Hampton, Keith N. (in press). Persistent and Pervasive Community: New Communication Technologies and the Future of Community. *American Behavioral Scientist*.

Persistent and Pervasive Community:

New Communication Technologies and the Future of Community

v. 7/10/2015

Keith N. Hampton

Rutgers University

Contact information: Department of Communication, Rutgers University, 4 Huntington Street, New Brunswick, NJ 08901, Email: keith.hampton@rutgers.edu.

Acknowledgements: This paper benefited from the advice and insight of many colleagues, including: Mary Chayko, Lewis Friedland, Jennifer Gibbs, Loi Sessions Goulet, Jeff Lane, Weixu Lu, Cameron Marlow, Lee Rainie, Christian Sandvig, Inyoung Shin, and Rima Wilkes.

Abstract:

Two affordances of digital communication technologies, persistent contact and pervasive awareness, are ushering in fundamental change to the structure of community. These affordances break from the mobility narrative that has described community since the rise of urban-industrialism, including accounts of networked individualism and a post-industrial or a network society. In contrast to images of late-modernity, which suggest that mobility will be maximized to the point where people are nearly free from the constraints of time, space, and social bonds, persistent-pervasive community renews the constraints and opportunities of pre-modern community structure. As a result of persistence – a counterforce to mobility – relationships and the social contexts where they are formed are less transitory than at any time in modern history. Through the ambient, lean, asynchronous nature of social media, awareness supplements surveillance with the informal watchfulness typified in pre-industrial community. It provides for closeness and information exchange unlike what can be communicated through other channels. Social media and the algorithms behind them generate not only context collapse but an audience problem that, when managed through a dynamic balance between broadcasting and monitoring content, enhances indicators of awareness and availability of social ties. Persistent-pervasive community represents a period of meta-modernity. It is a hybrid of pre-industrial and urban-industrial community structures that will affect the availability of social capital, the success of collective action, the cost of caring, deliberation around important issues, and how lives are linked over the life course and across generations.

Key words: social capital, networks, network society, networked individualism, modernity, context collapse, audience problem, linked lives

Persistent and Pervasive Community:

New Communication Technologies and the Future of Community

Introduction

There is a widespread perception that new communication technologies are fundamentally changing how people interact with friends, family, and acquaintances (Bell, 1973; Castells, 1996; Rainie & Wellman, 2012). These claims are as prevalent in the commentary and op-ed articles of major media outlets as they are in scholarly articles from the humanities, social sciences, and computational sciences. These claims are part of a new transdisciplinary focus on what has traditionally been known as the "community question" (Wellman, 1979). Indeed, we are observing a time of fundamental change to the structure of community. However, the emergence of this structural change is relatively recent and much more so than has been widely argued. Previous attempts to explain change in human interaction as a result of new, digital, communication technologies have misplaced and overstated change to the nature of community. The rise of what I call *persistent contact* and *pervasive awareness* drives this recent change.

The community question is based on the position that large-scale, social change has fundamentally transformed how social relations are organized at the meso- and often the micro-level of human interaction. It has long been argued that digital technologies, such as the Internet and the mobile phone, have exhorted such large-scale change to the structure of community. However, although descriptions of the present era as "post-industrial," a "network

society," or "networked individualism" help to understand society (Bell, 1973; Castells, 1996; Wellman, 2001), they do not describe a fundamental change to the structure of community.

Others have questioned whether the technological change associated with this era truly separates the present age as a distinct turning point from the past (Webster, 2002). Notable scholars have argued that the current period represents an extension of the social forces that restructured social relationships as a result of urban-industrialism. The increased potential for mobility, the reduced constraints of time and space, and separation from traditional social bonds distinguish the pre-modern from the modern era. Digital technologies have not fundamentally altered this social structure. We are thus in a stage of late-modernity or liquid modernity as opposed to a new age of post-modernity (Bauman, 2000; Giddens, 1991). However, in contrast to visions of late-modernity that imagine a continuation – a maximization – of mobility to the point where people are nearly free from the constraints of time, space, and social bonds, I believe that two, recent affordances of communication technologies have the potential to alter this course and transform the structure of community.

New communication technologies make persistent contact and pervasive awareness possible and are especially evident in those technologies described as *social media*. Whereas previous technologies afforded mobility, they generally lacked affordances for relational persistence and sustained awareness. As such, social ties were often lost at key, life course events, such as moving, graduating from high school, leaving college, changing jobs, and getting married. Persistent contact is an affordance of those communication technologies that allow people to articulate their association and maintain contact over time. Many of these technologies afford persistence through the ability to broadcast information from *person-to-*

network, sustaining contact without substantively drawing from the time and resources required to maintain ties through other channels of communication. Persistence is a counterforce to mobility and has the potential to link lives across generations and over the life course in ways that closely resemble the structure of affiliation found in the pre-industrial community.

Pervasive awareness is an affordance of the ambient nature of digital communication technologies that provides knowledge of the interests, location, opinions, and activities embedded in the everyday life events of one's social ties. Often resulting from short, asynchronous exchanges, pervasive awareness is an outcome of person-to-network communication and low, social presence that typify such contact. It is part of a dynamic balance between broadcasting and monitoring content on topics that range from the seemingly trivial to the important. Pervasive awareness can be part of the strategy that individuals deploy to deal with the *audience problem* present in many social media. The audience problem is the inability to perceive reception of communication among the audience of person-to-network broadcasts. It contrasts with context collapse, which is primarily a problem of impression management when broadcasting to multiple audiences. Pervasive awareness provides indicators of attentiveness and the availability of social ties. Although it is tempting to equate this process as the outcome of surveillance, it has more in common with the informal watchfulness that was typical in a pre-industrial community.

The structure of a persistent-pervasive community resembles a hybrid of pre-industrial, and urban-industrial, community structures. We are entering a period of *meta-modernity* that renews many of the constraints and opportunities of the pre-modern community structure

without discarding all of the affordances of mobility that have perpetuated through late-modernity. Not since the rise of modern, urban-industrial civilization has there been the potential for such a significant change to the structure of community – a change that will transform collective action, public opinion, the cost of caring, political participation and deliberation, how individuals exchange support, bonding and bridging social capital, and how lives are linked over the life course and across generations.

Community and Communication Technology

The study of community is the study of social structure. It is often described in the vocabulary of social solidarity or cohesion. Because cohesion and solidarity often imply closeness, there is a tendency to privilege strong ties, place, and face-to-face contact when thinking of community. One often assumes that the study of community is analogous to the study of in-person, neighborhood relationships, but this view ignores the many ways that people are connected for the exchange of information and support. Intrinsic to the study of community is the exploration of the variation in relational strength, social contexts, and the cleavages that exist between ties and the environments where they are formed and maintained. Like variation in the design of objects (Gibson, 1979) and the interaction between people and technologies (Norman, 1988), variation in community structure affords different outcomes. These outcomes also depend on individual traits, available technology and skills (DiMaggio, Hargittai, Celeste, & Shafer, 2006), externalities of the technology (Markus, 1987), and the environment (Sampson, 2012). For this reason, the study of community is not about the study of one type of place or one type of bond, but rather the study of variation in context, communication, and technology.

The study of community shares its origins with sociology; many of the earliest community scholars are identified as founding members of that discipline (Durkheim, 1993 [1893]; Simmel, 1950 [1903]-a; Tönnies, 1957 [1887]). These founding fathers focused on large-scale, societal shifts in the mode of production (Marx, 1992 [1859]), the division of labor (Durkheim, 1993 [1893]), religion, the bureaucratic coordination of activities, (e.g., Weber, 1930 [1905], 1947 [1922]), and the pattern of human settlement (Park, 1915). Yet, at a time when disciplinary boundaries were more porous and sociology was conceived as an integrative and cross-cutting discipline (Comte, 1957 [1865]), one could easily have described many of these early contributors to community theory as scholars of communication, technology, or information.

