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Mobile Communication and Network Privatism: A Literature Review of the Implications for Diverse, Weak, and New Ties

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Abstract

Most of the research on the implications of mobile communication for social networks has focused on its uses and consequences in the intimate realm of close friends, family, and loved ones. A number of scholars have also become interested in ways that mobile communication helps and hinders the broader realm of network connectivity, including diverse, weak, and new ties. A collection of theoretical perspectives on mobile communication and diverse, weak, and new ties proposes that heightened connectivity in the intimate realm can come at the expense of being engaged more broadly – a scenario I characterize as network privatism. At the same time, the available empirical research in the literature tends to tell a different story, or rather stories. This analysis brings theory and empirical findings into closer conversation with one another by reviewing and synthesizing the literature in this area. Observed patterns in the literature offer new insight into questions of mobile communication and network privatism, while also pointing to opportunities for refinement of theory, analysis, and measurement as this line of inquiry further develops.

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Highlights

- Research on the implications of mobile communication for social network connectivity has emphasized its role in strengthening core ties by tightening the flows of network connectivity.
- Some theorists argue that mobile communication may constrain contact with diverse, weak, and new ties when time and attention is drawn (socially) inward toward close personal ties.
- Synthesizing the literature, this article offers the concept of "Network Privatism" to characterize theoretical propositions that mobile communication constrains contact with diverse, weak, and new ties.
- Review and analysis of available empirical findings resulted in notably limited support for perspectives that mobile communication constrains diverse, weak, and new tie contact.
- Additionally, the review helps map out the conceptual and methodological terrain as this line of inquiry develops along with evolutions in technological affordances and social practices.

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Mobile communication is a characteristically personal medium with the technological affordance of individual addressability in ways that fixed and even portable media cannot offer. By technological affordance, I mean the distinctive possibilities supported by the characteristics of an object (Gibson, 1979; Ling, 2004; Norman, 1988). Although oftentimes lumped together conceptually, mobile, portable, and fixed platforms offer a distinct set of affordances. Like desktop computers, mobile media are commonly used while anchored to a fixed place. Mobile media are also portable in that they are carried around to be used in different places, like laptop computers. However, mobile communication offers an added layer of flexibility by allowing for flows of information, communication, and content while users are physically in motion and/or carrying out their normal, and not so normal, affairs and activities (Campbell, 2013). While also characteristically flexible in when and where they are used, portable media, such as laptops, are still dependent upon and tethered to places during use, largely because of their greater demands for requisite infrastructure than mobile devices. In this way, mobile communication lowers barriers to direct access to others in distinctive ways, and network interactions can become more seamlessly weaved into the rhythms of everyday life (Ling, 2008).

While much of the research on mobile communication and network ties has focused on social cohesion in the intimate realm of close personal relationships, less work has been undertaken to understand the consequences of the technology for the broader realm of social network connectivity, treated here as diverse, weak, and new ties. That said, there is a budding body of literature in this area, including both theoretical propositions and empirical investigations addressing mobile communication's implications for these contours of network breadth. As I explain below, there is a group of theoretical propositions suggesting that mobile communication favors the intimate realm in ways that alter the balance between strong and weak tie connections, to the extent that it may even hinder breadth in network contact when emphasis is placed on the intimate sphere at the expense of being connected outside of it. This is a theme that runs through different, yet related, theoretical lenses. Pulling those arguments together, I characterize this line of thinking as network privatism. Giving a nod to Claude Fischer's (2005) notion of social privatism – where one retreats from public activities in favor of private affairs – I offer the concept of network privatism in reference to the proposition that intensive mobile communication in the intimate realm of social life can be detrimental for being connected to others more broadly.

So far, only part of this proposition is clearly supported – mobile communication strengthens core ties, who tend to be similar in various ways (see, for example, Ling, 2008; 2012). Much less scholarly attention has been paid to the ramifications for diverse, weak, and new tie contact. The implication, if not explication, in the theory reviewed below is that the tightening of the inner realm of personal ties may come at the expense of being connected more broadly. Unfortunately, very little of the available empirical research provides the opportunity to directly test this zero-sum part of the argument. That said, much of the available research does examine associations between uses of mobile communication and being connected to diverse, weak, and new ties. These types of studies are useful in that they offer the ability to observe associational patterns that can be deemed either consistent or inconsistent with network privatism. For example, a study revealing a positive association between mobile communication and the strengthening of core tie relationships along with a negative association with diverse, weak, or new tie contact would at least be consistent with network privatism, if not in direct support of it. This review reports on and systematically analyzes the existing empirical research that helps depict overarching patterns for their consistency with propositions from various strains of theory that comprise this concept of network privatism.

In addition to confronting theory with findings, this review offers reflection on the way key concepts in this line of inquiry have been treated and measured. As I will demonstrate, the conceptual terrain is rocky. This is to be expected, considering the review was driven by an attempt to identify findings that speak, with varying degrees of explicitness, to this interest in patterns that reflect the role of mobile communication in the inner and outer realms of social life. In some cases the findings are one part of a larger study not directly framed by the theory reviewed here. Some studies are framed by these arguments. As I will explain in the discussion, one of the challenges in trying to answer questions of network privatism is the varying ways in which mobile communica-

tion and social connectedness have been conceptualized and measured. This review contributes in mapping out the terrain to help inform and guide future research in this area.

