di Leonardo, 1987) entails an emotional labor that women such as Luisa unequally bear, and lead to a different set of routines and attitudes regarding to the technologies that enable transnational communication.

The sample of respondents in the current study is too small to disentangle the potential gendering of communication practices, however Luisa did offer another factor that distinguished her transnational communication routines from those of her husband: their work environments. Luisa, who works part-time at a party-supply shop, is able to send text messages and check her social media feed intermittently while she works at the shop as well as while she is at home caring for her two children. Luisa explains that her husband is less likely to communicate with family in Mexico on a daily basis because his job at a commercial roofing contractor does not afford him many opportunities to access his cell phone.

The Next Generation

Another finding from conversations with participants is that children are frequently involved in transnational communication practices. Multiple respondents mentioned that they were motivated to purchase a computer and subscribe to an Internet provider so that their children would become familiar with the technologies. Respondent Yolanda, for example, uses the Internet infrequently, but for her 10- and 11-year-old sons, "the worst punishment they can receive is to have the Internet taken away." And although Yolanda's boys primarily use the Internet to play games, they also use the Internet to communicate with cousins in Mexico, either by playing online games together, or chatting via their respective parents' Facebook accounts. Indeed, Yolanda explained that it was her eldest son who created her Facebook account in the first place, and it was he who taught Yolanda how to navigate the site. This was a common theme in many of the conversations I had

with interviewees who were parents; they had invested in information and communication technologies out of a desire for their children to develop technological competencies, and children in turn aided their parents in surfing the web, participating in social media websites, utilizing features on a smartphone, etc.

CONCLUSION

This chapter has outlined trends in the transnational communication habits of a modest sample of Mexican immigrants living in Austin, TX. My findings confirm that many immigrants rely on a panoply of digital media, including cellular phone calls, text messages, and social network sites, in order to stay in touch with friends and family members living elsewhere. Telephone calls continue to be the predominant means by which Mexican migrants communicate transnationally, but those with the means and desire to utilize text messaging and social media sites are able to remain in daily contact with distant loved ones. These new forms of digital communication allow users to enrich their communications by sharing photos and videos, and strengthen the ties that migrants maintain to family members and friends in their country of origin.

The seeming ubiquity of mobile digital media presses scholars to reconsider the prevalence of transnational lifestyles among US Mexicans. Some have doubted the extent to which migrants maintain ties to their places of origin. Critics have suggested that transnational lifestyles are the domain of the economically and educationally privileged (Roudometof, 2005), while others argue that migrants' transnational ties are ephemeral and likely to attenuate over time (Waldinger & Fitzgerald, 2004). Indeed, restrictive definitions

of migrant transnationalism, such as those advanced by Portes, Guarnizo, and Landolt (1999), respond to such critiques by narrowing the range of activities that they deem to be transnational. They say:

> Occasional contacts, trips and activities across national borders of members of an expatriate community also contribute to strengthening the transnational field but, by themselves, these contacts are neither novel enough, nor sufficiently distinct, to justify a new area of investigation. What constitutes truly original phenomena and, hence, a justifiable new topic of investigation, are *the high intensity of exchanges, the new modes of transacting*, *and the multiplication of activities* that require cross-border travel and contacts on a sustained basis. (Portes, et al. 1999, emphasis added).

Here, Portes, et al. (1999), in looking to shore up the theoretical footing of an emergent transnational research paradigm, seem to categorically exclude the possibility that international migrants' quotidian communication practices are indicative of transnationalism. Yet, as I have described, the basis for this exclusion—the intensity of exchange, the novelty of modes of interaction, and the dimensionality of activities—precisely characterize many migrants' use of communication technologies today. The combined use of cellular phones, text messaging, and social media enable migrants and non-migrants to maintain social relationships through *multiple channels,* with *increasing frequency*, in a *qualitatively new* sensorial and affective medium. Of course, virtual encounters through social media will never replace the experience of physically being in one's hometown, and many undocumented Mexicans remain unable to return. My findings nonetheless enjoin researchers to consider the significance transnational social networks that persist by virtue of electronic communications, and underscore the need to conduct more wide-ranging studies of this phenomenon.

Directions for Future Research

The demographic and geographic profile of Internet users has greatly diversified over the past two decades. However, Internet access remains highly stratified, and barriers still exist for many people who wish to access the Internet (Warf, 2001, 2014). Luisa's experience, for example, reminds us that access to communication technology is not a given. Her mother was able to navigate the Internet only with the aid of a neighbor. Another respondent stated that Internet access via cellular phone was prohibitively expensive. Still another respondent mentioned that only a handful of his family members in Mexico had the interest or the time to seek out Internet access, although he noted that even in his small *rancho* there was an Internet café. Future research must therefore interrogate the structural issues that exclude some people from accessing and participating in social media. This research needs to account for material conditions on both sides of the US-Mexico border (Mahler, 2001).

We must also explore ways in which Internet-based sociality translates into changes in the offline social worlds of migrants. Does, for example, social media use lead to stronger social support, or increased opportunities for finding employment? The extent to which social media help migrants build social capital is a research area that remains largely unexplored (Chen, 2013). Also, research must consider the potential impacts of heightened connectivity on constructions of identity, as well as aspirations and goals over the life course. Furthermore, in what ways do later generations engage communication technologies to communicate transnationally?

My research also suggests that social media use may foster the potential for online community social engagements. For example, a number of my respondents reported that they subscribe to Facebook "pages" that cater specifically to migrants of a common community of origin. These virtual places provide a forum in which those separated by migration can stay apprised of local happenings and participate in dialogues about community politics and development in their place of origin. I explore these communal spaces in the following chapters, but still more research is needed to understand the processes by which digital social formations directly impact the communities of origin that they represent.

Chapter 3: The Hometown Facebook Pages of San Luis Potosí

The Facebook page *Soy de Coroneo, S.L.P.*[2] describes itself as,

> A group open to the people that perhaps were born, lived, or live in Coroneo. You can share pictures of our beautiful municipality, or tell us your story, or perhaps meet some people you thought you would never return to see again.

Like the municipality in Mexico it represents, *Soy de Coroneo, S.L.P.* is unique, but it is not a singularity. Mexican hometown pages potentially number in the thousands, encompassing tens of thousands of participants. On the one hand, hometown Facebook pages represent yet another example of how people use communication technologies to reach across the distance migration imposes. But Facebook entails a set of practices so qualitatively different from parallel forms of modern communication—be it the phone call, the email, or the text message—that it demands particular attention. For subscribers, hometown pages offer remote access to a place of emotional import, and to a forum in which those separated by migration stay apprised of local happenings and participate in dialogues about community politics and development. For geographers, hometown pages underscore the need to rethink concepts of identity, citizenship, community, and place in light of the increasing predominance of digital locative communication technologies. These are uncharted territories for participants and observers alike.

In the previous chapter I presented findings related to the everyday transnational communication practices of Mexican migrants living in Austin. I argued that understanding these patterns of communication sheds light on a rapidly-changing space of communication

[2] In order to protect the privacy of page participants, place names and user names have been anonymized throughout.

between the US-Mexico. In this chapter I sharpen my focus to look specifically at the role of Facebook in the context of Mexico-US migration, while also widening the view to include the many thousands of migrants who employ Facebook to stay in touch with their communities of origin.

Of primary concern is the emergence and increasing popularity of Mexican hometown Facebook pages. Whereas Facebook offers a variety of tools through which users can communicate privately or semi-privately with friends, family members, and acquaintances, users who participate in hometown Facebook pages effectively do so in public. Furthermore, Facebook pages enable migrants in multiple host-country destinations, as well as non-migrants and internal migrants, to interact on the basis of shared community of origin. Hometown pages therefore have the potential to foster *paisano* networks, or place-based social ties, which can serve as valuable resources in the migration and settlement process (Goldring, 2001; Hernández-León, 2008; D. Massey, Alarcon, Durand, & Gonzalez, 1990).

In this chapter, I specifically examine the potential and actual use of Facebook for fostering place-based ties. I describe how hometown Facebook pages enable migrants to act on latent place attachments by reconnecting, reproducing, and reinventing their communities of origin online. In doing so, I first seek to answer questions about the basic properties of hometown Facebook pages. How common are hometown Facebook pages, and what kind of information do participants share and discuss? How many hometown page subscribers actively participate, and how often?

At a more interpretive level, my effort is to demonstrate how digital social media foster place-based social ties throughout dispersed Mexican communities, and to advance a methodology for exploring the online spaces in which these communities have taken root. Through a comparative analysis of two municipalities in central Mexico, I seek to identify some potential implications of this emergent communication channel for transnational communities, while also demonstrating a new proof-of-concept for mixing methods in migration research. This chapter contributes to nascent research on Facebook use among international migrants (e.g., Kang, 2009; Komito, 2011; Oiarzabal, 2012), while also building on the wider body of literature that has examined the appropriation of information and communication technologies (ICTs) by various immigrant groups (e.g., Adams & Ghose, 2003; Alonso & Oiarzabal, 2010; Benítez, 2006; Van Den Bos & Nell, 2006; Wilding, 2006).

THEORETICAL BACKGROUND

Few studies have specifically examined the transnational communication practices of Mexican migrants (though see, Rouse, 1991; R.C. Smith, 2002). Much of the research on "digital diasporas" (Brinkerhoff, 2009) focuses on white-collar migrant groups, such as South Asians in the USA (Adams & Skop, 2008) or Chinese twenty-something's in London (Kang, 2009). Indeed, in the mid-1990s Appadurai (1996) suggested that "electronic communities....do not directly affect the local preoccupations of less educated and privileged migrants" (p. 191). But the demographic and geographic profile of Internet users has greatly diversified over the past two decades. Although internet access remains highly

stratified, costs continue to lessen, and people around the world are increasingly finding their way online (Warf, 2001, 2014).

As discussed in the previous chapter, mobile digital media—including phone calls but also text messaging and countless web-based social media platforms—are a regular dimension of everyday life for many Mexicans living in the United States. This fact is reflected in the communication habits of Mexicans I spoke with in Austin, and is echoed by recent national surveys conducted by the Pew Hispanic Project (M. H. Lopez, Gonzalez-Barrera, & Patten, 2013). Mexico, for its part has also seen dramatic increases in cell phone ownership and Internet use over the last decade. As of 2011, at least 43% of Mexicans had accessed the internet in the past year, up from just 14% in 2001 (Instituto Nacional de Estadística y Geografía (INEGI), 2013). These rapid changes in technology open up the potential for new avenues of connectivity among family and community members who have become geographically dispersed through the process of migration.

From the Transnational to the Translocal

Information and communication technologies (ICTs) underlie the study of migrant transnationalism, a research paradigm which has for two decades described a qualitatively new era of migration defined by sustained linkages between migrants and their homelands (Appadurai, 1996; Glick Schiller, Basch, & Blanc-Szanton, 1992; Portes, Guarnizo, & Landolt, 1999). The paradigm is not without critics; many scholars have questioned whether transnationalism is a genuinely new phenomenon, the degree to which transnational practices extend beyond the first generation, and the utility of a term which

seemingly applies to an immense range of migrant activities (Vertovec, 2009; Waldinger & Fitzgerald, 2004). In response, researchers have repeatedly called for approaches to transmigration studies that move beyond merely identifying linkages toward understanding the strength and dynamism of transnational ties and their varying effects. Levitt and Glick Schiller (2004, p. 1012), for example, note the importance of focusing on both migrants and those who have not migrated in order to reveal the flows of goods and ideas that contour transnational relationships. They identify (p. 1012) the need for "tools that capture migrants' simultaneous engagement in and orientation toward their home and host countries."

Geographers, in turn, have brought a spatial corrective to the study of transnational social networks by reasserting the importance of spaces, places, and landscapes in shaping transnational relations (Adams & Skop, 2008; Brickell & Datta, 2011; Featherstone, Phillips, & Waters, 2007; Gielis, 2009; Jackson, Crang, & Dwyer, 2004). In *Translocal Geographies*, Brickel and Datta (2011, p. 3) summarize this work as an effort to "take into account the ever variegated localized contexts where transnational networks are maintained, negotiated and sustained in everyday urban life" and to "assert the importance of local-local connections." In other words, by drawing attention to the opportunities and constraints afforded by different places, geographers have been able to study place-transcending social networks while at the same time foregrounding migrant agencies.

Paisano Networks and the Value of Weak Ties

The enduring importance of place-based social ties among Mexican immigrants has been widely documented (Goldring, 2001; D. S. Massey & Espana, 1987; Zúñiga & Hernández-León, 2006). In the context of Mexican migration, such ties are referred to as *paisanaje*, or the sense of belonging to a common community of origin (D. Massey et al., 1990, p. 140). In their intensive study of four migrant-sending communities in western Mexico, Massey et al. (1990) found that "origin from the same place is not a meaningful basis of social organization for people...until two *paisanos* encounter each other outside their home community" (p. 143). *Paisano* networks emerge through migration, and can serve as a valuable resource for migrants during the settlement process (Portes et al., 1999). Granovetter (1973) identified the "strength of weak ties" (aka, acquaintances) in providing an individual with valuable information and ideas that would otherwise not circulate within a person's network of close friends and kin. In the case of Mexican migration, loose social affiliations based on a shared place of origin constitute weak-tie networks that provide migrants with novel information regarding employment opportunities (Flores-Yeffal & Aysa-Lastra, 2011) as well as temporary or permanent housing (Hernández-León, 2008; D. Massey et al., 1990). Weak social ties such as those shared by *paisanos* also facilitate recruitment into political movements and various modes of collective action (Granovetter, 1973). For example, shared community of origin is the basis for the formation of hometown associations and social clubs that raise money for development projects in migrants' communities of origin (Goldring, 2001). Such clubs can in turn wield significant political influence in their communities of origin (M. P. Smith & Bakker, 2008; R Smith, 1998).

Massey and colleagues (D. Massey et al., 1990) have thus argued that place-based social ties play a fundamental role in shaping the direction and volume of migration flows between Mexico and the United States. According to this research, as migrant social networks grow over time, opportunity costs to future migrants are lowered because they can potentially draw on a larger pool of individuals with knowledge about crossing the border, finding housing, finding employment, navigating legal and financial systems in the United States, etc.

The proliferation of mobile digital media raises the question of how new communication technologies might enable migrants to foster and call upon place-based social ties in new ways. Hometown Facebook pages provide an intriguing example, however we must approach this phenomenon with theoretical caution. Scholarship on the geographies of media and communications urge an attentiveness to the multiple places, scales, and technologies in and through which transnational activities are carried out. Although ICT may enable a seemingly disembodied and "placeless" connectivity between distanciated persons, this literature reminds us that transnational spaces of communication are always constitutive of the experiences of embodied individuals acting from particular social and material contexts. I describe this research in the sections that follow.

From the Physical to the Virtual and Back Again: Place and Community on the Internet

The Internet is only the most recent of many technologies that enable long-distance communication between migrants and their distant kin and friends. 17th-century New England settlers, for example, relied on "intermittent, painful, and slow"

handwritten correspondence in order to "maintain a sense of shared family membership and national identity" with England (Cressy, 1987, p. 213). In the late 19th century, European migrants to New York City relied on letters and, later, telegrams to maintain close family networks across the Atlantic (Foner, 1997). The use of phone calls and text messaging in more recent migration contexts has been widely documented (e.g., Horst, 2006; Parreñas, 2005; Thompson, 2009; Vertovec, 2004), and of course those technologies remain an important component of many migrants' communication practices. The Internet, too, has for over a decade served as an important forum for diasporic communication (Adams & Ghose, 2003; Mitra, 2002). But today's Internet offers a multitude of content-rich, interactive, and expressive services—broadly known as Web 2.0—that provide users with a qualitatively different communication experience from that of the early Internet era.