Large-scale, social change has always been tied to technological change. The machines of the industrial revolution drove the social and economic restructuring that began in the 16th century. Capitalism and the specialization of labor were direct results of efficiencies in the use of science and technology. The mass production of books and pamphlets, made possible by the invention of movable type and the printing press, helped the Protestant Reformation take root. The advance of bureaucratic organizations was considered the social analogy to the mechanics of the industrial machine. Community scholars who focused on these issues were not only aware of the role that technology played in large-scale change, but how it influenced individuals and their relationships. They were concerned with many of the issues that resonate with today's communication scholar, including information overload, the role of media in a deliberative democracy, diffusion of information (Tarde, 1901), media richness and nonverbal cues (Simmel, 1950 [1903]-b), and public opinion (Tönnies, 1957 [1887]).

The first generation of American community scholars, The Chicago School, more directly articulated the relationship between community and communication (Carey, 1996). Although one commonly associates The Chicago School with sociological concerns that pertain to social disorganization (Thomas & Znaniecki, 1918) and the evolving physical form of the city (Park, 1915), it also consistently emphasized communication technology. It focused on the role of media (newspapers) in family relationships (Cooley, 1909, p. 83), technology's role in immigrant assimilation, the impact of increasing volumes of communication, how new media (the cinema) may be replacing news with entertainment (Park, 1925), and how mediated communication (diaries, letters, photographs, and pamphlets) influenced everyday life (Plummer, 1983). Scholars have always linked the study of community to understanding the social implication of new technology.

Recently, the study of community has focused on the role of new, digital, information and communication technologies. However, it is not clear if the structure of community has truly changed as a result. Although some of the well-known models used to frame recent technological change, such as "post-industrialism" (Bell, 1973), the "network society" (Castells, 1996), and "networked individualism" (Wellman, 2001) point to important economic and social differences, it is not clear that these models describe a new, social structure. I argue that they do not. These models represent a continuation rather than a divergence in the structure of community that began in the 16th century with the rise of urban-industrialism. They are consistent with the observations of many of the earliest community theorists. It is only very recently with the advent of those communication technologies broadly described as social media that there has been the potential for significant change to the structure of community.

The Mobility Narrative

Pre-Industrial Community

The mobility narrative describes the social forces that separate the structure of community in pre-modern society from that of modern life. It includes the rural-to-urban transition, the loss of traditional social bonds, transportation and communication technologies that have made it easier to overcome constraints of time and space, and the tendency for people to leave relationships behind as they move from one place, job, or interest to another. It describes the change to the structure of pre-industrial community as it transitioned through urban-industrial community.

A fundamental change to the structure of community accompanied urban-industrialism. In Europe, this process was tied to the industrial revolution. In America, this transformation was most evident as urbanization firmly took hold (Park, 1915). Indeed, it would be a mistake to treat these events as discrete objects of study, as they represent a broad, coherent societal shift to the structure of community (Castells, 1976). Prior to urban-industrialism, for most people, community resembled the relatively small, dense, social system depicted in Figure 1. Community consisted of relatively few social ties that were densely interconnected and organized around a limited number of social contexts. The density of relations afforded a high degree of conformity. Diversity within a community, in terms of beliefs, background, and daily labor, was low. Watchfulness was high, and there was little room for individual divergence from collective norms. Deviance was met with repressive sanctions from a coherent collective authority (Durkheim, 1993 [1893]).

In this pre-urban, pre-industrial form of community, most people were involved in few distinct foci of activity. Foci are those "social, psychological, legal or physical entity around which joint activities are organized" (Feld, 1981, p. 1016). The household was the primary unit of production, and there was no separation between home and work. The activities of daily life were organized around family, religion, and settlement. In all practical senses, with no distinction between public and private (Sennett, 1977), life was organized around a single foci – one social and physical context. Most people in a person's community shared their immediate spatial environment. The network of people's interactions was limited by the "space of places" (Castells, 1996). Interactions that could take place between households that could travel the relatively short distance for "door-to-door" interaction defined community (Wellman, 2001).

This depiction of community prior to urban-industrialism is most likely an ideal type. Our knowledge of community structure in medieval Europe is far from complete. As Tilly (1988) has pointed out, our understanding of community structure in Europe as recently as the 18th century tended to underestimate the extent and influence of geographic mobility and social mixing as a result of trade, migration, interaction with elites, the scale of manufacturing, military mobilization, and the seasonal nature of agricultural production. Yet, aspects of this small, dense, homogeneous form of community were clearly recognizable in medieval Europe, mid-19th century America (Anderson, 1974 [1906]), and, to some extent, remain visible in today's rural settlements.

Urban-Industrial Community

Industrialization reorganized the structure of community relations. Early community theorists observed a large-scale, rural-to-urban transition and increased occupational

specialization, migration, and mobility (Durkheim, 1993 [1893]; Tönnies, 1957 [1887]). Key among these observations was recognition that with mobility, people escaped the bonds of "organically connected" social ties of "kinship, locality, and occupation" (Simmel, 1950, p. 404). By escaping the domination of the small, social circles that typified this early community life, the individual was free to explore personal interests. As a result, people's foci of activity diversified.

As communication technologies advanced, community scholars recognized that "mobility may be measured not only by these changes of movement, but also by increase of contacts" (Burgess, 1925, p. 60). It was noted, for example, that "while the increase of population of Chicago in 1912-22 was less than 25 percent (23.6 percent), the increase of letters delivered to Chicagoans was double that," and that over a similar period, "telephone calls in Chicago increased… 55.7 per cent, while the population increased only 13.4 per cent" (Burgess, 1925, p. 60).

The size and heterogeneity of cities, combined with transportation and communication technologies that afforded contact, allowed *shared interest* to replace *shared place* as the dominant force in social tie formation (Fischer, 1975). There existed "community without propinquity" (Webber, 1963). Transportation and communication technologies allowed for higher levels of "time-space distanciation" (Giddens, 1984) or "time-space compression" (Harvey, 1990); relationships were increasingly freed from constraints of time and space. In this age of modernity, it was possible to maintain relationships beyond those that could be achieved by door-to-door contact alone. People could travel greater distances, by train, car, and eventually airplane, and they could increasingly utilize communication technologies to expand

the scope of their interactions from door-to-door to “place-to-place” (Wellman, 2001). The telegraph and the telephone created a “space of flows” (Castells, 1996), where communication was instantaneous and increasingly free from the boundaries of the space of places.

Under the conditions of urban-industrial society or modernity, the structure of community resembles what is depicted in Figure 2. People belong to multiple foci of activity. For most, home and work are separate. Voluntary associations, religion, school, workplaces, neighborhoods, public space, and interest groups ensure that a person’s community consists of a number of distinct social milieus. As a person progresses through the course of his or her life, he or she moves from one neighborhood, school, job, and interest to another. He/she abandons a large number of social ties that originate from these settings and replaces them with ties found in new neighborhoods, schools, and jobs. Although the ties in these different social environments occasionally overlap, for the most part, they represent distinct social worlds that are sparsely knit. There are relatively few bridges between social contexts, and relations are less dense than they were in past community structure. As a result of lower density, watchfulness across community relations is markedly lower, but, where it does exist, it is highly variable and localized within foci of activity. Centralized authority has replaced collective authority, and institutional surveillance has replaced watchfulness.