The article will begin with an overview of select theoretical propositions and perspectives centrally concerned with mobile communication and insular network connectivity. While not all may be theories per se, I treat this collection of views as theoretical in nature because they offer (a) explanations and (b) arguments that can be tested through empirical investigation. Following the presentation of the theoretical arguments will be a review and typology of the available research that, collectively, can help take a step forward in confronting theory with empirical data. As noted, there is a dearth of research that fully addresses theoretical propositions that mobile communication in the inner realm detracts from being connected more broadly. However, there is a sufficient amount of relevant work that can help shed light on these dynamics by reflecting broad trends in the findings, usually through statistical associations and ratios, of mobile communication and the extent to which one is connected to diverse and lesser known others. Following the review of the empirical research, the article will end with a discussion offering synthesis and theoretical implications of the findings, as well as insights into the challenges and opportunities for conceptualizing and measuring key indicators of network connectivity and mobile communication behavior.

Before embarking, it is worth noting that the scope of this review was not bounded by any particular form or forms of mobile communication. Although it largely highlights the implications of interpersonal interaction, particularly texting and voice calling, that emphasis is driven by what is available in the literature and not an exclusive interest on my part. To be sure, texting and voice calling are still prominent uses of mobile devices for most, even smartphone owners. Also to be sure, there is a need for more literature in this area that examines expanding features and appropriations of smartphones, not to mention expanding features and appropriations of traditional handsets, which are still highly prevalent in many areas. Furthermore, the review of the empirical findings include those that speak to statistical trends and are available in English. This limitation in scope is not an indication that other research approaches cannot speak to questions of mobile communication and network privatism. Rather, this approach was used to aid in identifying coherent patterns, mostly from surveys and log data.

Theoretical Perspectives on Mobile Communication and Network Privatism

Connected Presence through the Connected Mode of Mobile Communication

Licoppe (2003) advanced the perspective of connected presence as one of the first explanations for how core network interactions, and their meanings, have changed with the emergence of mobile communication as an everyday resource. Drawing from European survey and interview research on both landline and mobile phones, Licoppe identified two primary modes of telephonic interaction among close ties. The "conversational mode" entails long, open-ended, and in-depth personal conversations that occur only occasionally and serve the function of allowing relationships to remain close when individuals are geographically distant. Licoppe pointed out this type of connection is characteristic of the traditional landline phone. Because individuals are anchored to a place (oftentimes the home) and the conversations are lengthy, these types of calls are oftentimes expected, if not scheduled, at a time that works for both parties, such as a daughter calling her parents on Sunday evenings to catch up after moving to a different city.

The "connected mode," on the other hand, involves frequent and brief exchanges that allow friends and family to stay in periodic contact throughout daily life, fostering a sense of "connected presence," or the feeling that a relational link can be activated at any time. Licoppe explained the emergence of the connected mode of telephonic interaction coincides with the rise of mobile communication as a shared resource for maintaining contact with close personal ties. The anytime-anywhere nature of mobile communication allows individuals to weave network connectivity into everyday affairs and activities. This is the case for both voice calling and text messaging, although especially so for the latter because it is asynchronous and less socially intrusive around co-present others.

Both the conversational and connected modes lead to social cohesion, although in very different ways and with different flavors of it. As opposed to the conversational mode, the connected mode is meaningful not so much for the content of the exchange, but for the act itself, which symbolically reifies the core tie relationship. Connected presence also refers to the sense of reassurance associated with this practice. Licoppe (2003) argued the continuous nature of short, frequent exchanges is reassuring in that it reaffirms the relationship. As others have also argued, social cohesion is shaped not only by mobile communication usage, but the meanings and expectations associated with it (Habuchi, 2005; Ling, 2012). While Licoppe suggested this feeling of connected presence might be an illusion, he stopped short of proposing explicit negative implications for social life.

From Connected Presence to Bounded Solidarity

Building on Licoppe's argument about connected presence, Ling (2008) delved into deeper theoretical territory by identifying, and explaining, distinctive forms of ritualistic interaction through mobile communication and their consequences for social cohesion among core ties. Using observational and interview data in Europe and the US, Ling pointed to several examples of mobile-mediated ritualistic interaction, such as "good night" texts among romantic partners and unique twists on the construction of humor and repartee. By creating a shared mood and sense of engagement, this ritualistic element of connected presence deepens the symbolic meaning of mobile-mediated exchanges, leading to increased social cohesion among close ties.

Ling further argued that through ritualistic flows of mobile interaction, a group ethic – even a group ideology – can form within core networks. Small decisions and actions that were once an individual matter become part of the group's consciousness as they are worked into the continual flow of network interaction. While the shared mood and attention from these flows translate into greater solidarity in the intimate sphere, Ling argued this solidarity is also highly bounded in ways that can detract from broader social connection. According to Ling (2008),

> we see that there is a tightening in the individual's social network that augurs against those who are marginally known to us and in favor of those who are familiar. That is, we are perhaps seeing the development of bounded solidarity … the potential for the clique to be so focused on its own interactions that the so-called weak-link connections are neglected. (p. 176)

Ling's perspective of bounded solidarity both deepens and broadens the foundational thinking advanced in Licoppe's (2003) connected presence. It deepens that framework by clarifying one of the key mechanisms, i.e., ritual interaction, through which the connected mode can lead to social cohesion among core ties. At the same time, Ling's notion of bounded solidarity broadens the theoretical lens by going beyond core ties to argue about negative implications for contact with lesser known others with the proposition that weak links can be "neglected."