Social media sites in particular have redefined what it means to be "present." Analysts turn to terms such as "pervasive awareness" (Chen, 2013), as well as "ambient" (Komito, 2011) or "connected" presence (Licoppe, 2004; Schroeder, 2006) to describe the phenomena of being continuously, if passively, connected to one's social world via digital media. Scholars suggest that connected presence is made possible by the growth of media multiplexity—whereby absent persons communicate through multiple parallel technologies "to the point where copresent interactions and mediated communication seem woven into a seamless web" (Licoppe, 2004, p, 135). Social media sites foster multiplexity in that they offer users multiple modes of communication (such as direct messaging, public "status updates", video chatting, etc.), they are accessible from any Internet-ready device,

and they can be integrated with other modes of electronic communication such as email, text messaging, and other social media sites.

The social media behemoth Facebook dominates the social media market in this realm; as of 2013, 73% of Americans and 40% of Mexicans use the site, ("El Universal - Computación - Usan Facebook 47 millones de usuarios en México," 2013, "Social Networking Fact Sheet," 2013). The freely-accessible website allows users to conduct voice and video conferences, as well as embed images, songs, and hyperlinks directly into user-generated pages. Mobile users—the largest share of Facebook subscribers in the US and Mexico—are able to optionally 'geotag' any post with a geographic place name or coordinates (Constine, 2012.; Sánchez Onofre, 2013).

Place has indeed found renewed currency on the Internet, as GPS-enabled mobile devices now support innumerable location-based social networking services. In addition to georeferenced commenting, "tweeting," and image-sharing (e.g., Facebook, Twitter, Instagram), there are social check-in and review sites (e.g., Foursquare, Yelp) and social meet-up and dating applications (e.g. Meetup, Grindr), all of which shape to some degree the way their users experience different places (Sui and Goodchild, 2011).

Distance, reconfigured.

The time- and distance-shrinking capacities of information and communication technology (ICT) led some to herald the arrival of an age in which geographic location was no longer a mitigating factor in social and economic relations, a "death of distance," as Cairncross's oft-redressed (2001) statement goes (e.g., Kitchin, 1998; Kwan, 2002; Mok,

Wellman, & Carrasco, 2010; Wilding, 2006; Zook & Graham, 2007). Geographers have effusively defended the importance of the material contexts of electronic communications, maintaining that "frictions based in place (e.g. transport costs, cultural differences, and accessibility) continue to influence and to shape access to [technologies] and the way in which they are used" (Zook & Graham, 2007, p. 467; see also, Straubhaar, Spence, Tufekci, & Lentz, 2012).

Adams (1997) argues that the early popularity of virtual place metaphors such as cyberspace, virtual architecture, and electronic frontier reflect a human tendency to reconcile the unknown in our geographical imaginations—to give "cultural meanings...to a sociotechnological system that is largely immaterial yet seems to have the attributes of a place or a landscape" (p. 167). Although virtual place metaphors have largely fallen out of use as technology has become commonplace, this, in fact, is a reflection of the triumph of virtuality (Adams & Jansson, 2012); technology has become so embedded that even the most banal spaces of daily life are digitally mediated.

Kitchin and Dodge (Kitchin & Dodge, 2005, 2011) argue that the banality of software both produces space and alters sociospatial relations. By virtue of their technicity—their ability to do "work" in the world—digital technologies present solutions to everyday relational problems, e.g., checking out at the grocery, navigating an urban environment, communicating with a distant family member. Not everyone interacts with digital technology in the same way, nor is technicity an exclusive property of digital technologies. Yet the increasing prevalence of software in everyday life means that a greater share of human movements and interactions in space are modulated—or

transduced—by digital communication media. Most importantly, we increasingly rely on technologies which are networked, location-aware, and perpetually "awake". We thus experience space as a function of software code—a "code/space" that "has a complexity much greater than the sum of its parts" (Kitchin and Dodge, 2011, p. 18).

The notion of code/space implies that space and technology are mutually constitutive. We can carry this logic a step further and consider that our perceptions of and attachments to particular spaces—that is, our sense of place—is similarly shaped by sociotechnical processes (Adams, 2010; Cresswell, 2004). Code/space implies that it is impossible to disentangle the "virtual" from "real" in place; rather, it is useful to think of places as topologies of relationships, some of which transcend the immediate physical contexts of a place, but nevertheless have bearing on the experience—or unfolding, to use Kitchin and Dodge's (2011, p. 16) term—of a place (Adams, 1998, 2000, 2009).

The Digital Spaces of Transnational Communication

Code/space has special implications for those who seek out digital communications media to stay in touch across borders. Skop and Adams (Skop & Adams, 2009, p. 200) employ Dodge and Kitchin's (2005) notion of transduction to explore how Indian immigrants use the Internet to construct a sense of identity and community from abroad. They find that "by disembedding activities from their established place, the Internet allows "place-based aspects of identity and community [to be] re-enacted" (p. 130). The authors are careful to stress that the means by which individuals use technology to reinforce their Indian identities are in themselves particular to the Indian diaspora. Furthermore, the Indian

diaspora itself is comprised of several regional, sub-national groups, whose members occupy varying social positions within Indian and American social hierarchies (Mallapragada, 2006). Members of the Indian diaspora are seen to appropriate the Internet as a communication medium in socially and culturally-specific ways. The result is a transnational constellation of online practices, discourses, and economies figuratively understood as a "bridgespace" that is at once both a reproduction and reconfiguration of offline space (Adams and Ghose, 2004; Skop and Adams 2009).

We can similarly hypothesize that the online spaces which support communication throughout dispersed Mexican communities will be contoured by the particular subjectivities and positionalities of community members. For example, in Mexican-American communication spaces we might expect to observe manifestations of the sense of longing and separation that undocumented migrants endure as a result of their restricted mobility. It might also be the case that rural municipalities in Mexico are more likely to foster an online community because rural municipalities have historically served as a basis for sociocultural identity (Castillo, 1999). Similarly, it might stand to reason that those communities with the longest traditions of US emigration would be more likely to attract a large online presence, simply because their emigrant population would be larger. I explore these and other questions throughout the remainder of this chapter.

NOTE ON TERMINOLOGY

Facebook's social universe is essentially comprised of three types of networked entities: personal profiles, pages, and groups. At the center of this universe is the personal

profile. Each of Facebook's 1.2 billion users maintains a personal profile, which can be personalized with a photo of the user and their biographical information. The personal profile serves as both an avatar for interacting with other users, as well as an interactive "timeline" on which the user and the user's "friends" can post comments, images, videos, and hyperlinks.

Facebook pages are similar to personal profiles, but serve as a means for organizations, businesses, and celebrities to maintain a presence on Facebook. Facebook hosts millions of unique pages (Darwell, 2012), with subject matter ranging from a local chess club in Peoria, IL, to the official corporate brand page of Coca-Cola. Like personal profiles, Facebook pages can be personalized with an image, and—in place of biographical information—an "about" statement that summarizes the page's purpose or target audience. Any Facebook user can create a page related to any subject matter, and multiple users may act as page administrators. Similar to personal profiles, pages have a timeline to which other users can post comments, images, videos, and hyperlinks. Rather than "friending" a page, Facebook users subscribe to pages by "liking" them, and the number of "likes" a page has received is displayed prominently on each page's homepage.

Throughout this chapter, I refer to Facebook users who "like" a hometown Facebook page interchangeably as subscribers and participants. I refer to the Facebook users that administer hometown pages as moderators, which I believe most accurately captures their role as both organizers and discussants.

METHODOLOGY

I have employed a number of analytic tools in order to document the proliferation of hometown Facebook pages and evaluate the discussions that take place on hometown pages. The first part of this effort entailed the systematic searching and cataloguing of Mexican hometown pages associated with municipalities in the Mexican state of San Luis Potosí. I subsequently selected two municipal hometown pages for in-depth study, and conducted content and discourse analyses of participant activities on each page. The proceeding subsections describe these methods in detail.

Identifying the Hometown Pages of San Luis Potosí

Hometown pages were identified using Facebook's basic search functionality. I found that searching by the name of Mexican municipalities offered results the most frequently. Municipalities serve as Mexico's second-order administrative districts, equivalent in many aspects to counties in the United States. In contrast to US counties, Mexican municipalities—particularly in rural Mexico—serve not only as a political organizing unit but often also as a marker of socio-cultural identity (Castillo, 1999). This is most clearly expressed by the demonyms with which residents occasionally refer to themselves—e.g., Coronense, Ocampense, Cedralense (from Coroneo, Ocampo, and Cedral, respectively). Because the political seat (and typically the largest city) of a municipality often shares the same name as the municipality itself, municipal name searches also ensured that large population centers were included in the search process. It was also found that hometown pages associated with smaller population units such as

pueblos, *ranchos,* and *ejidos* would occasionally include the name of their municipality in the page name, for example, "coaquentla matlapa san luis potosi" [sic][3]. In sum, searching by municipality name offered the feasibility of systematically searching for pages within an entire Mexican state, while also ensuring that localities both large and small would be captured in the search.

After reviewing each page in the Facebook search results, a page was identified as a "hometown" page if it met three basic criteria:

1. The page associates itself with a specific locality in Mexico
2. The principal focus of the page is not to promote commerce or tourism
3. Some page participants reside outside of the locality itself, or page content is oriented toward migrants/migration

In many cases, it was immediately clear that a page serves a migrant population. For example, the page *Soy de Coroneo, S.L.P.* describes itself as a,

> a group open to the people that perhaps were born, lived, or live in Coroneo. You can share pictures of our beautiful municipality, or tell us your story, or perhaps meet some people you thought you would never return to see again.

In other cases, it was necessary to review the photos and images posted on the page in order to confidently categorize the page as a hometown page. When a hometown page was identified, pertinent information about each page was recorded in a spreadsheet. These details included: the page name, the number of page subscribers (a.k.a. "likes"), the date the page was founded, the page's "About" statement, the page URL, and an estimation of the page's activity level based on the frequency of posts and comments.

[3]https://www.facebook.com/coaquentla

In-depth hometown page analysis

I selected two municipal hometown pages for in-depth content analysis: *Soy de Coroneo, S.L.P.* and *Ocampo—ParaisoTerrenal*. These two pages make ideal candidates for content analysis because of (1) their moderate to high levels of participant activity, as well as (2) their similar municipal population estimates from the most recent Mexican census (INEGI, 2013). Throughout, I refer to *Soy de Coroneo, S.L.P.* as "Soy de Coroneo," and to *Ocampo—ParaisoTerrenal* simply as "Ocampo."

Text, images, and videos serve as the focal point around which social interaction occurs on hometown Facebook pages. Content and discourse analyses offer a systematic approach for drawing inferences from these media about Facebook users' motivations to subscribe to and participate in hometown pages (Krippendorff, 2012; Fairclough, 1992).

I have limited my analysis to the most popular posts collected from each hometown page. To do so, I first used the freely available Netvizz application[4] to retrieve data relating to the 300 most recent moderator posts to each page. In the case of Soy de Coroneo, the most recent 300 posts represented a roughly 15-week period from October 2013 to January 2014. In the case of Ocampo, only 128 posts were retrieved—representing the entirety of posts since the page was founded in March of 2013. I subsequently identified the 50 most popular posts[5] of the initial 300 (Soy de Coroneo) and 128 (Ocampo) posts, and categorized each based on the content of the post and subscriber comments.

[4] https://apps.facebook.com/netvizz/

[5] A measurement of post "popularity" was formulated as an aggregate of the total number of "likes" and "comments" garnered by each post

It is important to note that my analysis included both the content of the moderator post (i.e. the text, image, video, or hyperlink) as well as the comments that subscribers posted in reply to the moderator's post. Reply comments offer key insights about the attitudes subscribers have towards page content, as well as strength of subscribers' associations with these contents (Krippendorff, 2012). While it was impossible to read every subscriber comment (there are thousands), the typology of subscriber comments that I detail below are informed by the many hundreds of comments I read during my extensive investigations of these pages.

FINDINGS PART I: THE PROLIFERATION OF HOMETOWN FACEBOOK PAGES

Facebook searches revealed that all but 4 of the 58 municipalities in San Luis Potosí were represented by at least one hometown page. Some municipalities were the subject of multiple pages, and in total 90 unique hometown pages were identified, representing 130,188 total page subscriptions. Taking into account the possibility that a Facebook user may subscribe to multiple pages in their municipality, I conservatively estimate that at least 95,000 individuals subscribe to the hometown Facebook pages of San Luis Potosí. However, given that most pages do not require users to "like" a page in order to view or post content, and the distinct possibility that a user might access the page through the account of a spouse, parent, or friend, it may be that hometown pages attract many more users than their subscribership numbers would suggest.

Gray Areas

As outlined in the previous section, a Facebook page was identified as a "hometown" page if it met three basic criteria:

1. The page associates itself with a specific locality in Mexico
2. The principal focus of the page is not to promote commerce or tourism
3. Some page participants reside outside of the locality itself, or page content is oriented toward migrants/migration

Though I strived to adhere to these selection criteria, I encountered many ambiguities. Firstly, although place-oriented Facebook pages are common, the extent to which emigrants participate in a given page is often unclear. Some municipal pages, for example, operate under the banner of a local government or political party. Ostensibly preoccupied with public relations and communications about locally-sponsored events and projects, government Facebook pages are nevertheless open to subscribership and engagement from the emigrant population, wherever they may be. In my analysis I was able in many instances to identify migrant participation (in the form of "liking" or commenting on page content) on a number of government pages, and in such cases I considered the page to qualify as a hometown page. Given the propensity for transnational citizenship practices on the part of various Mexican hometown associations (HTAs) in the United States (Smith & Bakker, 2008), it may well be that government Facebook pages open up a new channel for transnational political involvement at a local level. The emergence of government pages in parallel to and overlapping with hometown pages more generally is thus an important finding that warrants in-depth research in its own right.

Other genres of Facebook pages were occasionally found to facilitate place-based transnational engagements in surprising ways. Searches frequently returned Facebook pages representing local high schools, and on occasion emigrant users were observed posting brief comments to these pages. Such comments, which I discuss in more detail in the following section, often take the form of a salutation as well as a note about the user's current location; for example, "Greetings from Houston!" Similar posts were at times observed on pages belonging to hotels, restaurants, and guide services, particularly in the popular tourist region of *La Huasteca*. While not specifically oriented towards migration, such pages have the potential to become informal gathering places in which users express their sense of connection to their hometown. For example, a woman from Houston shares her affiliation to a small *Huasteca* community on the page of a private tourism agency: "My beautiful town is so marvelous...I grew up there...I'm the daughter of Mrs. Susana, maker of the most delicious gorditas....but I'm so far away..." These instances of transnational communication reveal the limitations of my efforts to systematically evaluate the extent of hometown pages. Migrant Facebook users find opportunities to reconnect with their places of origin through many channels, and are in no way restricted to the somewhat formalized venues of pages specifically designed to reconnect migrants with their hometowns.

Growth, Attrition, and Succession in "The Space Between"

Facebook unveiled its page functionality in 2009 (Darwell, 2012), and as of March 2012 Facebook reported as many as 42 million user-created pages with ten or more "likes."

My analysis suggests that the proliferation of Mexican hometown Facebook pages has followed a similar trajectory. As shown in Figure 3.1, the first hometown pages of San Luis Potosí emerged in 2009, while the majority have been established in the last three years. This figure also suggests that the proliferation of hometown pages may be slowing down, however new pages continue to emerge. Indeed, during the five month period (from November 2013 to March 2014) in which I conducted my analysis, four of the hometown pages I identified were less than 30 days old. Furthermore, throughout my analysis I periodically revisited pages in order to document changes in subscribership. In most cases, I observed significant page growth. Of the thirteen hometown pages I identified on November 2, 2013 (the outset of my analysis), as of April 15, 2014, page subscribership had increased by 30% on average, with one particularly popular page adding nearly 1000 users over the five-month period.