Continuing the Mobility Narrative

Increased mobility and freedom from the constraints of time and space were the primary affordances provided for by the structure of community as tied to the rise of urban-industrialism. The earliest scholars who realized the significance of new digital technologies also recognized that the mobility of individuals under the structure of an urban-industrial

community was “unprecedented in history, and stupendous” in its magnitude (Bell, 1973, p. 314). In his pioneering work on *The Coming of Post-Industrial Society*, Bell (1973) referred to what emerged as a result of these forces as “the eclipse of distance,” or what he and others have called the “mass society” (Reisman, Denney, & Glazer, 1950). As Bell (1973) argued, there is little doubt that digital technologies pushed the trend of mobility still further. However, the advancement of this trend does not represent a break or fundamentally different structure of community.

Daniel Bell (1973) argued that emerging technologies were ushering in a post-industrial society. Although Bell was primarily occupied by changes in the occupational distribution towards a service economy, he recognized that the information society would influence the conditions for how people interact with their communities. However, he felt that increased interaction drove such changes. This interaction occurred both in the volume of communication and through improvements in the ability to transcend distance in short periods of time. These trends are not distinct from the established mobility narrative that characterized urban-industrial community.

Manuel Castells (1996) suggested that new information and communication technologies would allow social networks to overcome historical limits on interaction. These limits were the natural boundaries of interaction that were possible within the spatial organization of the traditional realm of community, the space of places. In the network society, the space of flows would supersede the space of places; interaction would be increasingly free from the constraints of place. Castells (1996) forecast the superiority of the space of flows over the space of places, but the affordance is still one of domination over space and time –

mobility. Wellman (2001) makes this trend particularly overt by recognizing the role that mobile technologies play in a society in which people are networked individuals who now connect "person-to-person." These connections supersede the limits of door-to-door and place-to-place interaction. Bell (1973), Castells (1996), and Wellman (2001) identified significant economic, political, and cultural change, but they present models of society that are consistent, but do not diverge from the mobility narrative that started with urban-industrialism. The acceleration of mobility may represent a shift from modernity to late-modernity (Giddens, 1991) but does not represent a fundamental change to the structure of community.

I argue that more recently, large-scale changes in the structure of community that break from the mobility narrative have begun to take hold. This transformation is a result of a new generation of communication technologies that afford persistent contact and pervasive awareness. These affordances create relational structures that may counter some of the historical forces of mobility.

Breaking from the Mobility Narrative

Until recently, the use of digital communication technologies has primarily afforded a social structure that advances the mobility narrative and a community structure that started with urban-industrialism. That is, digital technologies further reduced the friction of space and the geographic dispersion of social ties beyond that which previous technologies could accomplish, but they have not fundamentally reorganized community structure. Primarily because of the growth of social media, more recent technological change has made two affordances of digital communication technologies more salient. These affordances are *persistent contact* and *pervasive awareness*. As the technologies that support these affordances

become increasingly integrated into everyday life, the structure of community has the potential to change. This change is not fundamentally new, but represents a hybrid of the pre-industrial and urban-industrial forms. An era of meta-modernity is replacing the stage of late-modernity. This hybrid structure breaks from the mobility narrative that has preoccupied the study of community. The implications of these shifts are likely to have far-reaching consequences for a range of social processes related to how we feel about ourselves, view and interact with others, and engage with society.

Persistent Contact

In the urban-industrial community, as the individual transitioned through the life course, technologies that provided for mobility allowed him or her to leave kinship, locality, and workplace groups behind. As the individual moved from one neighborhood, school, or job to another, he or she abandoned a large number of social ties that originated from these settings and replaced them with ties found in new neighborhoods, schools, and jobs. Such transitions were costly. They lost supportive relations at each step (Hagan, MacMillan, & Wheaton, 1996). As Coleman (1988) noted, this mobility resulted in a loss of transgenerational contact, and "for families that have moved often, the social relations that constitute social capital are broken at each move" (p.113). Although some ties did endure, the majority were lost. Recent technological changes have reversed this trend.

Although previous communication technologies afforded the opportunity to communicate across further distances with reduced time and cost, they lacked an affordance for persistence. The advent of social media, particularly social network sites, has afforded persistence. These technologies allow people to articulate connections to individuals and

institutions, share information, and interact with content through those connections. When a connection has been articulated through a social network site or similar system, social ties have the potential to become enduring channels of communication.

Social network sites and similar systems are distinct from other channels of communication in how they provide persistence. Articulation of associations is a defining characteristic of social network sites (boyd & Ellison, 2007). However, persistence is not merely a function of having used a system to record a connection. Other systems provide similar, enduring, public records of affiliation, such as those provided by the government (e.g., criminal and tax records), church (e.g., marriage and baptismal records), and other institutions (e.g., school yearbooks, telephone books, membership lists) (Erickson, 1997). Persistence is a function of *articulation* and *contact*.

In the past, to prevent a social tie from becoming dormant, persistence required significant effort in the form of tie maintenance, most often person-to-person contact (face-to-face, written, etc.). Hampton and Ling (2013) found that this type of contact comes at a cost; it consumes time and other resources that one might otherwise use to maintain a larger core network. Unlike past communication technologies, social network sites allow people to communicate from *person-to-network* (Hampton, Lee, & Her, 2011b). The low cost, low bandwidth, broadcast nature of person-to-network contact affords persistence, because contact can be maintained without substantively drawing from the time and resources required to maintain social ties through other forms of communication. Digital technologies, in general, and social media, in particular, supplement contact; they do not displace contact through other channels of communication (Hampton & Wellman, 2003; Wellman, Quan-Haase, Witte, &

Hampton, 2001). Although we should expect variation in the persistence of ties based on individual attributes, such as gender and culture (Boase, Kobayashi, Schrock, Suzuki, & Suzuki, 2015), social media can afford persistence. Previously, life course events, such as moving (Clark, 1966; Hagan, et al., 1996), graduating from high school (Shanahan, 2000), leaving for college (Compas, Wagner, Slavin, & Vannatta, 1986), changing jobs, getting married (Kalmijn, 2003), and having children would have resulted in the loss of social ties and foci of activity.

Most persistence is deliberate, but it can also be unintentional in that the articulation of relations through social media often allows people to navigate social ties through 2nd and 3rd degrees of visibility. In this way, contacts from an organization or other foci of activity not directly articulated are accessible through friends-of-friends. You may never truly lose contact with friends, including those who are "unfriended" through social media and those who are never directly articulated, because awareness continues through mutual acquaintances and shared and persistent content.

Pervasive Awareness

Pervasive awareness is an affordance of the ambient nature of digital communication technologies. It is a consequence of the person-to-network communication that enables persistent contact and the low social presence that typifies such contact. Pervasive awareness is often the result of short, asynchronous exchanges of text or photos and can result from the use of a variety of technologies, including text messaging (Ito, Okabe, & Matsuda, 2005; Licoppe, 2004; Ling, 2008). It is a common affordance to users of social network sites (boyd, 2010), blogs, microblogging (Kaplan & Haenlein, 2011), and other social media. The content of messages that contribute to pervasive awareness includes those that, on face, might appear

trivial, e.g., a photograph of a meal, as well as those that are more likely to be described as important matters, including political, health, financial, or relationship content (Wang, Burke, & Kraut, 2013). Pervasive awareness provides knowledge of the activities, interests, location, opinions, resources, and life course transitions of social ties (Erickson, 2008; Hampton, et al., 2011b; Hampton et al., 2014; Hampton, Rainie, Lu, Shin, & Purcell, 2015; Hampton, Sessions, & Ja Her, 2011c; Lu & Hampton, in progress).

The concept of *awareness* has a long history in the study of human-computer interaction. Scholars often use the term to describe an affordance of computer systems in the context of collaborative work (Dourish & Bellotti, 1992; Markopoulos, Ruyter, & Mackay, 2009). Indeed, awareness is foundational to communication, mediated or otherwise (Goffman, 1959). However, *pervasive awareness* is a new construct that is only possible as an outcome of the "sparsely knit, segmented, and specialized" (Rainie & Wellman, 2012, p. 135) nature of urban-industrial community. It can exist only in contexts in which there is incomplete network closure and low social presence.