Telecocooning

Whereas Licoppe's and Ling's arguments were constructed with observations in Europe and the US, Habuchi (2005) advanced a complementary framework, telecocooning, from the perspective of Japanese youth. Drawing from interview and survey data, Habuchi tracked a cultural shift when Japanese youth transitioned from wireless pagers (a.k.a. "beepers") to keitai, the Japanese term for mobile telephony – particularly mobile mail, which is essentially the same as texting in terms of user experience and meaning. The most notable change in social relations was movement away from unsolicited contact with unknown others "toward a culture of a more intimate cast, which relied on connections with existing acquaintances" (p. 173). Habuchi explained that pagers were used as a means of meeting new people looking to make friends or have romantic encounters. The limited and fixed range of pager contact information allowed users to randomly reach out to unknown others, whereas keitai, on the other hand, has a much more complicated and wider range of possibilities for user contact information. Instead of reaching out to new ties, Habuchi found that Japanese youth tended to use keitai to maintain continual contact with their close ties. Habuchi (2005) explained, "There is a zone of intimacy in which people can continuously maintain their relationships with others

who they have already encountered without being restricted by geography and time; I call this a telecocoon" (p. 167). Habuchi further reported these networks tend not to be very diverse, with survey data showing that, "People who form telecocoons do not feel that their interests and ways of thinking differ from people around them" (p. 179).

Habuchi (2005) pointed out that although pagers better supported randomly reaching out to unknown others, keitai does offer increased possibilities for making new friends by opening up a wider range of interaction in different social arenas. Despite these possibilities for connecting with new people, the dominant trend for keitai use was telecocooning. Habuchi argued this practice must be understood as developing on the terrain of youth culture back when pagers were popular. That is, unlimited possibilities for meeting new people fostered a sense of insecurity that one was always replaceable as an intimate, creating a dependence on existing interpersonal relationships. Much like with the case of connected presence, telecocooning through keitai offers social reassurance, i.e., a sense of security through being socially connected.

Compared to Ling (2008), the suggestion that mobile communication actually takes away from breadth in network contact is less explicit in Habuchi's original discussion of telecocoons. We get the sense that these types of networks do not allow for the inclusion of others who have different "interests and ways of thinking," but this might also be explained by the notion that "birds of a feather flock together" (McPherson, Smith-Lovin, & Cook, 2001). Recently, Kobayashi and Boase (2014) more explicitly pushed Habuchi's telecocooning perspective in the zero-sum direction by proposing that "the resources people have to spend on personal communication are finite," which can lead to the strengthening of existing strong ties "at the expense of interactions with others who are less familiar" (p. 682).

Monadic Clusters

Gergen (2008) theorized about implications of mobile communication as a resource for maintaining "floating worlds" (Gergen, 2003) of communication through continuous contact with close friends and family. Gergen (2008) later characterized these floating worlds as "monadic clusters," defining them as small and tightly knit enclaves of like-minded core ties that use mobile communication to stay continually connected. He warned that monadic clusters can be formed and maintained at the expense of interaction with others in one's physical surroundings. He explained, "The individual may move through the day relatively disengaged from those about him or her, as physically absent participants in the favored cluster are immanently present" (p. 302). Under these conditions, matters outside of one's core network of continual contact recede in importance.

At the same time that they are believed to restrict the scope of one's social outlook, "these atomic clusters of communication are powerful implements for creating and sustaining circumscribed realities, values, and logics" (Gergen, 2008, p. 303). This point strongly resonates with Ling's (2008) proposition about the development of a group ethic and ideology through bounded solidarity. Gergen's concern is that these realities, values, and logics are constructed in a univocal social environment through the process of circular affirmation. In other words, continual contact with core ties who tend to have shared views translates into a discussion environment that is not only closed, but also characteristically like-minded and overly affirming. Gergen warned that the cultural drift toward monadic clusters also has important ramifications for democratic process by hypothesizing it can lead to the disruption of open dialogue outside of one's core network of like-minded others, as well as political detachment. As in other cases, Gergen's thinking about monadic clusters presents us with the notion of a zero-sum game. In this case, mobile communication constrains diversity by detracting attention from broader realms of social order.

Confronting Theory with Empirical Findings

Collectively, the perspectives reviewed above portray a rather grim outlook regarding mobile communication and network breadth – and the other side of the coin, network privatism. While there may be much to celebrate about social cohesion among core ties, highly privatized network connectivity through mobile communication is theorized as being detrimental for exposure to diverse views, staying connected to weak ties, and engaging with new people. This review addresses the need for a close

reading of the empirical evidence available for testing this proposition. Although much of the available evidence is not in direct conversation with these theories (i.e., not derived from studies directly framed by them), it does provide the opportunity to reflect on the degree to which trends in the findings are consistent with theoretical arguments. This is especially the case in studies that offer the ability to detect negative associations between mobile communication and network breadth. Although associations in the research are oftentimes arrived at through cross-sectional surveys, they at least provide the opportunity to test for consistency between theory and evidence, if not causality. Other studies in this review were better designed for illustrating the imbalance between reaching in and reaching out socially through mobile communication, rather than one occurring at the expense of the other. Although these types of studies do not help test zero-sum hypotheses, their findings are still considered useful in understanding the relative importance of mobile communication in connecting with strong, weak, diverse, and new ties.