Facebook is also littered with inactive pages. In fact, in 2012 the company began contacting the moderators of seemingly abandoned pages in an effort to motivate users to either reengage or "unpublish" their pages (Danzinger, 2010). Hometown pages are no exception; I came across many abandoned hometown pages over the course of my search. As Schroeder, Huxor, and Smith (2001, p. 575) note in their geographic study of virtual reality environments, the freeness and abundance of online real estate can lead to the emergence "virtual ghost towns." However, these virtual abandoned settlements highlight a key difference between online and offline environments—the absence of decay. Abandoned though they may be, inactive hometown pages nevertheless remain wholly intact; the entire lifespan of the page—images, comments, "likes"—have been embalmed

in the ether of cyberspace, indefinitely preserved for future web surfers to explore with the twirl of the mouse wheel. Abandoned pages often tell the story of their own demise. Most commonly, the moderator's interest seems to wane; posts become infrequent, and page subscribers follow suit. Often the most recent comments on abandoned pages appear from users who stumble across the page long after the moderator has disappeared. In some instances the page moderator leaves a note of departure—they're unable to dedicate the necessary time to maintain the page, for example—or, in the case of one hometown page, a moderator reported that her mobile phone had been stolen, and that she hoped to purchase a new phone shortly, but that page subscribers would kindly need to make do without her for a few weeks. In a few cases, the pages had simply moved, and a farewell post on the page provided a link to the page's new "location."

Slater and Tacchi (Licoppe, 2004; Slater & Tacchi, 2004), employ the concept of "communicative ecology" to describe the multiple layers of available communication technologies, communication practices, and discourses that persist within and between particular communities. In this approach, we can conceive of a hometown Facebook page as just a single dimension of a place's evolving communicative ecology. I add to this metaphor the ecological notion of succession in order to consider the dynamics of hometown Facebook page growth and attrition. Succession aptly describes the process by which hometown pages proliferate, mature, decline, and are at times surpassed by competitors. As shown in Figure 3.1, the number of hometown pages multiplied rapidly during the late 2000s, although the growth may, in effect, have leveled off. Individual pages, however, continue to grow steadily in terms of subscribership, presumably fueled

by ever increasing numbers of Facebook users and the contagious diffusion of hometown page subscribership through digital social networks.

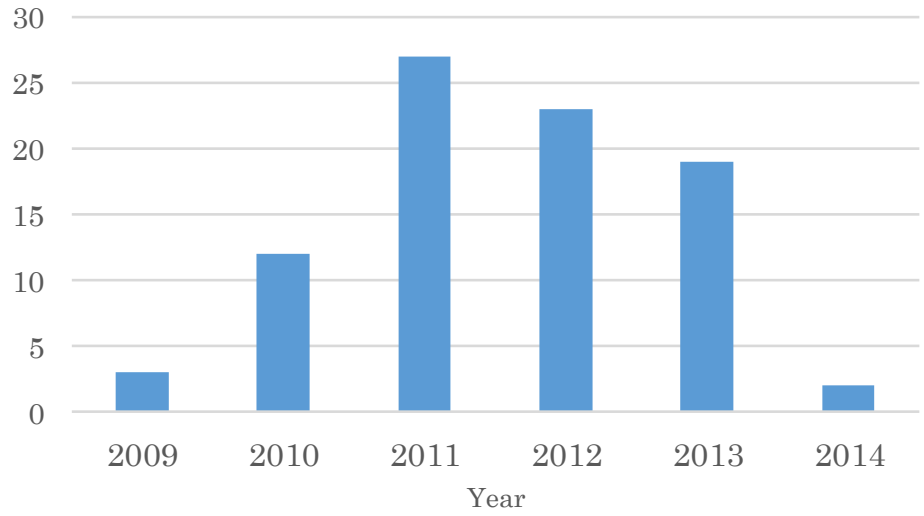

Figure 3.1 Number of hometown pages founded per year, San Luis Potosi, MX. Note 2014 includes January-April only.

These observations raise further questions about the dynamics of hometown Facebook pages. What draws participants to these pages, and what type of exchanges take place amongst participants? Are there themes—in terms of the content that is shared and the discussions that unfold—that cut across multiple hometown pages? How does the act of migrating, and the concurrent geographic dispersion of page participants, manifest itself in the discussion threads on hometown pages? I begin to answer these questions through an in-depth exploration of *Soy de Coroneo, S.L.P.* and *Ocampo—ParaisoTerrenal*.

FINDINGS PART II: IN-DEPTH ANALYSIS OF TWO HOMETOWN PAGES

The format of pages posts can be divided into four general categories: status updates, images, videos, and hyperlinks. Images are by far the most common moderator post on both pages, making up at least 86% of the content posted on either Soy de Coroneo or Ocampo. Status updates (brief text messages) are the second most-common, constituting about 10% of posts on both hometown pages. Other posts, such as external hyperlinks and videos made up less than 3% of posts on both pages.

As the most common and popular form of content, discussions tend to revolve around the images posted by the page moderator. These discussions follow a predictable format. First, the moderator posts an image—typically a photograph of the place of focus or its environs—along with a caption describing the image. Page subscribers respond by "liking" the image and/or posting a comment about the image. In the sections that follow I describe the trends I observed in the photograph content posted to both hometown pages, as well as the responses these images generated from page participants.

A Picture of Home: Public Spaces, Landscapes, Foods

No single theme predominates among the most popular photographs posted on Soy de Coroneo or Puro Ocampo. Images can be roughly grouped into three categories: public spaces, landscapes, and food.

Public Spaces

Public spaces are captured in views of parks, plazas, monuments, churches, schools, municipal buildings, and nondescript city streets. Such photos of public spaces present the built environment as a local might experience it; the images convey a sense of spontaneity and movement, offering an impromptu glance across a busy intersection, or a first-person perspective of the plaza at sundown. Moderators often write captions that heighten the sense of experiencing place in-the-moment. A photo of a road leading into the city of Coroneo, for example, is accompanied by the moderator's comments, "Imagine that it's all of you who are arriving at your Coroneo.."

Photos of public spaces also document temporality and change. Moderators on both sites posted views of infrastructure projects and new businesses, including a recently paved thoroughfare and the openings of a new bank and grocery. One particularly popular image at Ocampo noted the closing of a beloved bakery, and another pictured a badly vandalized public pavilion. Such images can provoke dialogues touching on deeply politicized issues, discussed in more detail below.

Landscapes

Landscape photos are as common as photos of public spaces. They present the hills, rivers, and fields that fill each municipality's interior. Moderators at both Soy de Coroneo and Ocampo regularly post images of their municipality's *naturaleza*. At Soy de Coroneo, landscape photographs almost always include the historic railway that runs through the municipality. Similarly, Ocampo landscapes often focus on the Ocampo River, which cuts

across the municipality and is dotted with numerous waterfalls. Agricultural scenes—of livestock, or of tractors and laborers in sugar cane fields—are also frequently pictured. Landscape images provide viewers with a reminder of the natural beauty of their municipality, as well as the agricultural practices in which many subscribers themselves have worked. These photographs also document the weather and changing seasons that signal the arrival of festivals and punctuate agricultural activities. Again, the moderator plays the important role of narrating the scenes for viewers. A series of photographs posted in early November announces "the [sugar cane] harvest has already begun in Ocampo!", and another asks subscribers, "who has ever worked cutting [sugar] cane????"

Food

Pictures of food make up a third category of popular images posted to hometown pages. Raw ingredients (chiles, shucked corn, beans), prepared foods (*moles*, *tamales*, *salsas*, *dulces*), and cooking practices themselves (*tortillas* baking on an earthenware *comal*, corn roasting on an open flame) all elicit effusive responses from subscribers. Food images are especially common on Soy de Coroneo, where the moderator regularly posts mouthwatering images of the elegant dishes his mother prepares. Such images are perhaps the strongest expressions of local identity presented on either hometown page. Attached to a photograph of a stack of corn tortillas next to a stockpot full of steaming rice, the moderator notes, "this is how one eats humbly in my house..." Another photo pictures a plate of *flautas* smothered in salsa and cheese with the caption "this is how one breakfasts in Coroneo..."

Taken individually, each image of a public space, a well-known landscape, or a traditional culinary dish offers subscribers a glimpse of their hometown from a particular vantage at a particular moment in time. But page visitors encounter these images collectively, as a continuous stream of representations of the many locations and practices that constitute a place. Parks, plazas, and schools are interspersed with views of cane fields, flooded rivers, and railroad tracks stretching out to the horizon. In effect, Facebook provides a space in which the hometown itself can be reimagined through *bricolages* of images, videos, and shared memories and emotions. As I describe in the next section, these images foster discussion and elicit a range of emotional responses from hometown page participants.

Subscriber Responses

Figure 3.1 displays the user interface through which subscribers read and attach commentary to photographs that have been posted to hometown page. As shown, subscriber comments appear chronologically to right of the photograph, and are visible to any user that visits the page. Thus, for the residents, tourists, and emigrants who visit hometown pages, the experience is interactive; moderators invite viewers to comment through the captions they attach to each photo. It is through subscriber participation that the contents of hometown page posts remain "perpetually under construction" (Adams & Jansson, 2012, p. 303). Similar to the process by which online newspapers provide commentary space in which readers publicly discuss articles (Adams, 2007), hometown place images are constantly reinterpreted through users' abilities to "like", comment, and

"share" (by re-posting the image elsewhere on Facebook or within other online domains). Throughout the following sections, I seek to trace the processes by which representations of hometowns are reaffirmed and renegotiated through subscriber interactivity. I in turn reflect upon character and frequency of subscriber responses in order make broader inferences about the social and spatial implications that hometown pages hold for dispersed immigrant communities.

Figure 3.2 Example of a photograph and subscriber comments on a hometown Facebook page.

Longing and Separation

Perhaps the most common subscriber comments are those that wistfully exclaim their sense of separation from their hometown. In response to the image of a rainy day in Ocampo, a subscriber from Ocampo currently living in Texas comments, "How I would like to be around Ocampo! [It is] so beautiful this time of year." Also commenting from Texas, another user exclaims, "my precious beloved Ocampo, how much I miss you!!! Walking around those puddle-ridden streets is the best!"

Images of public spaces are particularly likely to evoke expressions of longing from subscribers, and many subscribers use comments to share personal memories of a pictured locale. Indeed, moderators often invite such nostalgia. Along with a photograph of an intersection in a central business district, the moderator of Ocampo asks, "Who remembers this place?" A response from an *ocampense* living in Houston is exemplary:

> We called this place 'The Corner' or '*El Cañonazo*.' We would go almost every day after high school. I almost always went with the teacher, Carmelita Ortega :) or with Mr. Don Poncho, who was nicknamed The Good Frog, because, around there, no one goes without a nickname.[6]

Through this deeply nostalgic recollection, we see how discussion threads on hometown pages offer shared spaces in which to reimagine a place of concern. This user's comment articulates the affective, symbolic, and habitual practices inscribed within this particular place. The heartfelt comment enjoins other subscribers to participate in the discussion, to

[6]For a non-native Spanish speaker, interpreting and translating subscriber comments can be challenging. Slang, alternative spellings, and typographical errors are common. This quote in particular was quite difficult, so I present the original here: "Le llamavamos la eskina o el cañonazo. los k nos ivamos de ray k casi la mayoría para la mutua saliendo de la secu.ahí esperábamos .y yo me iba casi siempre con la maestra carmelita Ortega.o k el sr .don poncho k lo apodavan la ra...na.bueno por ke aya nadie sale sin apodo..."

share their own accounts of the place, and in effect contribute to a collective rebuilding of and reconnecting with the place itself.

Commentary is not restricted to residents and former residents; some page subscribers identify themselves as tourists or relations of residents. Tourists' comments are especially common at Soy de Coroneo, and their contents are equally vibrant. One such visitor responds to an image of two boys selling *gelatinas*:

> When I was little, I went on vacation to Coroneo, to my grandparents' house. Although the mornings were cloudy and cold in December, I loved it. Many years later I returned, and something I wanted to revive was precisely that sensation of childhood joy from eating those delicious treats....And now I see those children and their *gelatinas* and the nostalgia engulfs me....

Again, the user's comment exemplifies the emotional responses that hometown place images compel of subscribers. The respondent portrays Coroneo as an almost mythical place of youth and happiness. It is only a partial view of the place, one individual's perspective from a distinct moment in time—and certainly a similar memory could be had about any number of places. And yet this comment speaks to page subscribers' enduring connection to the places that are the focus of hometown pages. Their willingness to publicly express such powerful memories contributes to a sense of trust and belonging present on both pages. The members of this community are geographically dispersed, and their ties to each other are undoubtedly variable and indeterminate. But as we examine the images and comments that circulate among hometown page subscribers, it becomes clear that the ties binding page subscribers exceed a shared affiliation with a locality of interest. Wellman and Gulia (1999) note that online groups often become sources of social support for users, even when not explicitly designed for this purpose. While we do not see appeals for

consolation or offerings of direct support on hometown pages, we find users publicly sharing powerful expressions of emotion, from longing, sadness, and nostalgia, to pride and endearment for their hometown.

By the simple fact that the images and subscriber responses are visible to all users, commenting is itself a shared and public act of communication. As when the above commenter reaffirms the communal importance of 'The Corner' by sharing her personal attachment to it, anecdotes from subscribers' pasts serve as testaments to communities' historical roots in a place. Similarly, Alinejad (2011) suggests that emotional and nostalgic attachments to places form the basis for "imagined spaces and communities informed by and constructed through an embodied sense of being situated in places" (p. 43). Among Iranian diaspora bloggers, she found that emotional intensity demonstrated an online community member's authenticity and credibility. Emotive commentary play a similar role in hometown pages by reinforcing a user's sense of belonging to a particular place, as well as establishing the basis for communal interaction on the page.

Reaffirming the Practices of Place

Subscriber comments also reinforce the link between places and the cultural practices of residents therein. In response to the above-mentioned image of two boys selling *gelatinas*, a commenter in Brownsville, Texas, noted, "People from Coroneo are taught to work at a young age, and in any way possible." Participants' effusive responses to images of food elicit similar affirmations of place identity. For example, a dinner scene posted to Soy de Coroneo prompted this response from a subscriber in Oklahoma, "That's

how we eat in my dear Coroneo!" In response to the image (Fig. 3.2) of tortillas and rice, one astute commenter notes, "Those are store-bought tortillas, you didn't actually make them on the *comal!*" This commenter's lighthearted criticism illustrate subscribers' strong associations between their hometown and the culinary practices therein. Similarly, in their study of migrant Newfoundlanders' use of online message boards, Hiller and Franz (2004) found that these types of shared affiliations—be they place-specific cultural practices or nostalgia for a particular business district—can lead to a form of communal bonding that need not be based on any previous face-to-face interaction. They found that community emerges "from a generalized sense of belonging (as slippery a methodological slope as it may be) based on a group identity and a territorial homeland [that is reinforced] through online interaction" (p. 746). This process is evidenced by the hundreds of "likes" and comments that images of food evoke on hometown pages.

Change, "progress", and doubts

Subscribers often verbalize the changes they observe in the photos of their hometowns. Simple expressions—"Coroneo has changed!"—are the most common, and capture a sense of wistfulness and surprise at the passing of time. Some observers use these comments to mention how long they've been away: "Much has changed in 11 years, I barely recognize my neighborhood," notes a subscriber in Tulsa, Oklahoma. Images of public spaces also elicit questions from subscribers about specific people and their businesses. A user in Houston asks, "Is Arturo Solento's sporting goods store still there? What about the refreshment stand in front of the church??? And the cinemas????"