In a community characterized by completely dense, very close, and immediate relations, such as might have existed in some pre-industrial communities, there would be no need for a technology that provided pervasive awareness. The flow of information, including opinions and instrumental and emotional support, is likely to be highest in a community where there is transitivity (Granovetter, 1973), multiplexity (Haythornthwaite, 2002), and high social presence (Short, Williams, & Christie, 1976). Awareness is assumed to peak in contexts where individuals interact synchronously and face-to-face and to bottom where they interact asynchronously and through text-based communication. The use of multiple communication

technologies has been associated with higher relational strength, which is, in turn, associated with trust and information flow. Where there are many strong ties, homophily and the need for cognitive balance support network closure, which is also related to information flow. Perfect network closure and high social presence would mean that the information available to individuals in such an, admittedly unlikely, social system would already be pervasive, and individuals would be complete aware.

Pervasive awareness has utility and is likely to thrive only where multiplexity, transitivity, and social presence would otherwise be absent or low. In the urban-industrial community, few if any foci resemble contexts where multiplexity, transitivity, and social presence are maximal (e.g., possibly, household relations) and the larger structure is characterized by specialization, cleavages, and mixed social presence. Technologies that provide pervasive awareness also provide multiplexity (or possibly the only channel), transitivity, and social presence. In contrast to the common understanding of the role of media richness (Daft & Lengel, 1986) and social presence, as part of pervasive awareness, lean media (e.g., a text-based medium of limited length) that are low in intimacy (e.g., face-to-face contact) and immediacy (i.e., asynchronous) communicate mutual awareness, closeness, and other information, which are unlikely to be communicated through other channels. With persistence, the added dimension of communicative duration increases the richness of the communication. Walther (1992) suggested that for relationships that form online, communication increases relational strength with time. Like Walther's observations, channels that provide for pervasive awareness provide for relational maintenance that can preserve and possibly even strengthen existing ties.

Pervasive awareness can result from passive or active contact. That is, awareness can result from communication acts where one is the recipient or the initiator of communication. For example, an individual shares the status update that she "had a bad day at school." For recipients, this might provide awareness that their acquaintance is unhappy or that she is enrolled in school (or that she attended that day). For the sender, feedback from recipients in response to the status update provides an *awareness of other's awareness* (Lu & Hampton, in progress). This reciprocal awareness helps the sender manage the *audience problem* common to media that provide for pervasive awareness.

The audience problem is the inability to determine who is receiving information broadcast from person-to-network. "Friends may not log in to the site or may not see the content" (Bernstein, Bakshy, Burke, & Karrer, 2013). In part, the audience problem has been explored as part of "context collapse" (Marwick & boyd, 2010; Meyrowitz, 1985; Wesch, 2009). Context collapse is generally viewed as a problem of impression management or what Goffman (1955) called "face-work." Many media that afford persistent contact do not easily allow individuals to segment content by foci of activity or context. As a result, sharing content most relevant to relations from one foci of activity (e.g., family members) may unintentionally be shared with relations from multiple foci (e.g., the workplace). The consequence of context collapse is typically described as embarrassment, revealing previously hidden information, or simply the risk of audience disinterest (boyd, 2010; Davis & Jurgenson, 2014). However, it is unclear how often information is shared with unintentional audiences and, therefore, how much new awareness results from context collapse. In a media environment that allows for multiple channels of communication, most individuals probably use selective self-presentation

to maintain an identity performance that is appropriate for multiple audiences (Hogan, 2010). However, the audience problem is about the lack of awareness of audience attention, not primarily about the presence of multiple audiences.

The audience problem is specifically a result of the inability to gauge interest and attention in content sent through a person-to-network broadcast. This is analogous to the problem teachers experience when broadcasting information to a classroom of students, hoping that they are interested, paying attention, and retaining content. However, the algorithms behind many social media further complicate this problem. Social media may not provide for a true person-to-network broadcast, but use nontransparent algorithms to direct content to a subset of social ties (Hamilton, Karahalios, Sandvig, & Eslami, 2014). This can make it difficult for people to determine audience size (Bernstein, et al., 2013), let alone the attention of specific actors. Like teachers in classrooms, social media can also be used to test who is receiving content. By monitoring online (e.g., reposting, commenting, and liking), and offline (e.g., phone calls, etc.) feedback in response to content, there is an *awareness of awareness* about how receptive social ties are to different content. It builds or retains relational strength (Erickson, 2010) and may serve as a cue to the readiness of ties to provide future social support.

It is tempting to think of pervasive awareness as the outcome of the surveillance afforded by digital technologies. However, the term “surveillance” overemphasizes the active and purposeful nature of the activities that allow for pervasive awareness. Traditionally, surveillance is an active process with a purposeful outcome (e.g., to prevent a crime) or intent to influence (Lyon, 2002). The ambient nature of technologies that provide for pervasive awareness means that individuals are mostly passive in their information collection. Their

passivity may resemble the traditional lurkers in other virtual forums (Preece, Nonnecke, & Andrews, 2004), but it also relies on the recordable, persistent (Erickson, 1999), and searchable (boyd, 2010) nature of digital conversations, which allows individuals to act on information at a later time. Pervasive awareness has as much in common with "sousveillance," or inverse surveillance (Mann, Nolan, & Wellman, 2002), as it does with surveillance. That is, the watchers are being watched as much as they are watching. However, sousveillance typically involves an institutional actor (e.g., government, department store, etc.), but, absent the institutional watcher, pervasive awareness is primarily part of an interpersonal process. Applying a new label of "interpersonal surveillance" (Trottier, 2012), "social surveillance" (Marwick, 2012), or what Nathan Jurgenson and George Ritzer call the "omniopticon" (Jurgenson, 2011), implies novelty to a process that is largely indistinct from the watchfulness that existed in the pre-industrial community. In fact, the design intent of Bentham's (1791 [1955]) panopticon was an affordance that resembled the direct social control provided through high social presence, densely-knit relationships, and the power and hierarchy characterized by the pre-industrial community (Foucault, 1995). Pervasive awareness brings us full circle in the advent of surveillance.

Persistent-Pervasive Community

Recent changes to the media landscape have introduced new affordances that have the potential to restructure the nature of community. Although previous technologies afforded mobility (the ability to overcome constraints of time and space), they lacked an affordance for relational persistence and sustained awareness. This is not to suggest that such affordances were not present to some extent in other technologies and contexts. Yet, with the widespread

adoption of social media, these affordances are, for the first time, part of the lives of many people in how they communicate within their personal community.

The structure of persistent-pervasive community resembles a hybrid of pre-industrial and urban-industrial community forms (Figure 3). Key features of this structure, which differentiate it from the urban-industrial community that preceded it, include relationships and foci of activity that are less transitory than at any time in modern history, higher rates of bridging between and within foci, and more frequent interaction. These changes to the structure of community are likely to impact family life, public opinion, collective action, and how individuals exchange social support.

Many of the outcomes of persistent-pervasive community will only be recognizable as the technologies that afford persistent contact and pervasive awareness become mundane and are thoroughly integrated into everyday life across the life course. However, there are early indications of what life may be like under the conditions of persistent-pervasive community.

Social Capital

There is robust evidence to support the finding that a natural by-product of pervasive awareness and persistent contact is social capital. The use of social media, notably Facebook, but also a number of other digital technologies, is related to higher levels of awareness of diversity within people's social networks (Chen, 2013; Hampton, et al., 2011b). Network diversity, or bridging social capital, has many advantages in terms of access to information and resources. However, because most Facebook friends are not strangers but consist of established friends and family (Hampton, Goulet, Rainie, & Purcell, 2011a), it is not clear how much new, bridging, social capital is being created as a result of these technologies.