The next part of this article will review relevant research offering statistical trends for mobile communication and network privatism – demarcated by the contours of diverse, weak, and new ties. The review's focus on the implications of mobile communication for diverse, weak, and new tie contact comes out of a thematic analysis of the work, which yielded those three categories related to network privatism. Within that typology, I also approached the review with an eye toward categorizing the findings as evidence of mobile communication either constraining or supporting each of those three forms of network connectivity. Through the process of thematically arranging the findings along these lines, a third category emerged, which I will refer to as the overshadowed category of findings. In these cases, patterns in the evidence tend not to suggest that mobile communication constrains or supports breadth in network connectivity. Instead, insignificant associations between mobile communication and diverse, weak, and new tie contact are essentially overshadowed by more dramatic findings for the role of the technology in strengthening contact with close personal and homogenous ties. Also, in that category of research, the insignificant role that mobile communication plays in broader network contact is overshadowed by significant findings for other communication formats and channels (e.g., computers) that are more likely to support diverse, weak, and new tie contact. The results from the overshadowed category, as well as those from the other two categories of constraint and support, may not directly test zero-sum propositions of network privatism. However, they do offer a glimpse at whether collective patterns in the research are consistent with them, or perhaps push us in some other direction for understanding how mobile communication alters the social equilibrium between the inner and outer realms of network connections.

Mobile Communication and Network Diversity

Constraint

With regard to network diversity, Kobayashi and Boase (2014) found texting among Japanese youth to be related to an attitudinal aspect of constraint in that frequent daily texting was associated with less tolerance for diverse views and opinions. This finding comes out of a cross-sectional survey (in 2009), and is one of the few studies framed explicitly by theory reviewed above. In this case, the authors drew from Habuchi's (2005) argument about telecocooning to hypothesize that heavy texting among Japanese youth would be associated with less tolerance for views that differ from their own. This orientation is a cognitive manifestation of telecocooning that, theoretically, could have negative implications for network diversity if this intolerant attitude causes one to avoid those who might have or express alternative views. Although this correlation does not establish a causal flow from texting to intolerance, it is at least consistent with propositions that heavy texting among core ties can detract from diversity, keeping in mind that texting mostly occurs among closer ties. It is also worth noting that in this case the authors examined openness to diverse views, an attitudinal indicator of constraint that differs from the more commonly used approach of structural indicators of one's network environment.

Overshadowed

A larger portion of the research in this area offers no empirical evidence that mobile communication constrains or supports network diversity. This section highlights ways in which mobile communication's role in network diversity is not so much constraining, but rather not very meaningful, empirically speaking. In some cases, the studies in this section allowed for the detection of constraint, or at least correlational patterns consistent with constraint, but yielded no significant findings for mobile communication hindering or supporting network diversity. Instead, those insignificant results tend to be overshadowed by significant findings for other channels that do support network diversity. In some cases, studies included in this section were geared for portraying the equilibrium, or ratio, of one's connectedness to others who are either similar or dissimilar in select ways. Although this ratio-oriented approach is not equipped to answer questions about the reduction of diversity in zero-sum fashion, it does allow for examination of the ways that mobile communication may "tip the balance" toward the homophilous inner realm of personal relationships – if not at the expense of diverse ties then at least in ways that overshadow them.

Using a longitudinal (2002-2005) survey of adults in Japan, Miyata, Boase, and Wellman (2008) compared the effects of reported PC and mobile mail (i.e., texting) on the structural condition of occupational diversity among known others. The authors found that, over time, self-reported daily use of mobile mail had no effect on occupational diversity, while PC email had a positive effect. These findings were believed to have implications for diversity more broadly, considering people with different social backgrounds often take on different occupations.

Employing a strategy from the General Social Survey, Hampton, Sessions, and Ja Her (2011) captured diversity as the number of non-kin core network ties, arguing that non-kin-centric networks offer a more diverse range of perspectives and resources than kin-centric networks. Drawing from a national survey in the US in 2008, the authors examined how self-report measures of information and communication technology (ICT) ownership and use at home and at work were associated with having non-kin discussion partners, as well as having at least one political discussion partner with differing partisanship. Consistent with the preceding study, the authors found no associations between mobile communication and indicators of network diversity, while internet users were significantly more likely to have a non-kin tie with whom to discuss important matters.

Also using this kin and non-kin approach to diversity, Hampton and Ling (2013) offered an international perspective with cross-sectional survey data from large samples of adults in the US, Norway, and Ukraine (in 2008). Findings showed that mobile voice calling was consistently associated with having more kin, i.e., homogenous, core discussion ties across the three societies. Frequency of use for various other channels was also examined, including email, instant messaging, social network sites, and texting. While those other channels sporadically predicted greater kin and/or non-kin ties across the samples, mobile voice was the only technological channel universally associated with number of kin ties across all of them. It is also worth noting that none of the channels examined in the study negatively predicted kin or non-kin core network ties, which were measured independently of kin ties.