Comments such as those described above signal the strong sense of attachment users have to their hometowns, as well as the sense of shock and loss that accompanies the observation that a beloved place that has changed. At times, current residents contribute comments which narrate the changes taking place in their towns. After a number of subscribers marveled at an image of central Ocampo, a local subscriber helped viewers orient themselves:

> That's where the bakery used to be, and before that a furniture store. But now it's a shopping center...Everything is so different that you get confused around here, all the while saying here was what's-his-name's store, and next it so and so's place, because everything is so different. Honestly very, very different and yet our Ocampo is still very beautiful, the land doesn't change....You're welcome to come visit our beloved *pueblo* whenever you want :)

The change participants observe in their hometowns is of course partly related to migration itself. Remitted US earnings in particular can have considerable impact on the landscapes of the Mexican municipalities, spurring the construction of American-style "remittance homes" (S. L. Lopez, 2010) as well as large-scale public infrastructure projects (Orozco, 2002). However, I did not observe explicit conversations about remittances or their impact on the urban landscape, although subscriber comments were often obliquely political. In reaction to an image of Coroneo's central plaza that showed a concrete slab emblazoned with municipal coat of arms, one user noted that the concrete had cracked. The observation led to a dialogue critiquing the municipal government's failure to "take care of" the town. Other images of city streets variably elicited praise (when major a thoroughfare was shown to be freshly paved) and condemnation (when an arterial was pictured in disrepair) of local authorities.

There is also a recurring tension related the idea of "progress" present in numerous subscriber discussions. On one occasion the Ocampo moderator posted an image taken within a newly built *supermercado*. Some subscribers were pleased, as a user in Oklahoma City notes,

> Well, that's great that little by little our Ocampo is progressing, and I hope that it keeps getting better, and keeps moving forward. I send my blessings to my beloved *pueblo*.

Another user, writing from municipality itself, urged caution.

> Yes, the store is just like the ones in the city, but remember that many of our business that have been here for many years are owned by *ocampenses*.

Here we see a tension not only between tradition and corporatization, but between the observations of a page subscriber who has migrated to the United States, and a resident of the municipality. Notably, none of the discussions I observed on the pages could be characterized as heated arguments; participant comments on the whole were respectful—and certainly a far cry from the notorious vitriol found on YouTube and other anonymous social media sites (see, Thelwall, Sud, & Vis, 2012, also, http://www.huffingtonpost.com/tag/youtube-commenters/). In fact, in the only instance of trolling (to use the Internet slang) I observed was widely denounced by fellow page participants.

Renegotiating the Geographical Imaginary

The notion that a community can become at once geographically dispersed while simultaneously linked is a fundamental underpinning of migrant transnationalism (Glick Schiller, et al. 1992). In some of the earliest writing on this subject, Rouse (1991 p. 12,

cited in Morley, 2000) described the Mexican community of Aguillia as one was "spread across a variety of sites" to which its members had migrated (p. 191). A sense of geographic dispersion permeates many of the discussion on hometown pages. This is exemplified in a status update posted by the moderator to Ocampo. "Good morning to all of our beautiful people from this municipality, and greetings to the people of North Carolina, Louisiana, and Texas." Page moderators also prompt subscribers to share their geographic location with other subscribers. Figure 3.3 depicts one such geographic roll-call, where the moderator initiates a discussion by asking participants to "post where you are communicating from, and like and comment about it [with the other users]."

Figure 3.3 A geographic roll-call: The page moderator prompts users to post their current location, and subscribers respond in-kind.

We are reminded by such posts that migration is both a social and spatial process. Pathways between sending and receiving localities are embedded in cross-border social networks (Riosmena & Massey, 2012), and hometown pages enable subscribers to shed light on the new spatial configurations of their communities that are manifest in these networks. In the same way that informal transborder immigrant economies can become a form of resistance to international capitalist regimes (Portes, 2000), so too can the geographic roll-calls that transpire on hometown pages be seen as resistance against the fracturing of social relations imposed by migration. By coming together online and

articulating their geographical dispersion, hometown page participants effectively reterritorialize the bounds of their dispersed communities.

CONCLUSION

This chapter has documented the emergence of Facebook pages which cater to migrants of a common community of origin in Mexico. Focusing on the central-Mexican state of San Luis Potosí, I have found that all but four of the state's fifty-eight municipalities are represented by at least one hometown page. My searches revealed that nearly 100,000 individuals subscribe to these 90 Facebook pages, and that those numbers continue to grow on a daily basis.

The proliferation of hometown pages is undoubtedly a reflection of the growing popularity of Facebook in both Mexico and the United States, as well as the increasing use of Facebook by immigrants for the purpose of transnational communication. It is likely that most Facebook users do not use Facebook solely to access hometown pages; users carry out private or semi-private interactions with friends and family members in parallel to participating in hometown pages. Crucially, however, Facebook users who do elect to participate hometown pages have chosen to do so in a public setting. They have sought a gathering place that brings them into contact with sometimes complete strangers who share a common affiliation to a particular hometown.

The images that circulate among hometown subscribers, as well as the discussions those images provoke, are evidence that hometown page participation may foster place-based ties, or *paisanaje*, among dispersed immigrant community members. I have detailed

the numerous ways in which participants recollect and reconnect with their communities of origin through hometown Facebook pages. These pages evoke deeply emotional expressions of longing and separation, and elicit detailed recollections of participants' memories of a particular place. Furthermore, hometown Facebook pages become a site where the hometown itself is reimagined through subscriber participation. In this "bridgespace," users share images and commentaries that reaffirm the multiple practices and representation that community members associate with a particular place (Adams and Ghose, 2003). These digital formations also serve as a venue in which to contest the politics of place, as we have seen in discussions of change and progress among page participants. Finally, page subscribers utilize hometown pages as a forum in which to renegotiate the territorial bounds of their communities.

Future research will need to explore ways in which the sociality on hometown Facebook pages translates to changes in the offline social worlds of community members. Do, for example, *paisano* ties forged online lead to offline interactions that evolve into strong ties? Furthermore, might hometown page subscribership lead to collective transnationalism (Goldring, 2001) in which migrants jointly raise development remittances for their community of origin? Researchers can also take advantage of the communicative power of Facebook in order to better understand page moderators' and subscribers' motivations for engaging with hometown pages. Facebook's messaging and chat functionality could be used to directly interview page participants, as well as to recruit survey respondents (I discuss innovative Facebook research methods at length in the following chapter). We must also remember that barriers still exist for many people who

wish to access Internet communication media (Warf, 2001). Future research must interrogate the structural issues that exclude some people from participating in hometown Facebook pages. An important dimension of this research might consider Facebook's lack of indigenous-language support, as well as the ways in which indigenous and other marginalized communities are actively working to overcome barriers to accessibility.

Chapter 4: Visualizing Transnational Space

We have thus far seen how new information and communication technologies (ICTs) play an important role in shaping the transnational spaces that connect US Mexican immigrants to their friends and family members in Mexico. I have described the everyday communication practices of Mexicans living in Austin, TX, and shown how those practices often involve a host of hardware, software, and web-services that provide users a heightened sense of presence with distant loved ones. I have also detailed how many thousands of people are turning to hometown Facebook pages as a means to (re)connect with their communities of origin. Content and discourse analyses showed that these pages serve as a venue for sharing memories about places of emotional import, for following community news and events from afar, and for engaging in discussions about political and social issues related to a particular place.

In this chapter, I continue my in-depth examination of hometown Facebook pages which represent municipalities in Mexico. I build on my central argument—that hometown pages have the potential to foster place-based (*paisano*) social networks—by shifting scales of analysis from the micro-level interactions that take place between page participants to the structure and characteristics of page networks as a whole. As I have emphasized in previous chapters, information and communication technologies (ICTs) are not placeless, but rather they are employed by individuals acting from particular social and material contexts. Here, I seek to situate the ostensibly deterritorialized communication spaces of hometown page networks within the very real territories from which users (inter)connect.

In shifting scales of analysis, I expand my methodological and theoretical framework in a number of key ways. This chapter draws heavily on Facebook user activity and location information collected using use web-based data-mining software. Data of this type—now conventionally referred to as "big data" (Lohr, 2012)—have become the focus of extensive research endeavors across a variety of fields, both in- and outside the academy (Kitchin, 2014). As I detail in the following sections, (spatial) big data have drawn extensive critique from geographers, whose concerns include the quality of so-called volunteered geographic information (VGI) (Goodchild & Li, 2012), issues of surveillance, ownership, and access (Crampton, 2013; Crampton et al., 2013), as well as the epistemological and ontological ramifications of positivist social science research in which data holds primacy above theory (Kitchin, 2013; Schroeder 2013; Thatcher, 2014).

Fully aware of the need to problematize the use of these data and their attendant research practices, an objective of this chapter is to therefore consider how—and indeed *if*—big data might be incorporated into a "small," grounded, research project. To do so, I turn to scholarship in participatory, feminist, and critical GIS methods. Scholars affiliated with this body of work have collectively sought to outline a research agenda in which geographic information systems (GIS) are employed critically, reflexively, and in a manner receptive to multiple ways-of-knowing (Knigge & Cope, 2006). As geographers have suggested (Elwood, Goodchild, & Sui, 2012; Elwood, 2008; Leszczynski & Wilson, 2013; Thatcher, 2014), critical GIS is particularly well-suited to confront the issues surrounding big data because critical GIS itself emerged as a response to the positivism and specious claims of objectivity during GIS's rise to prominence in the 1980s and 90s.

Taking the lead from critical GIS, I present in this chapter a visual-interpretive analysis of social network data collected from hometown Facebook pages. Pursuant to the philosophies of critical GIS, the findings and representations—that is, the geographic knowledge—I present here must be understood as a partial, highly-subjective kind of knowledge, one that is "of-the-moment, brought into being through practices (embodied, social, technical), *always* remade every time [it is] engaged with" (Kitchin & Dodge, 2007, p. 335, emphasis in original). Rather than draw definitive conclusions about the social dynamics of hometown page networks, I seek only to provide another lens through which to trace the geographies of these transnational spaces.

I begin with a review of the literature that informs my efforts, with a focus on the successes of qualitative and feminist GIS in building an inclusive and reflexive geographic information science. After an overview of my data collection methods, the remainder of the chapter is dedicated to a visual analysis of five hometown page subscriber networks. I conclude with reflections on how quantitative spatial data can be better integrated into qualitative research.

The Exaflood and Critical Big Data

If the neologism "Web 2.0" describes the maturation of the Internet from a series of linked, static pages to an interactive, mobile, and user-driven communications platform (O'Reilly, 2009), then so-called big data are Web 2.0's bursting vascular system. The term refers to the roughly 2.5 exabytes of data that are daily created in the form of email messages, tweets, surveillance video, call logs, and countless other digital sources

(Zikopoulos, Eaton, & others, 2011). The numbers are almost too large to be a meaningful; rather than contemplate an exabyte—equivalent to one quintillion bits of information (that's eighteen zeroes)—the scope of big data is perhaps easier to conceive of by simply taking a survey of our own surroundings and observing the ubiquity of machines that continuously store and/or relay digital information over the course of the day (Kitchin & Dodge, 2011).

Big data's defining characteristics include not only its increasing volume, but also its velocity and variety (McAfee, Brynjolfsson, Davenport, Patil, & Barton, 2012). Big data is fast, generated continuously and in real-time by digital devices and sensors, and big data comes in many forms, from mouse-clicks and social media feeds to streaming videos and traffic sensor logs. Thanks to smart phones and other mobile devices with embedded GPS technology, big data are also frequently encoded with latitude and longitude or a similar geographic reference. Crucially, the spatially-referenced big data means that research can ask of their data not only who, what, and when, but also *where* (Thatcher, 2014).

Taken together, big data present a diverse set of challenges to those who seek to interpret them. As Thatcher (2014) observes, big data can be defined by its attendant research practices as much as by its inherent characteristics. Indeed, the "exaflood" (Swanson, 2007; cited in Elwood et al., 2012) has been heralded as an opportunity to practice empiricism of a higher-order, in which exhaustive data unveil new understandings of innumerable social phenomena without the need for formalized theory (e.g., Anderson, 2008).

Geographers have raised a number of epistemological and ethical concerns related to big data-driven practices, especially as spatial big data are increasingly tapped as a source for geographic knowledge production and model-building (Kitchin, 2013). Central to these concerns is that big data research is highly reductionist and superficial, "sacrificing complexity, context, depth and critique for scale, breadth, automation, and descriptive patterns" (Kitchin, 2013, p. 14). Rather than seeking to deepen understanding of an underlying process, identifying correlation is often deemed sufficient in big data research. Geographers and others have also raised concerns over data-driven science's close ties to the military-industrial complex, for which big communications data are a cornerstone of mass surveillance and spying programs (Crampton, 2013; Greenwald & MacAskill, 2013).

Scholars critical of big data have begun to articulate a research agenda that does not outright reject big data for social research, but does emphatically situate big data within broader sociopolitical contexts (see, for example, Welles, 2014, and the attendant open access journal, *Big Data & Society*). Geographers have noted (Elwood et al., 2012; Leszczynski & Wilson, 2013; Thatcher, 2014) their potential to make vital contributions to this burgeoning interdisciplinary field because of their expertise in working with large spatial data sets, and furthermore because geographers confronted similar epistemological apprehensions during the quantitative revolution (Kitchin, 2013).

Critical GIS and Opportunities for Reflexive Engagement with Big Data

Since the early 2000s, critical GIS scholars, including qualitative, feminist, and participartory GIS analysts, have advanced a research paradigm which cautiously

appropriates GIS technologies for use in grounded, qualitative research (Ghose & Mukherjee, 2009; Kwan, 2002a; M. Pavlovskaya, 2006). These efforts are the outcome of an evolving set of critical responses to the precipitous rise of geographic information systems (GIS) and science (GISc) during the late 1980s and early 1990s (Schuurman, 2000). The so-called "GIS and Society" debates (Sheppard, 2005) are worth summarizing here because, as we will see, they resonate with current preoccupations about big data science (see also, Schuurman, 2000).

GIS and Society

At a time when the computational power of computers coupled with developments in spatial statistics were opening up a realm of seemingly unlimited possibilities for geographic research, human geographers became wary that GIS resembled the positivism that characterized the discipline in the 1960s. Peter Taylor (1990) said as much in a commentary in the Political Geography Quarterly, framing GIS as "positivist geography's great revenge" and accusing GIS practitioners of a "most naive empiricism" (p. 212). Supporters of GIS, or "GISers," responded in kind, with defenses of positivism ranging from the tacit to the raucous (Schuurman, 2000). Spearheading the defense of GIS was the outspoken Stan Openshaw, whose (1991) response to Talyor (1990) in *Environment and Planning A* set a lasting tone for the debate when he called critical human geographers "technological cripples" (p. 621), delusional for believing that technology would not play a key role in the future of geography.

The mid 1990s saw the terms of the debate widen as human geographers heightened their rhetoric and sharpened their critiques. Smith (1992) noted the instrumental role of GIS-supported intelligence during the Persian Gulf War, attacking the "deliriously detached" GIS community for looking past the nefarious role of GIS in "the killing fields in the Iraqi desert" (Smith, 1992, p. 257). Lake (1993) and Sheppard (1993) warned of an "automated" (p. 458) GIS which would reinforce systems of inequality by glossing over individual difference and suppressing minority voices. Pickles (1995) envisioned GIS as a tool of government surveillance and control while still others questioned if GIS harbored colonialist or racist underpinnings (Longley, 2005).

Critical GIS in Practice

In the late 1990s, critique of GIS began to take on a markedly new form as critical human geographers explored the possibilities and limitations of GIS technology by 'doing' GIS themselves. A body of critical GIS research began to materialize, and, as Schuurman and Pratt (2002) observed, critical GIS work now had "a stake in the future of the technology, while [earlier critiques] tended not to" (Schuurman and Pratt, 2002, p. 291).