Affordances for persistence and awareness prevent tie dormancy and dissolution and increase the flow of information, making visible the resources and diversity that were always present. For example, the finding that people who share more photos online are more likely to report that they have a cross-party discussion partner may have little to do with forming new discussion partners. It may have more to do with how images influence visibility of political affiliation within networks where political talk might be taboo (Hampton, et al., 2011c). Pervasive awareness also makes one's own social capital visible to community members, and relations are likely to want to draw on those resources. The potential to use social media to navigate through two and three degrees of affiliation makes attempts to conceal resources and limit awareness difficult.

Bonding social capital – a product of relational strength and the density of social ties – contrasts with bridging social capital – the resources available through diverse, loosely-bound, social ties. There is a reciprocal relationship between the self-disclosure that is so much a part of person-to-network broadcasts (Marwick & boyd, 2010) and relational strength. People generally regard those who engage in intimate disclosure as closer, and they tend to feel closer to those to whom they have disclosed (Collins & Miller, 1994). Although some have suggested that the volume of "superficial self-disclosure" through social media may be detrimental to relationships (Rains, Brunner, & Oman, in press), there are indications that social media do strengthen relational closeness (Burke & Kraut, 2014) and are associated with having a larger number of core social ties (Hampton, et al., 2011c). This may represent higher levels of bonding social capital. However, persistent contact and pervasive awareness may breed bonding at the cost of bridging social capital.

Bonding can reduce opportunities for bridging by increasing transitivity (Granovetter, 1973). Previous studies have found that for social relationships maintained online, there is a tendency toward balance, for people to articulate relationships with others with whom they have relationships in common (Welles & Contractor, 2015). If awareness leads to network closure, access and control over unique information and resources may decline (Burt, 1992). Although this type of network density may be good for information openness and can facilitate coordination, it can also contribute to conformity and reduce the diversity of new information that is created (Shore, Bernstein, & Lazer, in press). This may contribute to a need for people to self-censor in an attempt to avoid sharing with unintended audiences (Vitak, Blasiola, Litt, & Patil, 2015) and to preserve their control over information (Gibbs, Rozaidi, & Eisenberg, 2013). However, network closure as a result of persistent contact and pervasive awareness is probably a local network phenomenon.

Foci of activity represent areas of localized clustering centered on specific contexts that generally do not overlap. As with other small-world networks, closure tends not to occur at random (Watts & Strogatz, 1998). Closure is likely to be limited within foci of activity and across foci with shared membership, and it may not affect the characteristics of the larger network structure. However, if persistent contact and pervasive awareness do afford localized clustering, individuals who use technologies that afford persistence and awareness within a specific foci of activity, such as an organization (Ellison, Gibbs, & Weber, 2015; Treem & Leonardi, 2012), are most likely to experience increased access to resources at the cost of individual control over structural holes (Burt, 1992), as opportunities to assume the role of "tertius gaudens" (Simmel, 1950) are eliminated and preferential attachment declines (Merton,

1968). Locally, within foci, where network density is high, we should also expect increased affordances associated with watchfulness and network closure, such as generalized reciprocity and the use of repressive sanctions (Durkheim, 1993 [1893]) against those who resist the conformity of the inward-looking nature of village life. Algorithms may advance this trend further. Technologies such as "social search" may encourage *network-to-person* communication. Algorithms that privilege or limit exposure to information, based on opinions or knowledge that has been accredited by community members, may omit unique information, limit exposure to diversity, reduce opinion quality, and remove the network advantage afforded by a structure that is lower in cohesion.

Linked Lives

Mobility negatively impacted the durability of transgenerational relationships. In an urban-industrial community, as children mature and leave home for marriage, work, or education, family relations – notably parent-grandparent, child-parent, and grandchild-grandparent – decline in quality and frequency of contact (King & Elder, 1995). The concept of "linked lives" and their role over the life course points to potential costs and benefits of persistent transgenerational contact (Elder, 1994). These include the transmission of antisocial behaviors, religious and political influence, and higher commitment to intergenerational social support. There is some evidence to suggest that social media reestablish transgenerational contact (Siibak & Tamme, 2013), and that technologies as mundane as email and the mobile phone play an important role in the persistence of the child-parent relationship during transitional life course events (Boneva, Kraut, & Frohlich, 2001).

The Cost of Caring

Awareness can be a precondition of empathy. It is a dimension of social intelligence (social interest) and can facilitate the provision of social support (Adler, Linton, & Vaughan, 1964; Konrath, 2012). However, not all types of awareness are positive. Awareness of undesirable events in the lives of others can have a negative psychological impact, a "cost of caring" that includes higher levels of stress (Kessler & McLeod, 1984). As with all affordances, there is likely to be variation by individual attributes. Women tend to have higher levels of awareness than men (Kessler & McLeod, 1984). There is evidence to suggest that many digital technologies not only increase awareness of life events, especially for women, but that women are also more susceptible to stress as a result of this awareness (Hampton, et al., 2015).

Collective Action

Pervasive awareness may be particularly relevant for collective action. Threshold models of collective action suggest that propensity to become involved in a protest or social movement is a function of the number of people in a community observed participating (Granovetter, 1978). For some movements, people have very high thresholds, that is, they need to see that many of their ties are involved before they too will participate. Social networks have always been used to communicate threshold, but technologies that support pervasive awareness may make the commitment of network members more visible and visible earlier in the process. Pervasive awareness may create "common knowledge, that is, knowledge of other people's knowledge, essential for collective action" (Chwe, 1999, p. 129). Indeed, there is some evidence to suggest that social media, possibly as a result of pervasive awareness and persistent contact, have played an important role in political action as part of the Arab Spring and elsewhere

(Hussain & Howard, 2013; Tufekci & Wilson, 2012). However, visibility may not only increase the speed of collective action, but visibility of hesitation, hedging, and uncertainly can also lead to the rapid decline of a movement (Hampton, 2003).

The Spiral of Silence

Political participation, such as engagement in a political protest, should not be conflated with political deliberation. Unlike the purposeful nature of participation, political discussion can include formal and informal talk, conversation, and arguments with no specific purpose or predetermined agenda (Wyatt, Katz, & Kim, 2000). Some hope that social media might produce discussion venues in which people feel freer to express their opinions, thus enriching public discourse. Indeed, social media users do report lower levels of uncertainty about the opinions of their friends and family on some political issues (Hampton, et al., 2014). However, when awareness includes the perception of opinion disagreement, it can reduce opportunities for political discussion by creating a "spiral of silence" (Noelle-Neumann, 1974). When aware that family, friends, and colleagues do not share one's point of view, a person may self-censor and choose not to engage in political discussions. A study of one, political event – revelations by Edward Snowden about the U.S. government's surveillance program – suggests that social media users are less willing to speak out on this issue online and in a number of offline settings, especially when they think that people with whom they are affiliated through social media do not share their opinions on this issue (Hampton, et al., 2014).

Conclusion

Much has changed and will change as a result of digital communication technologies. However, until very recently, these technologies have not fundamentally altered the structure

of community. As with many earlier technologies, digital communication technologies have reduced the costs of interacting across time and space. Yet, recent technologies have also introduced widespread affordances for persistent contact and pervasive awareness that have the potential to fundamentally change the structure of community. Persistent-pervasive community is a break from the mobility narrative of "bond-free living" and disposable gratification that has perpetuated through late-modernity (Bauman, 2000; Giddens, 1991). Whereas previous technologies afforded mobility, social media and related technologies provide for relational persistence and ambient interaction. Not a new social structure but rather a hybrid of pre-modern and modern community, persistent-pervasive community represents a period of meta-modernity that does not discard the affordances of mobility, while renewing many of the constraints and opportunities of pre-modern community structure. Early glimpses into how these changes to social structure will impact everyday life suggest that awareness and persistence will both expand and constrain individual and collective opportunity.