So far, the studies in this section tell a story consistent with propositions that mobile communication favors less diverse ties, but not in a way that reduces the level of diversity, or number of diverse ties, in one's network. While the research discussed so far provided (unfulfilled) opportunities for negative associations between mobile communication and diversity, there are also others in this section that do not, but rather reveal complementary trends in the ratio of similar and dissimilar others contacted through mobile communication. For example, Ling and Stald (2010) investigated whether mobile voice calling was associated with a higher proportion of core network ties who knew one another – or as they termed it, network "tightness." The presumption here is that this type of integration has implications for diversity in that more diffuse networks should offer a wider range of unique resources and potential for second-order connections. Using a cross-sectional survey of randomly selected Norwegians in 2008/9, Ling and Stald (2010) found that daily voice calling with core ties was associated with having a less diffuse (i.e., more inter-connected) core network. This evidence does not suggest that voice calling necessarily takes away from having more diffuse networks, only that it is more supportive of contact with network

ties who know one another. Notably, frequency of texting was not associated with network tightness, while use of email and instant messenger – which at the time were more commonly done on a computer – were associated with having more diffuse networks.

Shifting attention to socio-demographic diversity, Ling, Bertels, and Sundsoy (2012) investigated the ratio of texts exchanged between individuals according to their age and sex. Using anonymized traffic data from millions of users in Norway in 2007 and 2009, the authors found a notable degree of socio-demographic homophily among texting partners, such that the flows of messages were much denser among those of similar age and the same sex. They noted age homophily to be particularly strong among teens and gender homophily particularly strong among females.

Ling, Sundsoy, Bjelland, and Campbell (2014) examined mobile communication and geographic diversity using Norwegian traffic data that logged the residential distance of all mobile voice calling and texting partners during a three-month period in 2011. Findings show that both voice calls and texts were predominantly exchanged among individuals who lived in close proximity to one another. Relatively few calls and texts went to those who lived beyond a postal code away.

Taken as a whole, the studies in this section of the literature support the perspective that mobile communication favors the inner, homophilous realm of social life, but not necessarily at the expense of having more diverse ties and contacts. Through comparisons with other channels, we see that select uses of mobile communication distinctively support being connected to others with shared characteristics. At the same time, the tests fail to yield negative associations between mobile communication and diversity. Favoring of homophily is also evident through the various ratios reflecting the density of mobile-mediated exchanges with similar and dissimilar others. Turning to the central question at hand, these studies do not support a zero-sum perspective on mobile communication and network privatism. Rather, they are more consistent with the idea that mobile communication has the capacity to tip the balance toward supporting contact with homophilous network ties, but not necessarily at the expense of diverse others.

Support

Contrary to theoretical propositions embedded in bounded solidarity (Ling, 2008), monadic clusters (Gergen, 2008), and telecocooning (Habuchi, 2005; Kobayashi & Boase, 2014), a handful of studies in the literature related to mobile communication and diversity suggest ways that the technology can support greater breadth of social encounters and network resources. The earliest in this section of the literature is Igarashi, Takai, and Yoshida's (2007) longitudinal survey of undergraduate law students in Japan. Participants were asked to report on the friends they interacted with via mobile texting and face to face, as well as the density within those sets of contacts in terms of who knew whom. Similar to the case of Ling and Stald (2010), more diffuse networks are presumed here to offer a more diverse range of unique resources. Igarashi et al. (2007) found fewer within-network linkages amongst ties maintained by both mobile texting and face-to-face contact, compared to those who only met face to face. The implication is that texting, when added to face-to-face contact, was used to support a more diverse arrangement of network resources, if not network ties.

A study by Hampton, Lee, and Ja Her (2011) helps to further develop this storyline by examining whether mobile communication, and other ICTs, might help or hinder diversity through an indirect pathway. Among other things, the authors examined mobile communication and the occupational diversity of one's broad set of network of contacts through a representative cross-sectional 2007/8 survey of adults in the US. Mobile communication was conceptualized in terms of participants having mobile only, landline only, or being dual users. The authors initially found that being mobile-only had no direct association with network diversity, while internet and social networking site use were associated with increased diversity. If the authors had stopped there, the study would belong in the previous category of results, with an insignificant finding for mobile communication overshadowed by significant findings for other channels. However, they extended the analysis, and found mobile ownership to be indirectly associated with increased diversity through local, public, religious, and volunteer social encounters. Although it is important to bear in mind the cross-sectional nature of the data, the authors interpreted the finding as evidence that mobile communication may

support traditional forms of social involvement outside of the home, which then translates into greater breadth in the backgrounds of one's social ties.

Around the same time the study above was conducted Campbell and Kwak (2102a) collected a wave of representative survey data from adults in the US involving measures for mobile communication and network characteristics, among other things. One of the findings in their study is that using mobile communication for exchanges about politics and public affairs with close ties (or individuals they felt relationally close to and discussed personal issues with) was positively associated with the political diversity of their core network. In this case, diversity was captured through the proportion of close ties who shared political views with the focal person of an ego-centric network, and political discussion included all channels of mobile mediation – voice, text, or otherwise. As with the indirect link uncovered by Hampton et al. (2011), we see evidence pointing to the possibility that mobile communication may play a supportive role in network diversity, although this interpretation is restricted by the context of political views and the cross-sectional nature of the data.