Critical engagements with GIS have since taken a variety of forms and positionalities (Wilson, 2009). Some analysts (Kwan, 2002b; Pavlovskaya, 2002; Schuurman & Pratt, 2002) examine how power relations shape the construction and use of GIS. In her case study of a community association's attempt to map the incidences of breast cancer in Long Island, NY, McLafferty (2002) shows how GIS, as a technocratic tool, is imbued with a certain level of authority that has the dangerous power to alienate subjects

and dictate frames of research. Others (Kwan, 2008; Pavlovskaya & Martin, 2007) have explored how marginalized perspectives might be given a voice through the use of GIS. For example, Kwan (2008) utilized GIS to examine the impact of anti-Muslim hostility on the activity patterns of Muslim women living in post-September 11 Columbus, Ohio. A connecting thread among each of these studies is that they merge GIS with traditional qualitative methodologies in a "flexible, recursive, and reflexive" strategy which locates "multiple versions of reality or 'truth', socially constructed knowledges, and other sources of subjectivity that are inherent in all social research" (Knigge and Cope, 2006; p. 2024, 2022).

Critical GIS methodologies hold promise for conducting grounded big data research (Elwood et al., 2012; Leszczynski & Wilson, 2013). Certainly, there are clear parallels between geographers' current concerns with big data and geography's existential crises during the 1990s. Like the hype surrounding early GIS (Pickles, 1995), spatial big data are touted as revolutionary, yet to whom this revolution will be beneficial remains unclear. Big data stand to drive academic research (and funding) toward a new empiricism (Kitchin 2013), while the data themselves remain in the hands of a few (chiefly private) interests (Schroeder, 2013).

In calling for a "critical big data" research agenda, Thatcher notes that it is urgent that scholars "directly engage [big data] as both science and system with its own forms of knowledge production and social imperatives" (2014, p. 1777). There are as yet few demonstrative examples of what a critical big data study might look like. As my concern here are the electronic communications that link US and Mexico, I detail in the following

section a handful of the ways in which big communications data have been employed in geographic research, and consider how these earlier projects inform my own efforts to study hometown Facebook pages.

ICTs, visualization, and Geography

As I have argued in the previous chapters, communications between the US and Mexico constitute spaces that are dynamic, multi-layered, and emergent through migrants' transnational practices. Such abstract spaces pose unique challenges to cartographers. Traditional two-dimensional maps are fixed in both time and scale, making it difficult to represent the ambiguous spaces of electronic media, where people's locations are defined as much by their relationships to each other as by their physical geographic position. Despite these challenges, Dodge and Kitchin (2001)stress the need to map the spaces produced through ICT,

> in order to provide a means of visualising and comprehending space; to utilise the power of spatial representation in order to describe complex informational spaces in a new, more easily interpretable form...Mapping in both a literal and a metaphorical sense can thus provide a means of facilitating the comprehension of, navigation within, and documenting the extent of (marking out territories) these varying forms of [communication space] (p. 69-70).

Most mappings of communications rely on digital records stored on communication devices themselves, or housed within service providers' databases (González, Hidalgo, & Barabási, 2008; Guo, Zhu, Jin, Gao, & Andris, 2012; Mothe, Chrisment, Dkaki, Dousset, & Karouach, 2006; Phithakkitnukoon, Calabrese, Smoreda, & Ratti, 2011). These studies have largely used big communications data to map ICT infrastructures (see also, Dodge and Kitchin, 2001), or analyze communications data as a proxy for a broader social

phenomena, such as the impact of domestic migration on social networks (Phithakkitnukoon et al., 2011). Also common is for researchers to utilize web-based data 'scraping,' 'crawling,' or 'harvesting' software which extracts user-generated geospatial data from open-access websites (see, Fig. 4.1; see also, Naaman, 2011; Shelton, Poorthuis, Graham, & Zook, 2013; Takhteyev, Gruzd, & Wellman, 2012). Web-scraping has become more common as users increasingly 'tag' shared content on the web with a geo-referenced location, often in the form of photos, videos, and messages posted to social media websites (Elwood, 2008). For example, a number of studies have collected data from the micro-blogging site Twitter in order to map various spatial phenomena, such as language distribution in New York City (Mocanu, Baronchelli, Gonçalves, Perra, & Vespignani, 2012) or disaster response to Hurricane Sandy (Shelton et al., 2013).

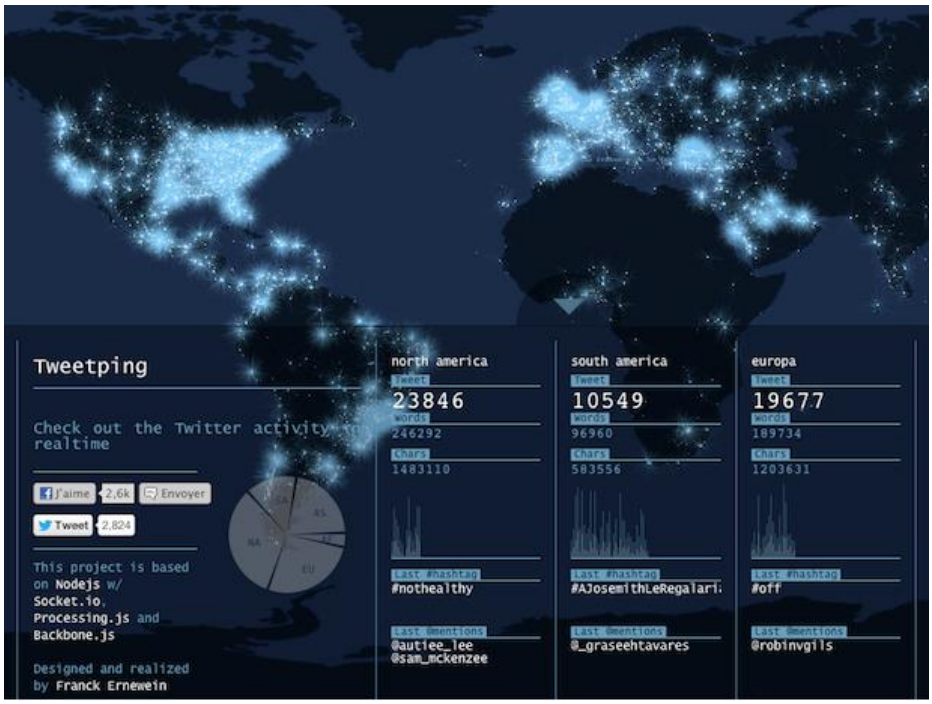

Figure 4.1 Tweetping, an example of web-scraped Twitter data visualized spatially. (tweetping.net)

While the majority of mappings of ICT remain limited to large-scale visualizations of communications data, a few attempts have been made to map individual electronic communication spaces and behaviors. Adams (2000) and Kwan (2000) provide two important examples, both coming by way of an edited volume (Janelle & Hodge, 2000) which explored methods for studying the emergent geographies of the information age. Adams' chapter offers an alternative to what he calls "macrospacial" understandings of accessibility. He focuses instead on individual communication routines, which he reconstructs by collecting interviews with subjects and having them complete time-diaries. Integrating these data with a computer-aided design (CAD) program, Adams is able to generate "extensiblity diagrams" of each individual's communications activity in relation

to differing geographic scales (Fig. 4.2). He finds that people develop "specialized spatial strategies"—a particular set of communication routines that tie them to affairs both local and global—"which they employ in the pursuit of personal and collective goals" (p. 235). Visualizing these strategies allows researchers to draw attention to the ways in which an individual's communications access meets (or fails to meet) their needs, while also foregrounding ties between economic power and individual extensibility. Kwan (2000) complements Adams' method by presenting a technique for representing extensibility with GIS (Fig. 4.2). She takes a cartographic approach to representing the multiple scales of interaction afforded by ICT by tracing communication paths as they pass through map layers of differing geographic scales, revealing the different parts of the world that are folded together through communications.

These studies represent two early efforts to represent the geographies of everyday engagements with communication technologies, and they have laid the groundwork for further interventions by critical GIS scholars (e.g., Kwan, 2002a). These studies situate communication technologies within the positionalities of their users, and they have found purchase in new visual and analytic technologies to present those users' embodied communication practices. In doing so, the examples I present above stand in contrast to the predominantly quantitative studies that base their findings on aggregates. Big data, however, lie somewhere in between. Big data are both exhaustive and granular; they can be used to examine an entire population or sliced to distinguish individual relationships (Kitchin, 2013). But despite the range of analytic scales big data afford, the data remain conspicuously disembodied, offering a perspective seemingly "from above, from nowhere"

(Haraway, 1988, p. 598). I take up the challenge of grounding big data throughout the remainder of this chapter.

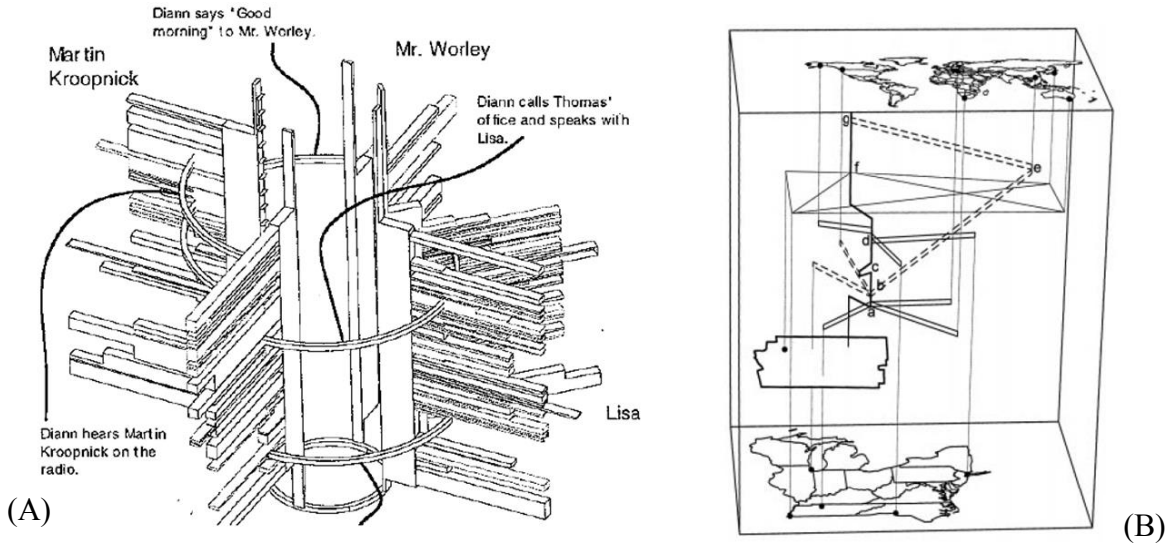

Figure 4.2 Adams' extensibility diagram (A) displaying the space-time routines of 5 individuals; and Kwan's extensibility diagram (B), which takes a cartographic approach (from Adams, 2000; Kwan, 2000).

DATA AND METHODOLOGY

This chapter turns to Facebook user data as means to explore the geographic and social dynamics of five hometown page networks. I selected the hometown pages based on Durand, Massey, and Capoferro's (Durand, Massey, & Capoferro, 2005) categorization of migrant-sending regions in Mexico. Those authors identified key shifts in the origins of Mexican migrants to the US, particularly from historical regions in Central and Western Mexico to areas south and east of Mexico City. More recent scholarship has further claimed that shifting patterns of migrant origin in Mexico correspond to the emergence of new

immigrant destinations in the South and Southeastern United States (Flores-Yeffal & Aysa-Lastra, 2011; Riosmena & Massey, 2012; Sanderson, 2014). Although shifts in migrant pathways are driven by economic restructuring in the US and Mexico, scholars also emphasize that migrant pathways are embedded within social networks. As a results, migrants from historical sending regions in Central and Western Mexico are hypothetically more likely to relocate to traditional gateway cities—chiefly in the US Border Region and Illinois—while migration flows to new US destinations across the southern United States will be comprised of more individuals from emerging sending regions in Southeastern Mexico (Riosmena & Massey, 2012). The hometown Facebook pages I have selected are thus representative of both historical and emergent sending states in Mexico, with the hope that my analysis might inform and be informed by our current understanding of the shifting geographies of Mexico-US migration.

Data

The maps presented in subsequent sections are based on Facebook page subscriber location data retrieved from Facebook's Graph Search (Facebook, n.d.). This search tool was used to identify those Facebook users who "liked" each the five hometown pages and who had explicitly shared their location information. A custom Python script was then applied to these results in order to extract user locations. A second Python script accessed the Google Maps API in order to retrieve latitude and longitude data for each location. Thirdly, user locations were plotted in Esri ArcGIS, and a *spatial join* was applied to associate each location with its respective municipal, state, and country administrative

region. This had the important effect of normalizing location names (e.g., "Austin, TX, 78702" and "Austin TX USA" were made equivalent) as well as making it possible to aggregate user locations at multiple scales.

The Dispersion Index

Following Durand, et al. (2005) a dispersion index was also calculated for each page network[7]. Measured on a scale of 1 to 100, the index is essentially a standardized measure of how concentrated or dispersed users are across all of the user locations in a page network. A network with high dispersion would suggest that the network population is spread across many geographic locations, while a low dispersion index indicates that users are concentrated in a smaller number of places. While Durand, et al. (2005) apply this metric to evaluate changes in the geographic dispersion of social networks over time, I use the index to compare the relative levels of geographic dispersion of each of the five hometown page networks in both the US and Mexico.

It is important to note that the metric is not inherently spatial—it measures only the dispersion of a quantity across a range of categories. The dispersion index is spatialized by virtue of the spatial categories I employ in my measurement scheme, and indeed I have calculated the dispersion index according two different spatial categories. Firstly, I measure

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[7] The dispersion index is calculated as: $$E = \frac{-\sum_{i=1}^{n} p_i * \log(p_i)}{\log(n)} \times 100$$ where n is the number of hexagons with at least one page subscriber and p_i is the proportion of all users in hexagon i. The index ranges from 0 to 100. Adapted from Durand, et al. (2005) following Theil's (1972) entropy index. Note Durand et al. (2005) refer to the term as a "diversity" index. I use "dispersion" here for ease of interpretation.

dispersion across all hexagonal cells in which subscribers are located. Because the cells are arbitrary spatial units, clusters of users—such as those in a large metropolitan area—may potentially be subdivided, lessening their impact on the dispersion index. I have secondly calculated the dispersion index across states. In this case, users who reside in large metropolitan areas will be included in a single category (so long as the metropolitan area falls within a single state). We thus can expect lower levels of dispersion when measuring user locations at the state level. For example, state-level dispersion indices for *Ocampo—ParaisoTerrenal* and *Soy de Coroneo* are drastically lower than hexagonal indices, because the former groups the major urban areas of Texas into a single measurement category. Table 4.1 summarizes the location data collected from hometown page subscribers as well as the dispersion index for that page's subscribership in both the US and Mexico.

Caveats and Data Limitations

As shown in Figure 4.1, location data was collected for approximately half of all page subscribers. It is presumed that users for whom location data were not available have chosen to hide this data from public view[8]. In all, locations were collected for nearly 11,000 Facebook users, totaling 1,596 unique geographic locations in the US and Mexico.

We of course cannot know for certain if the collected location data are a representative sample of all hometown page subscribers. It may be for example, that undocumented migrants are less likely to make their Facebook data public. Furthermore, the Facebook pages in this study are open to participation from any Facebook user,

[8] Facebook privacy settings can be reviewed here: https://www.facebook.com/help/100522066706974

regardless of whether or not the user subscribes to the page. It is therefore likely that there are many Facebook users who do not subscribe but nonetheless participate and read content on the page.

Additionally, it is important to note that the data collected here comply with Facebook's privacy guidelines and terms of use. However, we cannot assume that privacy standards conform to established ethical standards in human-subjects research (Zimmer, 2010). For example, it may startle some Facebook users to know that Facebook readily makes user's full names available through the API. And although this information is technically volunteered publicly, participant anonymity is among the most basic ethical concerns in human-subjects research (Zimmer, 2010). For the purposes of this study, once the data were downloaded, all names were replaced with an anonymous numerical identifier.