References

Adler, A., Linton, J., & Vaughan, R. (1964). *Social interest: A challenge to mankind*: Capricorn Books New York.

Anderson, W. L. (1974 [1906]). *The country town*. New York: Arno Press.

Bauman, Z. (2000). *Liquid modernity*. Cambridge: Polity Press.

Bell, D. (1973). *The coming of post-industrial society*. New York: Basic Books.

Bentham, J. (1791 [1955]). *Panopticon Letters*. Miran Bozovic, Editor. London: Verso.

Bernstein, M. S., Bakshy, E., Burke, M., & Karrer, B. (2013). *Quantifying the invisible audience in social networks*. Paper presented at the Proceedings of the SIGCHI Conference on Human Factors in Computing Systems.

Boase, J., Kobayashi, T., Schrock, A., Suzuki, T., & Suzuki, T. (2015). Reconnecting Here and There: The Reactivation of Dormant Ties in the United States and Japan. *American Behavioral Scientist*.

Boneva, B., Kraut, R., & Frohlich, D. (2001). Using E-Mail for Personal Relationships: The Difference Gender Makes. *American Behavioral Scientist, 45*(3), 530-549.

boyd, d. (2010). Social Network Sites as networked Publics. In Z. Papacharissi (Ed.), *A Networked Self* (pp. 39-58). New York: Routledge.

boyd, d. m., & Ellison, N. B. (2007). Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communication, 13*(1), 210-230.

Burgess, E. (1925). The Growth of the City. In R. Park & E. Burgess (Eds.), *The City: Suggestions for Investigation of Human Behavior in the Urban Environment* (pp. 47-62). Chicago: University of Chicago.

Burke, M., & Kraut, R. (2014). *Growing Closer on Facebook: Changes in Tie Strength Through Social Network Site Use.* Paper presented at the CHI, Toronto, Canada.

Burt, R. (1992). *Structural Holes*. Chicago: University of Chicago Press.

Carey, J. (1996). The Chicago School and Mass Communication Research. In E. Dennis & E. Wartella (Eds.), *American Community Research: The Remembered History* (pp. 21-38). Mahwah, NJ: Lawrence Erlbaum.

Castells, M. (1976). Theory and Ideology in Urban Sociology. In C. Pickvance (Ed.), *Urban Sociology* (pp. 60-84). London: Tavistock.

Castells, M. (1996). *The Rise of the Network Society*. Oxford: Blackwell.

Chen, W. (2013). Internet Use, Online Communication, and Ties in Americans' Networks. *Social Science Computer Review, 31*(4), 404-423.

Chwe, M. S.-Y. (1999). Structure and strategy in collective action 1. *American journal of sociology, 105*(1), 128-156.

Clark, S. D. (1966). *The Suburban Society*. Toronto: University of Toronto Press.

Coleman, J. (1988). Social Capital in the Creation of Human Capital. *American Journal of Sociology, 94*, S95-S120.

Collins, N. L., & Miller, L. C. (1994). Self-disclosure and liking. *Psychological Bulletin, 116*, 457-475.

Compas, B., Wagner, B., Slavin, L., & Vannatta, K. (1986). A prospective study of life events, social support, and psychological symptomatology during the transition from high school to college. *American Journal of Community Psychology, 14*(3), 241-257.

Comte, A. (1957 [1865]). *A general view of positivism*. New York: Speller.

Cooley, C. (1909). *Social Organization: A Study of the Large Mind*. New York: Scribner.

Daft, R. L., & Lengel, R. H. (1986). Organizational Information Requirements, Media Richness and Structural Design. *Management Science, 32*(5), 554-571.

Davis, J. L., & Jurgenson, N. (2014). Context collapse: theorizing context collusions and collisions. *Information, Communication & Society, 17*(4), 476-485.

DiMaggio, P., Hargittai, E., Celeste, C., & Shafer, S. (2006). From Unequal Access to Differentiated Use. In D. B. Grusky & S. Szelényi (Eds.), *The Inequality Reader* (pp. 549-565). Boulder, CO: Westview.

Dourish, P., & Bellotti, V. (1992). *Awareness and coordination in shared workspaces*. Paper presented at the Proceedings of the 1992 ACM conference on Computer-supported cooperative work.

Durkheim, E. (1993 [1893]). *The Division of Labor in Society* (1993 ed.). New York: Macmillan.

Elder, G. H. (1994). Time, Human Agency, and Social Change: Perspectives on the Life Course. *Social Psychology Quarterly, 57*(1), 4-15.

Ellison, N. B., Gibbs, J. L., & Weber, M. S. (2015). The Use of Enterprise Social Network Sites for Knowledge Sharing in Distributed Organizations: The Role of Organizational Affordances. *American Behavioral Scientist, 59*(1), 103-123.

Erickson, B. H. (1997). Social Networks and History: A Review Essay. *Historical Methods: A Journal of Quantitative and Interdisciplinary History, 30*(3), 149-157.

Erickson, I. (2008). The Translucence of Twitter. *Ethnographic Praxis in Industry Conference Proceedings, 2008*(1), 64-78.

Erickson, I. (2010). Geography and Community: New Forms of Interaction Among People and Places. *American Behavioral Scientist, 53*(8), 1194-1207.

Erickson, T. (1999). Persistant Conversation: An Introduction. *Journal of Computer-Mediated Communication, 4*(4), 0-0.

Feld, S. (1981). The Focused Organization of Social Ties. *American Journal of Sociology, 86*(5), 1015-1035.

Fischer, C. (1975). Toward a Subcultural Theory of Urbanism. *American Journal of Sociology, 80*(6), 1319-1341.

Foucault, M. (1995). *Discipline and punish : the birth of the prison*. New York: Vintage Books.

Gibbs, J. L., Rozaidi, N. A., & Eisenberg, J. (2013). Overcoming the "Ideology of Openness": Probing the Affordances of Social Media for Organizational Knowledge Sharing. *Journal of Computer-Mediated Communication, 19*(1), 102-120.

Gibson, J. J. (1979). *The ecological approach to visual perception*. Boston: Houghton Mifflin.

Giddens, A. (1984). *The constitution of society : outline of the theory of structuration*. Berkeley: University of California Press.

Giddens, A. (1991). *Modernity and Self-Identity*. Cambridge: Polity.

Goffman, E. (1955). On Face-Work. *Psychiatry, 18*(3), 213-231.

Goffman, E. (1959). *The Presentation of Self in Everyday Life*. London: Penguin.

Granovetter, M. (1973). The Strength of Weak Ties. *American Journal of Sociology, 78*(6), 1360-1380.

Granovetter, M. (1978). Threshold Models of Collective Behavior. *American Journal of Sociology, 83*, 1420-1443.

Hagan, J., MacMillan, R., & Wheaton, B. (1996). New Kid in Town. *American Sociological Review, 61*, 368-385.

Hamilton, K., Karahalios, K., Sandvig, C., & Eslami, M. (2014). *A path to understanding the effects of algorithm awareness*. Paper presented at the CHI '14 Extended Abstracts on Human Factors in Computing Systems.

Hampton, K. N. (2003). Grieving for a Lost Network: Collective Action in a Wired Suburb. *The Information Society, 19*(5), 1-13.

Hampton, K. N., Goulet, L. S., Rainie, L., & Purcell, K. (2011a). *Social Networking Sites and Our Lives: How People's Trust, Personal Relationships, and Civic and Political Involvement are Connected to Their Use of Social Networking Sites and Other Technologies*. Washington, D.C.: Pew Research.