Drawing from propositions of bounded solidarity (Ling, 2008), Lee (2014) also offered a glimpse into a specific social context in her survey of Korean immigrants in the US. Among other things, the author took an interest in whether mobile voice and texting with strong host ties (who they were in contact with frequently) and weak host ties (with less frequent contact) were associated with having a more ethnically diverse overall network. Both texting and calling yielded positive associations with this indicator of diversity.

Collectively, the findings from this section of the literature tell a notably different story about mobile communication and network diversity than those in the constraint and overshadowed categories. As opposed to theoretical propositions of network constraint, these studies shift the lens toward some of the potential benefits of mobile communication for having a diverse range of network ties, resources, and encounters.

Mobile Communication and Weak Ties

Constraint

As with diversity, there is not an abundance of empirical evidence showing that mobile communication constrains contact with weak ties. In fact, the only empirical evidence in this direction lies in Kobayashi and Boase's (2014) survey of Japanese youth. In addition to finding less tolerance with daily texting (reviewed earlier), the authors found evidence that texting may be supportive of a cognitive social outlook that prioritizes strong ties over weak ties and unknown individuals. To help validate a measure of trust in most people, the authors included a follow-up item asking what kind of people came to mind when envisioning "most people." For more frequent texters, "most people" tended to conjure an image of closer ties, while less frequent texters were more inclusive of weaker ties and unknown others in their outlook. The authors interpreted these findings as supportive of the telecocooning perspective, with mobile communication leading to a more insular social outlook, although the empirical support here only goes as far as correlation allows.

Overshadowed

As with the literature on diversity, the findings in the area of weak ties have a greater tendency to populate the overshadowed category than that for constraint. In these cases, mobile communication is more consistently associated with stronger tie contact, but not necessarily at the expense of weak tie contact. Also, other channels sometimes stand out as being more useful than mobile communication for supporting weak ties. For example, in their comparison of reported daily mobile mail use with PC email use in Japan, Miyata, Boase, Wellman, and Ikeda (2005) concluded that PC email supported weak tie contact, while mobile mail neither fostered nor detracted from it. Using wave 1 data (in 2002) from Miyata et al.'s (2008) longitudinal survey, the authors used new year's greeting cards sent as an indicator of weak ties, finding a positive association with frequency of PC email use, but no association with mobile mail.

With a more exclusive focus on mobile communication, Boase and Kobayashi (2012) reported on findings showing voice calling to be predominantly used to support family ties, but not weaker ties. Log data and questionnaires from samples of adults in the US and Japan were collected in 2011 to identify mobile voice events with "family, work, or other," as well as whether those contacts were strong ties (i.e., who they enjoyed socializing with) or weak ties (i.e., who they did not enjoy socializing with). Across the samples, mobile voice was predominantly used among family ties, but not for maintaining more relationally distant ties. While this comparison indicates that the use of mobile voice may favor family, it does not suggest this occurs at the expense of weak tie contact. That is, the study was designed to capture mobile communication's role in the balance between strong and weak tie contact rather than concerns about deterioration on either end. Thus, there is evidence of overshadowing and an imbalance in the use of mobile communication with strong and weak ties, but we cannot discern whether there is any reduction in weak tie contact.

Shifting the lens from voice calls to texting, Ling, Bertels, and Sundsoy (2012) also captured actual (vs. reported) usage to examine the distribution of messages exchanged. Using a comprehensive snapshot of texting traffic in Norway during a period in 2007, the authors found that most texts went to very few people, with half of an individual's messages going to only five persons on average. The authors interpreted the dense flows of interaction within these small clusters as reflective of intensive strong tie contact through texting. Outside of a small network of very frequent texting partners, there tended to be a long-tail distribution of far lesser contacted texting partners, which were interpreted as weak ties. The authors concluded that this notable pattern in the traffic data indicates texting as means of primarily supporting strong ties, which overshadowed the findings for weak ties. Like the study above, this one was better suited to depict balance, or proportion, in one's mobile network connectivity rather than actual reductions in network breadth. The findings are part of a larger pattern, but cannot speak to whether notably dense texting with close ties might come at the expense of texting with weak ties.

The collection of studies reflecting the overshadowed perspective for weak ties somewhat parallels that for the portion of literature dealing with network diversity. As with diversity, there is evidence that PC email has been supportive of network breadth, while mobile mail has been more supportive of contact within the inner circle of strong ties. Furthermore, there is little evidence in these studies that mobile communication, with regard to texting and voice calling at least, substantially supports or detracts from weak tie contact, only that it supports it far less if at all. That said, it is important to bear in mind that only the first in this set of studies (Miyata et al., 2005) provided the opportunity for negative associations between mobile communication and having weak network ties; the others were designed to reflect imbalance in the ways mobile communication is used to support strong and weak ties.

Supportive

In addition to those above, there is also a handful of studies pointing to the capacity of mobile communication to be supportive of weak tie contact. In their 2005 cross-sectional survey of 501 high schoolers in Tokyo, Boase and Kobayashi (2008) examined the use of mobile mail for bonding with close ties, bridging with weak ties, and breaking off with network ties. The authors noted that 70% of participants disagreed that mobile mail decreased friends they were not close to. Surprisingly, staying in contact with recently met weaker ties explained a significant amount of variance of texting among the most intensive users of mobile mail, while bonding and breaking with ties did not. These findings provide evidence that texting, among Japanese youth at least, may play a supportive role in maintaining contact with recently met ties who lie outside the intimate realm of strong ties.