Page Name[9]	Hometown State	Sending region[10]	Page Subscribers	Users with Location	Users with Location (%)	Unique User Locations	Dispersion Index – USA (Hex)	Dispersion Index – MX (Hex)	Dispersion Index – USA (State)	Dispersion Index – MX (State)
Somos Arrandas	Chiapas	Emerging	4,571	1,940	42%	294	87.2	58.0	81.7	46.1
Puro Magdalena	Michoacán	Historical	9,326	4,827	52%	951	70.6	55.2	67.0	50.3
Soy de Coroneo	San Luis Potosí	Historical	4,632	2,470	53%	513	70.7	52.0	48.5	42.8
Ocampo – Paraiso Terrenal	San Luis Potosí	Historical	1,042	754	72%	215	79.3	62.6	52.5	51.4
Yaxchilan en Imágenes	Yucatán	Emerging	1,976	961	49%	119	48.6	48.6	34.6	29.0
Total / Mean			21,547	10,952	54%	1,596	71.3	55.3	56.9	43.7

Table 4.1 Characteristics of selected hometown page networks

[9]Although the place names are fictionalized, the page names reflect the naming conventions of real hometown pages. Translations are as follows: *We are Arrandas; Pure Magdalena*; *I am from Coroneo*; *Ocampo—HeavenonEarth*; *Yaxchilan in Pictures*.

[10]See, Durand and Massey (2003)

VISUALIZATIONS AND DISCUSSION

My approach to data visualization is informed by qualitative GIS scholarship, which seeks to consider multiple ways of knowing and representation. In my attempts to visualize the transnational spaces engendered by hometown Facebook page networks, I achieve these ends through a series of exploratory visual treatments which provoke new ways of understanding the spatialities of the five hometown page networks I have selected. These visualizations take the form of hexagon mosaic maps, which I discuss in the subsections that follow.

Hexagon Mosiac Maps

Hexagon mosaic maps offer a solution to visualizing point data which overlap and/or are difficult to interpret at smaller scales (MacEachren, Brewer, & Pickle, 1998). In this technique, geographic space is translated to a tessellation of hexagonal cells covering the study area, and point data are aggregated according to the hexagon in which they reside. A key benefit to this sampling method is that observations are grouped into uniform spatial areas, as opposed to political boundaries which vary widely in size (e.g., compare Massachusetts' fourteen counties to Nevada's sixteen). Furthermore, hexagons more readily facilitate visual interpretation than square grid cells (Carr, Olsen, & White, 1992).

The hexagonal mosaic in this study was generated in ArcGIS using a script developed by Whiteaker (2013). I experimented with a variety of cell sizes, ultimately settling on hexagons approximately 60km (37mi) in width—a compromise between granularity and visibility at smaller scales (for a discussion of cell size, see, Rempel & Kaufmann, 2003). The final hexagon mosaic comprised 4,250 cells covering the contiguous United States and Mexico. User locations for each of the five hometown

Facebook pages were then plotted according to their latitude and longitude, and subsequently aggregated to their respective hexagons. The output—which I refer to as the *subscriber location mosaic*—is a surface of tessellated hexagons where each hexagon is attributed an array of values corresponding to the number of page subscribers found from each page network that lie within that cell. The user location mosaic was then applied as an overlay to a series of political maps of the contiguous US and Mexico.

Figure 4.3 shows the user location mosaic for the 1596 unique user locations collected from Facebook, as well as location mosaics filtered for each of the five hometown Facebook pages. In each map, the cells have been colored to represent the number of users in each hexagon as a percentage of the total number of users in the respective page network. The maps in Figure 4.3 are presented as a series of small multiples for easy comparison between the different page networks, as discussed below (Tufte, 1991).

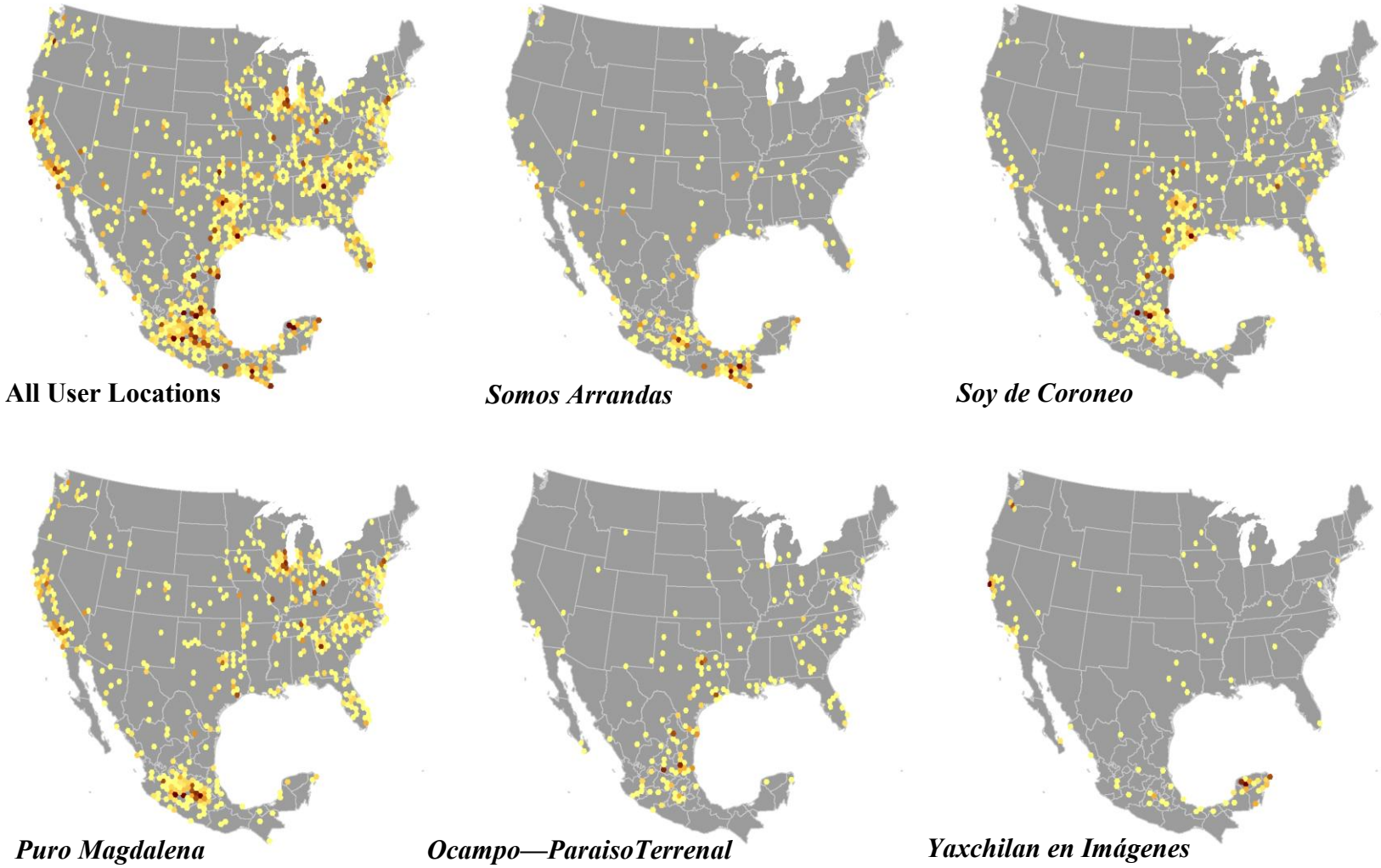

Figure 4.3 Subscriber locations for the five selected hometown pages by % of total subscribers.

All Subscriber Locations

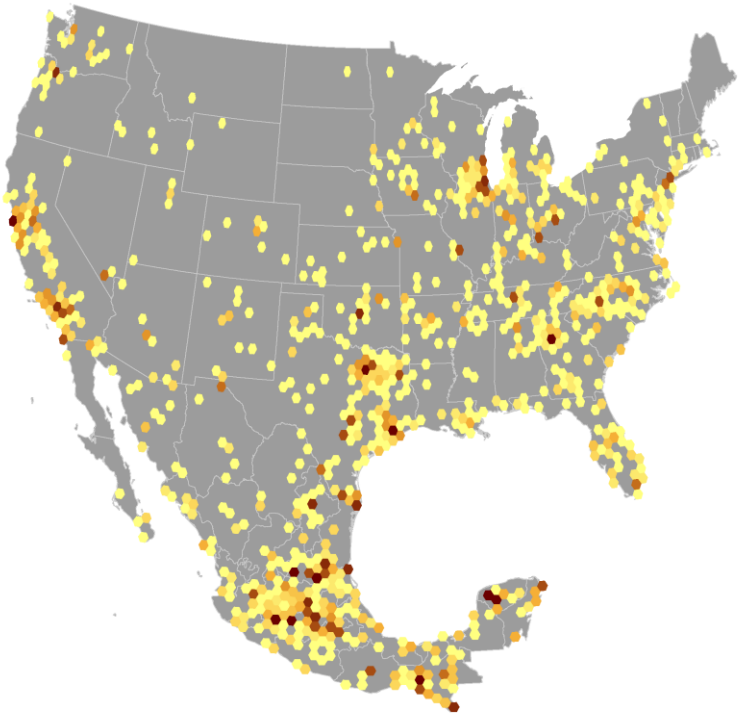

Figure 4.4 All found subscriber locations for the five selected hometown pages

A detailed visualization of the user location mosaic for all page networks is shown in Figure 4.4. This map gives a sense of the vast array of places that hometown page users occupy, revealing that hometown pages are indeed a transnational phenomenon. Patterns of subscribership are discernible even from this crowded perspective. Long-established destinations of Mexican migration (Durand, Massey, & Zenteno, 2001) are well-represented. These include southern and central California; Phoenix, Arizona and Albuquerque, New Mexico; urban areas throughout Texas, especially the east and south; as well as northern Illinois and the tri-state area that includes southern Wisconsin and northwestern Indiana. We also see less distinct but substantial hometown page

subscribership across the eastern and southern US, particularly in North Carolina, Georgia, Tennessee, and Florida. In the northwest, Portland and Seattle host significant numbers of subscribers, while on the East Coast many subscribers reside in the urban corridor stretching from the District of Columbia to New York City.

On the southern side of the border, concentrations of subscribers in central and southern Mexico predominate, with a few salient locations in the north. The predominance of central Mexico in this map is a function of the location of the hometowns that are the focus of this study; the diffusion of subscribers from particular hometowns is difficult to perceive. Directing attention to the user location mosaics of the individual hometown page networks will allow us to sharpen our visibility of the particular places in both Mexico and the US that constitute each hometown page network.

Soy de Coroneo and *Ocampo—ParaisoTerrenal*

We begin by refining our view of the subscriber networks connected to *Soy de Coroneo* and *Ocampo—ParaisoTerrenal* (Fig. 4.5). These two hometown pages were the focus of content and discourse analyses in the previous chapter. Situated within a few hundred kilometers of each other in the state of San Luis Potosí, both municipalities fall within regions characterized by relatively high levels of emigration from the Bracero era to present, and both share municipal populations of approximately 25,000 (Durand et al., 2005; Instituto Nacional de Estadística y Geografía (INEGI), 2010). Historically, the US destinations of migrants from San Luis Potosí are characterized as traditional migrant-receiving states, principally the US border states of Texas and California, as well as Illinois

(Durand et al., 2005). Visualizing the locations of Coroneo and Ocampo subscribership thus represents an opportunity to anatomize the geography of two distinct but related social networks that have emerged through Mexico-US migration over a number of decades.

Overall, subscribers in both networks are evenly split between places in Mexico and the US; 49% of Coroneo subscribers were found to live north of the border, compared to 46% for Ocampo. In the US, both page networks are characterized by heavy concentrations in Texas. The cities of Houston, Dallas, and Austin comprise 29% of all US Coroneo subscribers, and and 30% of all US Ocampo subscribers. However, Ocampo is distinguished by its dense following in Dallas, particularly in the northeastern suburb of Garland. In contrast, the heart of Coroneo's US subscribership lies in Houston, as well as the small east-Texas city of Longview. Beyond Texas, Ocampo's subscriber distribution seems almost a microcosm of Coroneo. Both pages' have subscribership in the Carolinas, Georgia, Florida, and Oklahoma, although Coroneo's significant subscriber presence in Oklahoma and New Mexico is distinctive.

Turning to the distribution of subscribers in Mexico, both pages share a number of similarities. Subscribers are heavily concentrated in the hometown itself; twenty-six percent of Coroneo subscribers and 23% of Ocampo subscribers reside within their respective municipalities, and another quarter of the Mexican-based subscribers on both pages live in the state capital, San Luis . East of San Luis Potosí, the neighboring state of Tamaulipas hosts significant subscribers for both pages, accounting for 15% and 20% of all Mexican subscribers of Coroneo and Ocampo, respectively. Concentrations within Tamaulipas vary somewhat between the two pages, however the major seaport of

Tampico—situated less than 250 km from either municipality—is a principal location of both subscriber networks. Lastly, the large border cities of Reynosa and Matamoros in northern Tamaulipas represent a significant subscriber base for both pages as well.

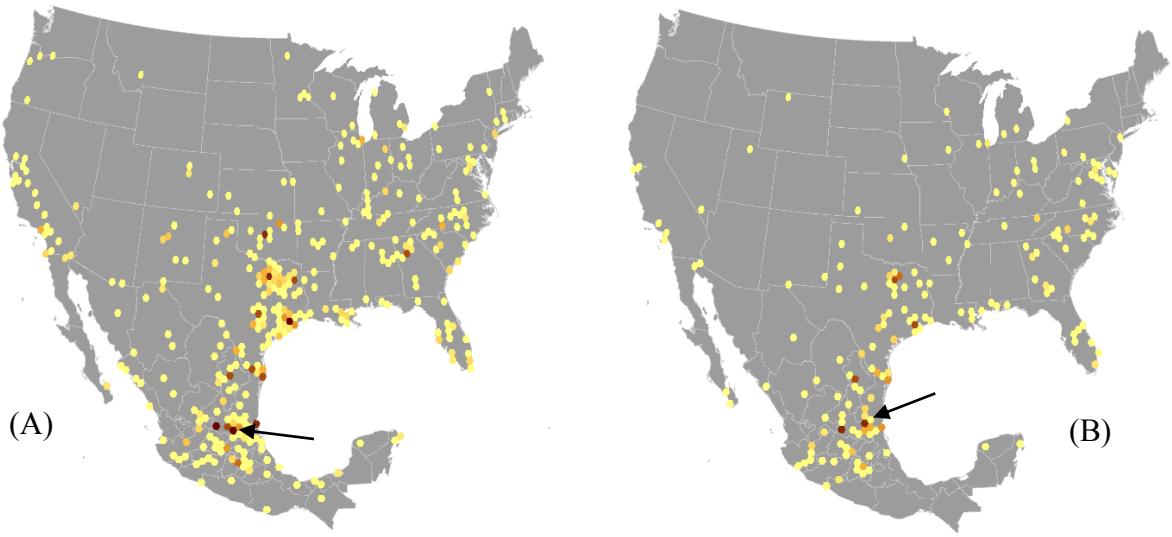

Figure 4.5 Corneo (A) and Ocampo (B) subscriber locations. The arrow indicates the the cell in which the hometown is located.

Broadly speaking, the *Soy de Coroneo* and *Ocampo—ParaisoTerrenal* page networks are relatively homologous. Certainly, Coroneo's network is larger and more variegated in its geographic distribution, but the pages share many key subscriber locations in both the US and Mexico. These findings resonate with theories of migration that suggest that the social networks from this region of Mexico are the product of immigrants' historical settlement patterns in a few key states (namely, urban areas in California, Texas, and Illinois), which have over the course the last fifty years expanded to include new gateways in the southern and eastern United States (Riosmena & Massey, 2012).