Hampton, K. N., Lee, C. J., & Her, E. J. (2011b). How New Media Afford Network Diversity: Direct and Mediated Access to Social Capital Through Participation in Local Social Settings. *New Media & Society, 13*(7), 1031-1049.

Hampton, K. N., & Ling, R. (2013). Explaining Communication Displacement and Large Scale Social Change in Core Networks: A Cross-National Comparison of Why Bigger is Not Better and Less Can Mean More *Information, Communication & Society, 16*(4), 561-589.

Hampton, K. N., Rainie, L., Lu, W., Dwyer, M., Shin, I., & Purcell, K. (2014). *Social Media and the "Spiral of Silence"*. Washington, D.C.: Pew Research Center.

Hampton, K. N., Rainie, L., Lu, W., Shin, I., & Purcell, K. (2015). *Social media and the cost of caring*.

Hampton, K. N., Sessions, L., & Ja Her, E. (2011c). Core Networks, Social Isolation, and New Media: Internet and Mobile Phone Use, Network Size, and Diversity. *Information, Communication & Society, 14*(1), 130-155.

Hampton, K. N., & Wellman, B. (2003). Neighboring in Netville: How the Internet Supports Community and Social Capital in a Wired Suburb. *City and Community, 2*(3), 277-311.

Harvey, D. (1990). *The condition of postmodernity : an enquiry into the origins of cultural change*. Oxford [England]; Cambridge, Mass., USA: Blackwell.

Haythornthwaite, C. (2002). Strong, Weak and Latent Ties and the Impact of New Media. *The Information Society, 18*, 1-17.

Hogan, B. (2010). The Presentation of Self in the Age of Social Media: Distinguishing Performances and Exhibitions Online. *Bulletin of Science, Technology & Society, 30*(6), 377-386.

Hussain, M. M., & Howard, P. N. (2013). What Best Explains Successful Protest Cascades? ICTs and the Fuzzy Causes of the Arab Spring. *International Studies Review, 15*(1), 48-66.

Ito, M., Okabe, D., & Matsuda, M. (2005). *Personal, portable, pedestrian : mobile phones in Japanese life*. Cambridge, Mass.: MIT Press.

Jurgenson, N. (2011). Review of Timoner's We Live in Public. *Surveillance & Society, 8*(3), 374-378.

Kalmijn, M. (2003). Shared Friendship Networks and the Life Course. *Social Networks, 25*(3), 231-249.

Kaplan, A. M., & Haenlein, M. (2011). The early bird catches the news: Nine things you should know about micro-blogging. *Business Horizons, 54*(2), 105-113.

Kessler, R. C., & McLeod, J. D. (1984). Sex Difference in Vulnerability to Undesirable Life Events. *American Sociological Review, 49*, 620-631.

King, V., & Elder, G. H., Jr. (1995). American Children View Their Grandparents: Linked Lives Across Three Rural Generations. *Journal of Marriage and Family, 57*(1), 165-178.

Konrath, S. (2012). The Empathy Paradox: Increasing Disconnection in the. In R. Luppicini (Ed.), *Handbook of Research on Technoself* (pp. 204-228). Hershey, PA: IGI Global.

Licoppe, C. (2004). 'Connected' presence: the emergence of a new repertoire for managing social relationships in a changing communication technoscape. *Environment and Planning D: Society and Space, 22*(1), 135-156.

Ling, R. S. (2008). *New Tech, New Ties*. Cambridge, MA: MIT Press.

Lu, W., & Hampton, K. N. (in progress). Beyond the Power of Networks: Differentiating Network Structure and Social Media use for Perceived Social Support.

Lyon, D. (2002). *Surveillance society : monitoring everyday life*. Buckingham [England]; Philadelphia: Open University Press.

Mann, S., Nolan, J., & Wellman, B. (2002). Sousveillance: Inventing and Using Wearable Computing Devices for Data Collection in Surveillance Environments. *Surveillance & Society, 1*(3), 331-355.

Markopoulos, P., Ruyter, B. d., & Mackay, W. (2009). *Awareness systems : advances in theory, methodology, and design*. Dordrecht; London: Springer.

Markus, M. L. (1987). Toward a Critical Mass Theory of Interactive Media: Universal Access, Interdependence and Diffusion. *Communication Research, 14*(5), 491-511.

Marwick, A. (2012). The public domain: Surveillance in everyday life. *Surveillance & Society, 9*(4), 378-393.

Marwick, A. E., & boyd, d. (2010). I Tweet Honestly, I Tweet Passionately: Twitter Users, Context Collapse, and the Imagined Audience. *New Media & Society, 13*(1), 114-133.

Marx, K. (1992 [1859]). *Capital : a critique of political economy*. London, UK: Penguin.

Merton, R. (1968). The Matthew Effect in Science. *Science, 159*(3810), 56-63.

Meyrowitz, J. (1985). *No Sense of Place: The Impact of Electronic Media on Behavior*. New York: Oxford University Press.

Noelle-Neumann, E. (1974). The Spiral of Silence A Theory of Public Opinion. *Journal of Communication, 24*(2), 43-51.

Norman, D. A. (1988). *The Design of Everyday Things*. New York: Doubleday.

Park, R. (1915). The City: Suggestions for the Investigation of Human Behavior in the City Environment. *American Journal of Sociology, 20*(5), 577-612.

Park, R. E. (1925). Community organization and the romantic temper. *Social Forces*, 673-677.

Plummer, K. (1983). *Documents of life : an introduction to the problems and literature of a humanistic method*. London; Boston: G. Allen & Unwin.

Preece, J., Nonnecke, B., & Andrews, D. (2004). The top five reasons for lurking: improving community experiences for everyone. *Computers in Human Behavior, 20*(2), 201-223.

Rainie, L., & Wellman, B. (2012). *Networked: The New Social Operating System*. Cambridge, MA: MIT Press.

Rains, S. A., Brunner, S. R., & Oman, K. (in press). Self-disclosure and new communication technologies: The implications of receiving superficial self-disclosures from friends. *Journal of Social and Personal Relationships*.

Reisman, D., Denney, R., & Glazer, N. (1950). *The Lonely Crowd*. New Haven, CT: Yale University Press.

Sampson, R. J. (2012). *Great American City : Chicago and the enduring neighborhood effect*. Chicago; London: The University of Chicago Press.

Sennett, R. (1977). *The Fall of Public Man*. New York: Knopf.

Shanahan, M. J. (2000). Pathways to Adulthood in Changing Societies: Variability and Mechanisms in Life Course Perspective. *Annual Review of Sociology, 26*(1), 667-692.

Shore, J., Bernstein, E., & Lazer, D. (in press). Facts and Figuring: An Experimental Investigation of Network Structure and Performance in Information and Solution Spaces. *Organization Science*.

Short, J., Williams, E., & Christie, B. (1976). *The Social Psychology of Telecommunications*. London: Wiley.

Siibak, A., & Tamme, V. (2013). Who introduced Granny to Facebook?: An exploration of everyday family interactions in web-based communication environments. *Northern Lights: Film & Media Studies Yearbook, 11*(1), 71-89.

Simmel, G. (1950). *The Sociology of Georg Simmel* (T. a. e. b. K. Wolff, Trans.). Glencoe, IL: Free Press.

Simmel, G. (1950 [1903]-a). The Metropolis and Mental Life (K. Wolff, Trans.) *The Sociology of Georg Simmel* (pp. 409-424). New York: Free Press.

Simmel, G. (1950 [1903]-b). Written Communication (K. Wolff, Trans.) *The Sociology of Georg Simmel* (pp. 352-354). New York: Free Press.

Tarde, G. d. (1901). *L'opinion et la foule*. Paris: F. Alean.