The authors also provided evidence of the possibility of support in their more recent experimental project aimed at understanding how distinctive affordances of smartphones can be harnessed to foster weak tie contact (Kobayashi, Boase, Suzuki, & Suzuki, 2013). Using a sample of adult smartphone users in Japan in 2012, they logged all mobile voice, text, and Gmail contact. For the treatment condition, an application prompted users with periodic messages asking if they would like to stay in touch with ties they had been in contact with via mobile, although infrequently, in the last 60 days. The authors later compared self-reported overall weak tie contact

across the treatment and control (i.e., no prompt) conditions, finding significantly higher reported levels of contact with and information from weak ties (who they were not particularly friendly with) among participants in the treatment group. While highly innovative, this type of experimental approach does not exactly add to our understanding of how mobile communication affects weak tie contact in actual everyday usage. Instead, the authors interpreted the findings as new possibilities for smartphones to mitigate telecocooning through the use of expanded features beyond calling and texting.

Turning attention to political discussion, Campbell and Kwak (2012b) used a longitudinal survey of adults in the US in 2008 to investigate how mobile-mediated political exchanges within close personal networks, via any feature, influenced discussing politics with individuals outside of their core network (whom they did not know well). Findings showed that mobile-mediated political exchanges in large networks of like-minded strong ties lead to increased political discussion with weak ties. The authors interpreted the finding as an alternative storyline to Gergen's (2008) theorizing about monadic clusters. Whereas Gergen argued that mobile communication can envelope individuals into insular networks of close ties, closing off engagement in external dialogue, these findings suggest an alternative scenario. They suggest that, under certain network conditions, mobile communication with strong ties can help open up the flows of political discussion, possibly by boosting the salience of public affairs that are germane to all types of discussion partners. Along with the others in this section, that study highlights the potential of mobile communication for enhancing weak tie contact, albeit in the context of political discussion.

Mobile Communication and New Ties

Constraint

As with the other cases, the findings for mobile communication's capacity to constrain new tie contact is relatively thin. Two studies emerged in the literature review – one examined the behavioral indicator of talking with new people in public, while the other was centrally interested in the attitudinal indicator of being cautious of unknown others.

To investigate how patterns and places of mobile communication affect encounters with strangers in public places, Campbell and Kwak (2011) collected two waves of survey data in 2008 from a demographically representative sample of adults in the US. The authors examined whether variance in reported public conversations could be explained by different purposes for mobile communication, including grooming relationships, coordination, and information about news and public affairs. The findings revealed that higher levels of cultivating relationships (through either voice or text) had a negative effect on the reported frequency of conversations with unknown others in public. As I discuss in the supportive section below, the negative effect of relational use is unique from the findings for coordination and informational use of mobile technology, which were also included in the analysis.

Beyond that behavioral component of network privatism, there is one other piece from Kobayashi and Boase (2014) that has not yet been discussed. In addition to findings for decreased social tolerance and a constrained social outlook bounded by strong ties (which were reviewed earlier), the authors found heavier reported daily texting among Japanese youth to be associated with higher mean scores on the social caution scale (Yamagishi & Yamagishi, 1994). This attitudinal orientation of being cautious of unknown others might, theoretically at least, serve as a barrier for reaching out to meet new people and developing new relationships. Along with the other findings from that study, the authors interpreted the results as supportive of the telecocooning perspective (Habuchi, 2005).

Although they differ markedly in their approaches, these studies offer complementary insights into the potential for mobile communication to hinder contact with new people. That is, one might interpret the findings as reflective of how increased focus on the intimate realm can detract from attending to the broader social environment, both behaviorally and cognitively. While supported in these two cases, this zero-sum interpretation does not hold up well in the rest of the studies dealing with new ties.

Overshadowed

The literature reflecting the overshadowed perspective on mobile communication and new ties largely attempts to situate the role of mobile media in the context of other formats, including PCs, laptops, and face-to-face interaction. These studies reflect the overshadowed perspective in that those other formats tend to be more useful, or used more, than mobile communication for contact with new people. Also, mobile communication's role in staying connected with existing ties outweighs that which it plays in forming new relationships and interacting with strangers, although only some studies in this section were designed to detect a decline in new tie contact associated with use of mobile communication.

As part of their longitudinal survey of adults in Japan, Miyata et al. (2008) investigated the extent to which reported frequency of mobile mail and PC email were supportive in forming new relationships that offer new kinds of resources. The authors found that mobile mail use was not related to forming new supportive ties, although they did note a high degree of mobile mail use among existing supportive ties. These results suggest an overshadowing trend, or imbalance, in mobile mail's capacity to support existing and new ties, but not in a zero-sum fashion, considering mobile mail use was not negatively associated with new ties. In this case, PC email was not associated with forming new ties either, although over time it did lead to a wider variety of support from network ties.

In their multi-wave survey of undergraduate law students in Japan, Igarashi et al. (2007) compared the size and other structural characteristics of network contacts maintained through mobile texting and face-to-face interaction. The number of both face-to-face and texting ties grew over the course of the term, although texting networks developed and integrated more slowly than face-to-face networks and tended to contain more cliques. More evidence of constraint was possible in that there was an opportunity to observe a reduction in the size of texting networks over time. Instead, those networks grew with the addition of new ties, only at a rate that was overshadowed by face-to-face networks.