Puro Magdalena

Puro Magdalena is a hometown page representing the municipality of Magdalena, Michoacán. Like San Luis Potosí, the central-western state of Michoacán has a long history of migration, and is considered to be part of the historic heartland of Mexican migration to the United States (Durand et al., 2005). With a municipal population of approximately 70,000 (INEGI, 2010), Magdalena is the largest of the five hometowns I've chosen to analyze, and it has the largest subscriber population—nearly 9,500 users as of July, 2014. Figure 4.6 displays the aggregate locations of the 4827 page subscribers for which data was available.

The majority of Magdalena subscribers live north of the border. Sixty-four percent of all subscribers reside in the United States, and, among them, Illinois accounts for a third of all subscribers. Indeed, the Chicagoland area (including this author's hometown) is home to nearly a thousand *Puro Magdalena* subscribers. Urban areas in nearby Midwestern states—Indiana, Wisconsin, and Ohio— are all home to significant subscriber populations. The map also displays notable subscribership hubs in North Carolina, Tennessee, Georgia, and Florida. Metropolises in border states are represented as well, with Dallas, Houston, Los Angeles, and San Francisco all reflecting concentrations of page subscribers.

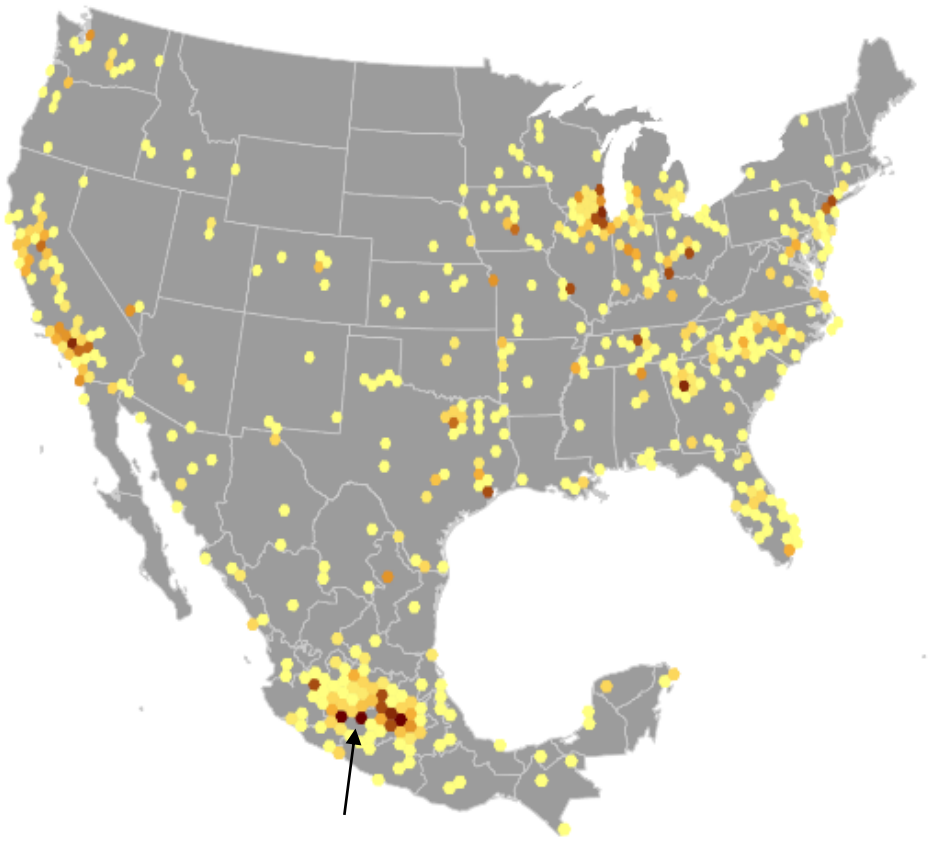

Figure 4.6 *Puro Magdalena* subscriber locations. The arrow indicates the cell in which Magdalena is located.

In Mexico, Magdalena subscribers concentrate in the hometown itself, as well as in urban areas elsewhere in Central Mexico. In Michoacán, Magdalena itself accounts for 20% of Mexican-based page subscribers, while the state capital, Morelia, accounts for another 10%. Mexico City also serves as an important subscriber base, as do locations throughout the surrounding state of Mexico. Though in relatively low concentrations, a multitude of neighboring states across central Mexico host subscribers, including Querétaro, Guanajuato, and Jalisco.

Puro Magdalena provides a compelling example with which to contrast the geography of *Soy de Coroneo* and *Ocampo's* networks. Like those two pages, *Puro Magdalena* hails from a region with a long history of emigration to the US; indeed, Michoacán has consistently ranked among the top three most prolific migrant-sending states since the 1960s (Massey, Goldring, & Durand, 1994). However, the Magdalena hometown page subscriber locations represent linkages between a unique set of destinations –principally centered in Illinois and California rather than Texas. Similar to Coroneo and Ocampo, these historically important destinations like Chicago and Los Angeles are complemented by significant stocks of subscribers throughout the south and southeastern United States.

Somos Arrandas and *Yaxchilan en Imágenes*

Lastly, we look at two hometown page networks in southeastern Mexico, *Somos Arrandas* and, *Yaxchilan en Imágenes*. Unlike the previous page networks, Arrandas, in Chiapas, and Yaxchilan, in Yucatán, are located in states which have only recently become significant migrant-sending regions in Mexico (Durand et. al., 2005). These two pages thus represent an opportunity to examine migrant origins and destinations in what are potentially emergent transnational social networks (Riosmena & Massey, 2012; Burke, 2004).

As illustrated in Figure 4.7, the geographic dispersions of each of these two subscriber networks are quite distinct from each other. Yaxchilan's users are more likely to be in Mexico (60%) than the US (40%), but a full 90% of Arrandas subscribers are

located in Mexico. Clearly, Yaxchilan's US subscribers are heavily concentrated on the West Coast, where users in California and Oregon account for 90% of all US subscribership. San Francisco and its environs are the clear focal point of this population; they are home to over half of all Yaxchilan users north of the border. These heavy concentrations of US users are reflected in Yaxchilan's US dispersion scores, which are significantly lower than all other pages. In contrast, *Somos Arrandas's* small US subscribership appears almost randomly dispersed. Concentrations of Arrandas users can be found across the Border States and in Arkansas, but no single location predominates. Accordingly, *Somos Arrandas* has the highest US dispersion scores of all five pages.

In Mexico, Arrandas's distribution stretches across the southern and central states, and concentrations of users are much more clearly defined here than in the US. Three cities—Arrandas and Tuxtla Guitérrez (the state capital), in Chiapas, and Mexico City account for 55% of the *Somos Arrandas* subscribership in Mexico. Elsewhere, cities in Oaxaca and Mexico State also represent significant levels of subscribership. Subscribership of *Yaxchilan en Imágenes* is, in contrast, restricted almost entirely to the Yucatán (81%) and the neighboring states of Quintana Roo (11.42%). There is a small pocket of subscribers in Mexico City, representing 2% users in Mexico, with limited subscriber elsewhere in the country. Again, Yaxchilan's Meixco dispersion score is the lowest of all other pages, pointing it's highly clustered dispersion pattern.

We can begin to explicate these dissimilar network patterns by enriching user location data with census data about each hometown. Arrandas's population of 41,000 is nearly twice as large as Yaxchilan, at 25,000 (INEGI, 2010). This may to some extent

account for Arrandas's larger subscriber network (4571 subscribers) versus Yaxchilan (1976 subscribers). In terms of migration, the states of Yucatán and Chiapas had similar rates of US migration in recent censuses. In 2000, .79% of households in Chiapas had a member in the United States in the previous 5 years, compared 1.02% of households in Yucatán (INEGI, 2000). By 2010, both states' US migration rates had increased to 1.17% of households (INEGI, 2010). These comparable rates of migration are evidence of researchers' decisions to classify both states equivalently as emergent migrant-sending states (Durand et al., 2005). However, if we examine migration rates at the municipal level, we find striking differences. Yaxchilan had the second-highest US migration rate in Yucatán in both 2000 (15.6%) and 2010 (11.5%). By comparison, Arrandas' migration rate in 2000 (1.64%) and 2010 (1.41%) was very low. Census data of municipal migration rates thus suggest that *Yaxchilan en Imágenes*' higher US subscribership reflects the simple fact that Yaxchilan has a larger number of emigrants in the US compared to Arrandas.

Yaxchilan is further distinguished from Arrandas—and all other hometown pages in this study—by the fact that Oxktuzcab migration flows are comprised chiefly of indigenous Maya with a thirty-year history of migration to the San Francisco Bay area (Burke, 2004; Delugan, 2010). In this context, subscribers' clustering in just a handful of places in the Yucatán and California may reflect a more-tightly knit migrant community, in which new migrants rely heavily on place-based social relationships to make the move to the United States (Burke, 2004). Relatedly, municipal and community organizations in San Francisco have begun to develop specialized capacities to provide social services to indigenous Mexican groups, perhaps making the city more attractive to new migrants

(Delugan, 2010). At the same time, institutional racism and stigmatization in Mexico may further compel indigenous *Yucatecos* to migrate to the US rather than elsewhere in Mexico (Delugan, 2010).

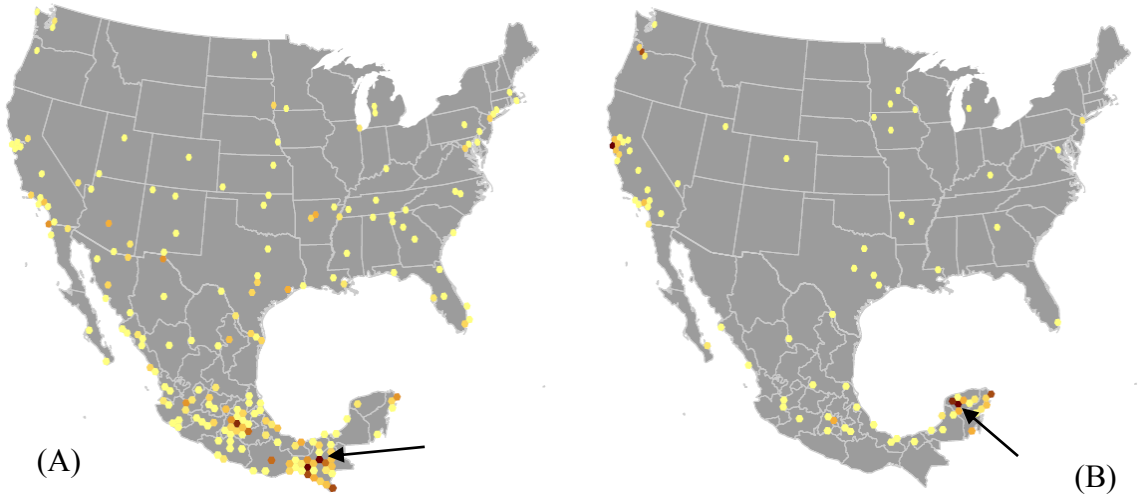

Figure 4.7 *Somos Arrandas* (A) and *Yaxchilan en Imágenes* (B) subscriber networks.

CONCLUSION

The technique I present here—in which I map user location data captured from Facebook—reveals the unique constellations of places that constitute each hometown page network. These geographies are emblematic of a complex series of social processes that structure the destinations of internal and international Mexican migrants (Fussell & Massey, 2004). While recent literature on the structure of migrant pathways offers a view of the general trends in Mexico-US migration at the state and regional levels, mapping hometown page subscribership moves beyond generalizations to provide refined views of migrant origins and destination. This method allows for patterns of internal and external migration to be considered simultaneously across multiple sending communities.

My analysis of five hometown pages from Central and Southeastern Mexico has in turn confirmed many of the broader trends that characterize the shifting geography of Mexican migration (Durand et. al., 2005). Hometown pages based in areas with a history of Mexico-US migration had a strong subscribership presence in traditional gateway cities in the Border Region and Midwest, although these networks were also represented in new immigrant gateways in the South and Southeastern United States. Analysis of two page networks based in emergent migrant-sending regions were less congruous with aggregate studies. The *Somos Arrandas* network was primarily comprised of internal migrants, and characterized by minimal, sporadic subscriber distribution outside of Mexico. The mapping of *Yaxchilan en Imágenes* revealed a highly concentrated subscriber network with low levels of internal migration.

Bridging the Gap between Quantitative and Qualitative Data

While hometown Facebook page subscribership data has the potential to inform the study of the geography of Mexico-US migration, an objective of this study is to consider how data mining and visualization techniques can contribute to grounded, qualitative research. Indeed, the mappings I have presented above are most valuable when informed by their social context; these representations cannot stand alone. For example, *Yaxchilan en Imágenes'* unique geography speaks to a particular set of social, economic, and political conditions that cannot be understood by data visualization alone. Explicating these complex processes and their impacts on individuals, families, and communities members requires qualitative and ethnographic research (Burke, 2004; Delugan, 2010; Fortuny,

2004). However, visualization of hometown Facebook page subscriber communities may add a new dimensionality to these efforts. Researchers might, for example, use subscriber maps as a way to decide where to recruit study participants, or to uncover emergent migrant destinations that have not been studied. Mappings of subscriber communities could also be incorporated into a participatory framework, for example by using subscriber maps as a prompt for discussion about a community's ties to other places.

An alternative path is to enrich location data by linking locations to the comments that users post on hometown Facebook pages. For example, using web-scraping software it is possible to collect *en masse* all of the comments posted to the five hometown pages that were the focus of this chapter. These comments can then be filtered according their users' respective location, and analyzed in terms of their frequency.

As a somewhat playful demonstration, Figures 4.8 and 4.9 present word clouds of the most frequently used terms on hometown Facebook pages, as derived from approximately 5000 user comments[11]. From a cursory glance at the salient terms in each cloud, it would appear that comments from North and South of the border share many similarities: *Saludos* ("regards"), *recuerdos* ("memories"), and *bonitos* ("lovely/beautiful") are among the most common terms on both sites. However, it also appears that *recuerdos* ("memories") is more prevalent among US users, as is *extraño* ("I miss"). Among users in

[11] User comments were downloaded using the Social Network Importer for NodeXL (see, http://nodexl.codeplex.com/ and https://socialnetimporter.codeplex.com/)

World clouds were generated using www.wordle.net; see also, Viégas & Wattenberg, 2008.

Mexico, *casa* (“home”), *pueblo* (“village”), and *dios* (“God”) appear more prevalent than in the US.