Thomas, W. I., & Znaniecki, F. W. (1918). *The Polish Peasant in Europe and America.* Chicago: University of Chicago Press.

Tilly, C. (1988). Misreading, then Rereading, Nineteenth-Century Social Change. In B. Wellman & S. Berkowitz (Eds.), *Social Structures: A Network Approach* (pp. 332-358). Cambridge: Cambridge University Press.

Tönnies, F. (1957 [1887]). *Community and Society* (C. P. Loomis, Trans.). East Lansing, MI: Michigan State University Press.

Treem, J. W., & Leonardi, P. M. (2012). Social Media Use in Organizations. *Communication Monographs, 36*, 143-189.

Trottier, D. (2012). *Social media as surveillance : rethinking visibility in a converging world*. Farnham, Surrey, England; Burlington, VT: Ashgate.

Tufekci, Z., & Wilson, C. (2012). Social Media and the Decision to Participate in Political Protest: Observations From Tahrir Square. *Journal of Communication, 62*(2), 363-379.

Vitak, J., Blasiola, S., Litt, E., & Patil, S. (2015). *Balancing Audience and Privacy Tensions on Social Network Sites: Strategies of Highly Engaged Users* (Vol. 9).

Walther, J. B. (1992). Interpersonal Effects in Computer-Mediated Interaction: A Relational Perspective. *Communication Research, 19*(1), 52-90.

Wang, Y.-C., Burke, M., & Kraut, R. E. (2013). *Gender, topic, and audience response: an analysis of user-generated content on facebook*. Paper presented at the Proceedings of the SIGCHI Conference on Human Factors in Computing Systems.

Watts, D. J., & Strogatz, S. H. (1998). Collective dynamics of 'small-world' networks. *Nature, 393*(6684), 440-442.

Webber, M. (1963). Order in Diversity: Community without Propinquity. In J. Lowdon Wingo (Ed.), *Cities and Space: The Future Use of Urban Land* (pp. 23-54). Baltimore: Johns Hopkins Press.

Weber, M. (1930 [1905]). *The Protestant Ethic and the Spirit of Capitalism* (T. Parson, Trans.). New York: Scribner.

Weber, M. (1947 [1922]). *The Theory of Social and Economic Organization*. New York: Free Press.

Webster, F. (2002). *Theories of the information society*. London: Routledge.

Welles, B. F., & Contractor, N. (2015). Individual Motivations and Network Effects: A Multilevel Analysis of the Structure of Online Social Relationships. *The ANNALS of the American Academy of Political and Social Science, 659*(1), 180-190.

Wellman, B. (1979). The Community Question. *American Journal of Sociology, 84*(5), 1201-1231.

Wellman, B. (2001). Physical Place and Cyberspace. *International Urban and Regional Research, 25*(2), 227-252.

Wellman, B., Quan-Haase, A., Witte, J., & Hampton, K. N. (2001). Does the Internet Increase, Decrease, or Supplement Social Capital? Social Networks, Participation, and Community Committment. *American Behavioral Scientist, 45*(3), 436-455.

Wesch, M. (2009). YouTube and you: Experiences of self-awareness in the context collapse of the recording webcam *Explorations in Media Ecology* (Vol. 8, pp. 19-34).

Wyatt, R. O., Katz, E., & Kim, J. (2000). Bridging the Spheres: Political and Personal Conversation in Public and Private Spaces. *Journal of Communication, 50*(1), 71-92.

Figure 1. Pre-industrial community (pre-modernity): A dense network of close social ties organized around a single focus of activity.

Figure 2. Urban-industrial community (modernity): A loosely knit network, small number of strong ties, many weak ties, organized around multiple foci that may be active, defunct, and replaced over the life course.

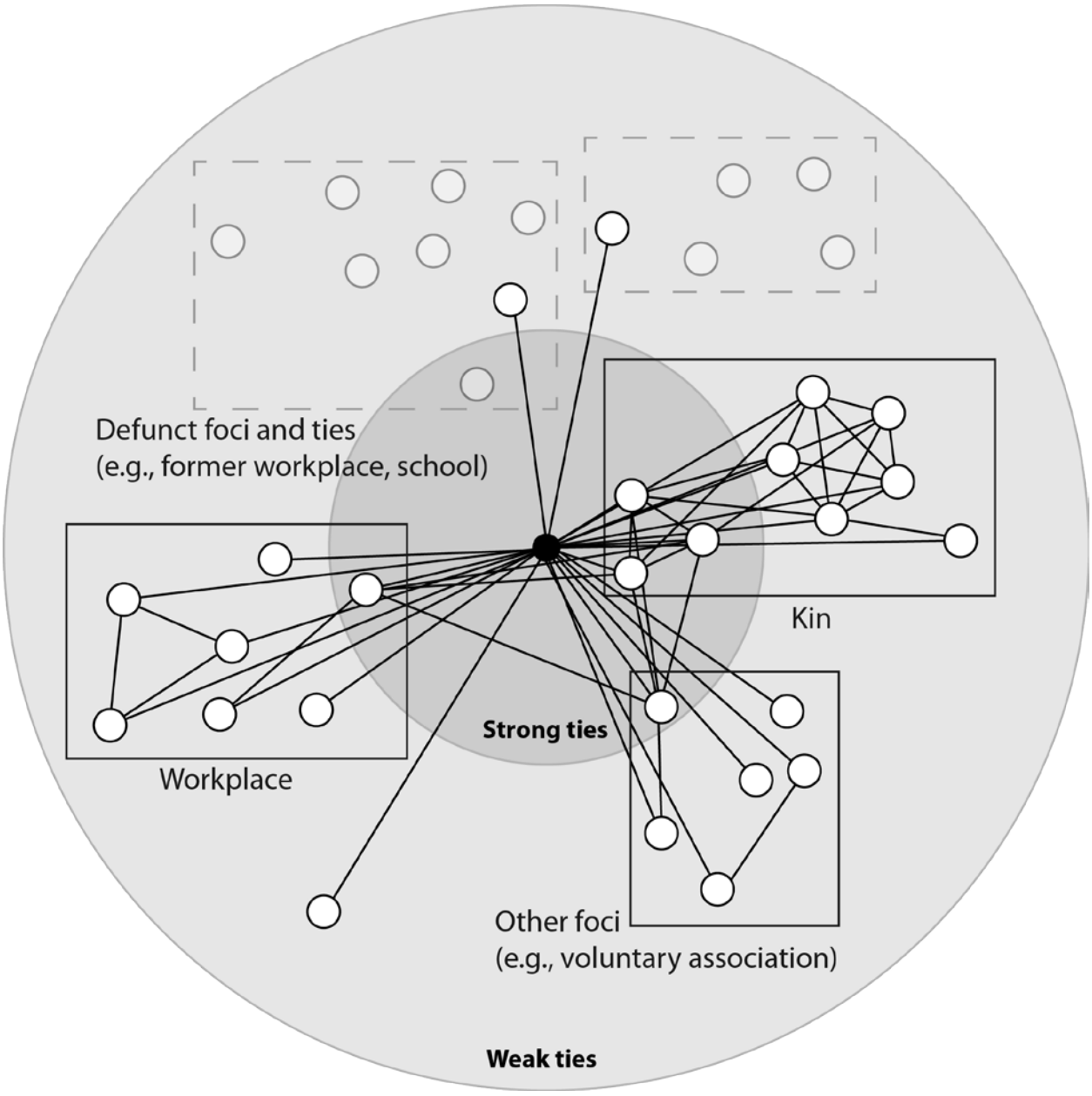

Figure 3. Persistent-pervasive community (metamodernity): A hybrid of pre-industrial and urban-industrial community structures. Organized around multiple foci that persist over the life course, ties are not as loosely knit as with urban-industrial social structure, and dormant ties are visible through chains of affiliation.