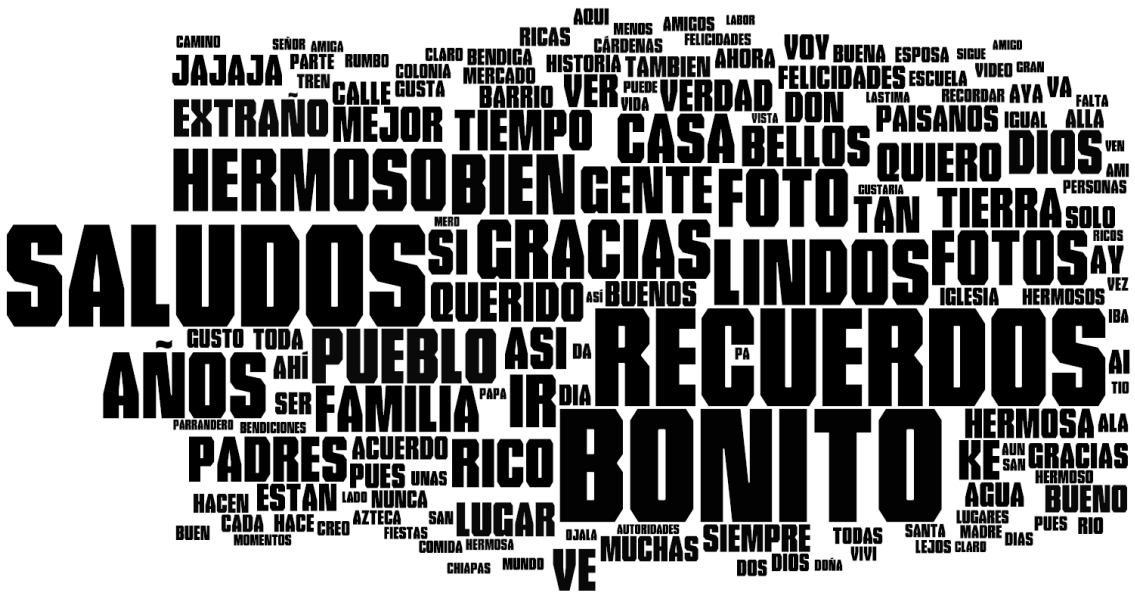

Figure 4.8 Frequent terms from comments posted to hometown Facebook pages from users in Mexico.

Figure 4.9 Frequent terms from comments posted to hometown Facebook pages from users in the United States.

Without belaboring the point, data collected through social media offer a number of modes of inquiry beyond the purely computational and quantitative. However, as we have seen when mapping user locations and analyzing term frequencies—these data are likely to be most valuable when used a mixed method framework, perhaps by pointing the researcher toward areas of further study, or by complementing data collected through more traditional qualitative methods.

The Big Picture

In the previous chapter, I mentioned the geographic imaginaries that are renegotiated in discussions on hometown Facebook pages. In this chapter, mapping hometown Facebook pages has made those communities' new spatial configurations

tangible, and has highlighted the exceedingly transnational nature of hometown Facebook page networks. These maps represent only one of many technologies that people employ to stay in touch across vast distances, but they allude to the multitudinous spaces of communication that transcend the Mexico-US border.

Chapter 5: Conclusion

In this thesis I have endeavored to explicate some of the effects of information and communication technologies (ICTs) on Mexico-US migration. Rather than pursue these effects through a singular methodology or theoretical framework, this project has embraced an array of methodological approaches and theoretical lenses. From surveys and personal interviews to content analyses and representations of web-scraped communications data, each method has provided insight into the processes that shape the social lives of Mexicans living in the United States and their friends and relations in Mexico. I provide a brief summary of those findings below, and conclude this thesis with an extended discussion of its academic and societal contributions, as well as its implications for future research.

The first chapter focused on the everyday transnational communication practices of Mexican immigrants living in Austin, TX. The survey responses I collected echoed similar national surveys (Livingston, 2010; Lopez, Gonzalez-Barrera, & Patten, 2013; Suro, 2005) in suggesting that transnational communication has become a regular dimension of daily life for many Mexicans immigrants. The majority of respondents reported communicating with family members on a weekly or daily basis, and reported that text messaging and social media communication serve as an important means for staying in touch between phone calls. Indeed, increasingly affordable smart phones make all of these modes of communication possible from the convenience of one's pocket, and a number of individuals I spoke with cited portability and the ability to communicate asynchronously as motivating factors for taking up the technologies.

In my conversations with immigrants about their experiences using various ICTs, the sense of pervasive awareness of one's friend and family network came up repeatedly as an important affordance of text messaging and Facebook. Those who use these communication tools have access to a stream of images, videos, and status updates from their distant loved ones. In the words of one respondent, these mobile, digital media make it such that "everyone knows what everyone else [in the family] is doing." Media multiplexity—that is, engaging multiple communication channels to stay in touch (e.g. periodic phone calls supplemented with frequent text messaging and Facebook posts)—is the norm among the individuals I spoke with, and contributes to a heightened sense of co-presence with distant friends and family. Of course, virtual co-presence is not equivalent to actual physical contact, as Luisa recounted about her video call with her mother. Indeed, communication can exacerbate one's sense of separation, and furthermore the emotional labor that keeping in touch entails may be unevenly born by women.

Whereas the first chapter focused on individual communication habits and technology use, subsequent chapters explored transnational communication at the municipal, national, and international scale. I turned my attention specifically to Facebook, and the proliferation of pages which cater to users of a common community of origin. Comprehensive searching revealed nearly every municipality in the state of San Luis Potosí to be represented by at least one such hometown page, with subscribership encompassing tens of thousands of people throughout the US and Mexico.

I employed content and discourse analyses on two hometown pages in order to understand the kinds of content that circulated among subscribers, and to get a sense of

users' motivations for participating in hometown page discussions. I found that the liveliest discussions on hometown pages revolve around indexical images of food, landscapes, and public spaces that users associate with their hometowns. These images evoke deeply nostalgic and topophilic responses which often evince subscribers' sense of longing and separation from their hometowns, and also prompt negotiations and affirmations of the traditions and attitudes that are perceived to be endemic to a particular community.

In the fourth chapter I extended my analysis of hometown Facebook pages by developing a method for capturing and visualizing the geographic locations of hometown page subscribers. I presented mappings of the distribution of five hometown page subscriber networks, and demonstrated how this level of abstraction is amenable to comparison with contemporary research on the shifting patterns of Mexico-US migration (e.g., Durand, Massey, & Capoferro, 2005; Durand, Massey, & Zenteno, 2001; Riosmena & Massey, 2012). On the whole, hometown page subscribership coincides with the broader trends predicted by these census-based studies, but my findings also provide a more nuanced picture of Mexico-US migration flows by highlighting the multiplicity of origins and destinations that are linked together through processes of migration. These are details that have to date been discarded for the sake of generalization, yet can potentially be incorporated recursively into a grounded study of the social dynamics of transnational migration.

CONTRIBUTIONS TO SCHOLARLY RESEARCH

The diversity of methodological approaches I've taken up in the preceding chapters reflects my efforts to trace the geographies of transnational spaces that emerge through Mexico-US migration. In doing so, I have heeded the advice of those scholars who advocate for mixing methods in human geographic research. Elwood and Cope (2009, p. 5) explain that mixing methods allows the researcher to

> weave together diverse research techniques to fill gaps, add context, envision multiple truths, play different sources of data off each other, and provide a sense of both the general and the particular (Elwood & Cope, 2009, p. 5).

In this project, the at times disparate techniques I've employed have attended to both the general and the particular of transnational spaces. As I have iterated throughout this thesis, conceptualizing transnational spaces means thinking about space as relational, emergent, and dynamic. These are multifarious spaces of which there can be no complete picture, no singular understanding. Instead, we must work in partialities. As such, the concept of transnational space is not meant to complicate the view of transnational processes but rather it is meant to frame the countless subjectivities and positionalities that characterize transnational social networks.

Brickel and Datta (2011) consider this *translocal* approach "a form of 'grounded transnationalism' – a space where deterritorialized networks of transnational social relations take shape through migrant agencies" (p. 3). This project makes an important contribution to migration studies by applying a translocal optic to migrants' transnational communication practices. My findings describe how Mexican migrants adopt different "spatial strategies" for employing ICTs to stay in touch with their families in Mexico

(Adams, 2000). These strategies are manifest in everyday, routinized communication behaviors that link migrants to a multiplicity of places simultaneously. The proliferation of ICTs which enable so called pervasive awareness of one's social network thus highlights the shortcomings of narrow definitions of transnationalism (e.g., Portes, et al., 1999), and resonates with Jackson et al.'s (2004) call for a more inclusive interpretation of transnational migration.

This project has also built on geographers' efforts to reconcile theorizations of space and place with in "the network society" (Castells, 1996). This scholarship is attuned to the processes by which our interactions with spaces and places are shaped by communications, but also how communications embody spatial and platial forms (Kitchin and Dodge, 2011; Adams, 1998; Adams, 2010). Hometown Facebook pages present a compelling example of how communication technologies engender new place-like realms of interaction. Similar to other online interest communities (Rheingold, 1993; Wellman & Gulia, 1999), a hometown page is at once analogous to a place itself: it serves as a virtual gathering place for people who seek to interact with others who share a common interest. However, a hometown Facebook page is not only place-like in itself but also provides a mediated connection to a physical place in Mexico. In that sense hometown pages are extensions—and in many ways reconfigurations—of physical places. For example, Facebook users thousands of miles removed from their hometown are able to participate in dialogues about its traditions, history, and politics, and to maintain personal relationships with other community members both present and dispersed. Hometown pages thus extend the arenas in which the discursive practices of place-making are carried out. These kinds

of renegotiations are evidence of precisely what Kitchin and Dodge (2011) observe to be the transduction of place by communication technologies. This is exemplified perhaps most substantially by the geographic "roll calls" described in the third chapter, in which hometown page participants redefine the geographic imaginaries of their communities in terms of their respective locations throughout Mexico and the US.

This research project also demonstrates a proof-of-concept for incorporating spatial big data into a grounded, qualitative research project. In doing so, it serves as a response to those scholars who have raised ethical and epistemological concerns about the use of big data in social scientific research. By mapping the expansive network of people and places that are brought together through hometown Facebook pages, I have shown how these data can provide a complementary analytic lens through which to explore transnational spaces.

An important finding from these efforts is that data-scraping and visualization are of little utility if not situated within their broader social contexts. Mappings of *Yaxchilan en Imágenes* and *Somos Arrands* revealed that the geographic distributions of each page's subscriber network were drastically different. But these observations enlighten our understandings of spatial processes only when we situate them within existing research about each of the communities in question. Furthermore, as critical GIS scholars would argue, applying these visualizations critically means not only drawing on other modes of inquiry to interpret them, but by recursively incorporating those interpretations into a broader research project (Knigge & Cope, 2006). We could envision, for example, how research exploring the settlement decisions of Yucatec migrants might benefit from

mapping the distinctive clusters of Yucatec hometown Facebook page subscribers. These subscriber maps might inform a set of interview questions that are discussed with research subjects, and possibly even prompt second and third iterations of the mapping process. This project thus makes an important contribution to critical GIS by charting a path for critically incorporating spatial big data into human geographic research.

Lastly, a recurrent theme in this project relates to the potential of ICTs for fostering weak-tie social networks among Mexican migrants. This is as an issue that has been taken up more broadly by some communications scholars and sociologists, who have asked how Internet and social media use might increase or decrease social capital (e.g., Burke, Kraut, & Marlow, 2011; Chen, 2013; Ellison, Steinfield, & Lampe, 2011), as well as by migration scholars who have taken an interest in the social capital effects of ICT use by certain migrant groups (Chen & Choi, 2011; Dekker & Engbersen, 2013; Komito, 2011). However as yet there is little coherent agreement in terms of the mechanisms involved or the degree to which ICTs shape transnational social networks.

It is most certain that Internet communication strategies and outcomes will vary from group to group, ethnic or otherwise. Adams and Ghose (2003) conclude as much when they identify the culturally-specific qualities of an Indian-American "bridgespace." Similarly, the Mexican hometown Facebook pages I have examined arguably constitute pieces of a broader Mexican-American bridgespace that includes any number of news, information, and culture websites, online money-transfer services, etc. However, unlike the Indian-American bridgespace—which Adams and Ghose (2003) found to be subdivided along ethnic and sub-ethnic lines—the organizing unit of the Mexican-American

bridgespace appears to be regional and municipal affiliations. This is not surprising, since researchers have theorized that place-based social networks play an important role in shaping the volume and direction of Mexico-US migration ((Flores-Yeffal & Aysa-Lastra, 2011; Massey, Alarcon, Durand, & Gonzalez, 1990).

What is fundamentally important about the proliferation of hometown Facebook pages is that they enable migrants to cultivate their place-based attachments from afar, and they simultaneously bring migrants into contact with other individuals (migrant and non-migrant) with the same place affiliations. These online interactions could potentially impact any number of important migration-related processes, for example by connecting individuals to valuable information about securing transportation across the border, finding employment and housing, as well as building a social support network in the place of settlement. Hometown Facebook pages also provide a view (literally, through the photos that are exchanged) into the lives of those that have migrated, and may potentially influence non-migrants to migrate as well. While conclusive answers to these questions lie outside the bounds of this project, my findings offer a number of points of departure for further research.

DIRECTIONS FOR FUTURE RESEARCH

The trend toward increasingly frequent and multiplex communication between Mexican migrants and their families raises many key issues which warrant further investigation. As mentioned above, place-based social ties play an important role in a number of aspects of migration, and wider ranging studies should explore the specific ways

in which digital communication spaces potentially foster place-based social ties. A burgeoning literature on methods for conducting social research online will be of help to researchers in this regard (e.g., Kozinets, 2010; Schrooten, 2012; Wright, 2005). One promising strategy would be to collaborate with hometown Facebook page moderators to recruit survey and interviews respondents, and of course page moderators will undoubtedly be able to offer own insights as to the social dynamics of hometown Facebook pages.

Another important set of questions relates to increased transnational communication and its social and material impacts in migrant-sending communities. It is clear, for example, that Facebook has become a primary channel through which migrants maintain ties to their communities of origin, but it is unclear how this connectivity might shape political life there. It is possible that hometown pages foster political engagement by providing participants with a space for collective organizing as well as a means for staying apprised of local events. Furthermore, as I found when conducting my census of hometown pages in San Luis Potosí, a number of municipal governments have established Facebook pages, which, like hometown pages, are open to participation from any Facebook user and may promote political participation from abroad. Of course, online political participation may also create new tensions between local governments and those who have emigrated, as has been documented in the case of transnational hometown associations (Rouse, 1991; M. P. Smith & Bakker, 2008; R. Smith, 1998).

Further research should also examine the relationship between transnational communication and remittance flows. At the household level, this research might consider how increased communication influences migrants' remitting practices. Research should

also consider how transnational communication affects decisions related to household finances, which can involve complex, gendered interfamily tensions and power relations (Moran-Taylor, 2008; Parrado, Flippen, & McQuiston, 2005; Parreñas, 2005). At the community level, it remains to be seen whether hometown Facebook pages or other social media might be used to organize and/or raise funding for development projects in the hometown. In contrast to traditional hometown associations, which are typically situated within one city in the US (Goldring, 2004; Rouse, 1991), collective transnationalism via social media could reach potential contributors throughout the US and Mexico.

Lastly, researchers must continue to examine how access to ICTs remains socially stratified (Benítez, 2006; Warf, 2001, 2014). Findings from this thesis indicate that investigations into the unevenness of access should be addressed in a transnational framework that considers structural barriers in both the US and Mexico as contingent, interrelated processes. This will undoubtedly require multi-sited, on-the-ground studies, however I offer that further research into online spaces of communication may also yield important findings about so-called digital divides. For instance, a census of hometown Facebook pages such as the one described in chapter three reveals as much about absence as it does presence. Subscribership rates (or lack thereof) of different community pages can be enriched with population data, migration rates, and subscriber location data to map the landscape, as it were, of Facebook usage. Irrespective of the methods employed, my findings reaffirm that particular attention should be given to the ways in which men and women access and experience ICTs differently, as well as how access may be

circumscribed along lines of ethnicity, race, and class (Alonso & Oiarzabal, 2010; Panagakos & Horst, 2006; Wilding, 2006).

This thesis has laid the groundwork for further investigations of the digital geographies of transnational spaces. These are geographies which bend our spatial logics; they challenge us to fundamentally rethink our conceptions of space and place in light of an ever-increasing web of connections between people and places. If we are to begin to disentangle these new spatial arrangements, we will need to innovate in our methodological approaches and seek out new theories that bridge interdisciplinary gaps. Indeed, retooling our cognitive faculties so that we might better think and see relationally is not merely an intellectual challenge; it is a social imperative. Where there are new possibilities of interaction, inclusion, and interconnection, there will be attendant potentialities for inequity, exclusion, and injustice.

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