Ishii's (2006) longitudinal survey of youth and adults in Japan 2001-2003 included analysis of user perceptions about the capacity of PC and mobile mail for connecting with new and existing ties. PC email was perceived to be significantly, if not substantially, more useful than mobile mail for developing new relationships leading to in-person contact, maintaining contact with friends never met face to face, and making new friends in general. On the other hand, mobile mail stood out as significantly more useful for strengthening relationships among people who were already known. Like those above, these findings present a discernable pattern reflective of the overshadowed analytic category. Use of mobile mail for strengthening existing relationships overshadows its use for making new ties, while PC mail overshadows mobile in its capacity to interact with unknown others and make new friends. At the same time, this approach of comparing perceptions across media did not allow for constraint to be detected, much less zero-sum dynamics.

Shifting attention to conversations with new people in public, Hampton, Livio, and Sessions Goulet (2010) used systematically coded observations of mobile and portable wireless media users in select public parks, plazas, and markets in four North American cities in 2007. One area of their findings shows that users of wireless portable devices (e.g., laptops) were twice as likely (10%) to interact with a stranger than those using mobile devices (5%). It is difficult to say whether supportive (for laptop) or dampening (for mobile) effects explain this trend. If the former or neither, this finding may be interpreted as evidence of overshadowing. If the latter, this finding may be better suited in the section above for the ways mobile communication can constrain encounters with new people. Regardless, the studies in this section come together in ways that bolster a notable theme in the research. Mobile communication's role in connecting with new and unknown others is overshadowed by the role of other media, not to mention mobile communication's role in supporting contact with existing known ties.

Supportive

There is limited empirical evidence of mobile communication serving as a helpful resource for developing new relationships and talking with new people. One contribution comes from Boase and Kobayashi's (2008) cross-sectional survey of Tokyo high school students, where over half (54%) agreed that mobile mail helped them make new friends outside of school. An even larger majority

(68%) agreed that mobile mail was at least somewhat helpful in keeping relationships with newly met people. In fact, this number is only slightly lower than those who agreed that mobile mail allowed them to develop stronger relationships with close friends (70%). The authors also reported that intensive daily use of mobile mail explained a significant amount of bridging, operationalized as a combined measure of the items for making and keeping new friends. Notably, this was not the case for bonding or breaking with new ties.

Additional evidence of mobile communication supporting encounters with new people can be seen in Campbell and Kwak's (2011) longitudinal survey of US adults. As noted above, in this study heavier use of the mobile phone for social grooming led to decreased encounters with unknown others in public. On the other hand, uses for coordination and for news both had positive effects on the reported frequency of conversations with strangers in public. Furthermore, the authors found a positive interaction effect between use for news and general use in public, suggesting that getting news via mobile while in public may heighten the salience of public affairs content and one's motivation for sharing it, in the moment, with others.

These studies offer insight into very different social and technological contexts where mobile communication may play a supportive role in different aspects of new tie contact. On the one hand, there is evidence that texting among Japanese youth may help in making and keeping new friends. On the other hand, adults in the US were using mobile communication for specific purposes, i.e., news and coordination, that fostered spontaneous encounters with unknown others in public. The different contexts make it difficult characterize these studies as evidence of a coherent pattern, although they do point to notable instances of mobile communication supporting engagement with new ties and unknown others.

Discussion

The findings in this review suggest that answers to questions about the role of mobile communication in broader network contact are not simple, with evidence consistent with claims that it can both help and hinder connections to diverse, weak, and new ties. Beyond that, many of the findings belong to an emergent category with no significant results one way or the other. While the studies in this overshadowed category do not point to a meaningful relationship between mobile communication and broader network contact, they do highlight the usefulness of other channels in this regard as well as the notably important role of mobile communication in maintaining contact with existing core ties. Table 1 illustrates that this overshadowed scenario stands out as the most prominent trend the findings, followed by the supportive category and then evidence that mobile communication might constrain broader network connectivity. As I will discuss, this collective view of the research offers grounds for preliminary interpretations that have theoretical implications for our understanding how mobile communication, or at least select aspects of it, contribute and/or detract from the range and nature of one's social environment. Synthesis and interpretation of the findings will be discussed next, beginning with the a priori categories of constraint and support, followed by the emergent and more robust overshadowed category.

The only consistent evidence of constraint toward network privatism was with attitudinal indicators examined in Kobayashi and Boase's (2014) tests of the telecocooning hypothesis. Reported daily texting was associated with less social tolerance, greater social caution, and a more narrow social orientation among Japanese youth. These findings differ notably from nearly all of the others located in the literature, which might be explained by the way its design was informed by theory. The authors tested aspects of Habuchi's (2005) telecocooning perspective, which advanced an underlying cognitive mechanism, i.e., insecurity, as an explanation for the way young people (in Japan) have appropriated old and new network technologies for developing and maintaining social connections. Habuchi (2005) argued the practice of telecocooning offers a sense of relational reassurance and social identity among teens, similar to the reassurance Licoppe (2003) argued with connected presence. The suggestion here is that telecocooning can be partly explained by dynamics at play in the social psychology of youth, which is where Kobayashi and Boase (2014) looked for evidence of constraint. Unlike most other studies, with an interest in network structure and social behavior, the authors took a uniquely psychological approach to understanding how texting is linked to one's social attitudes and orientations.

Although they somewhat stand on their own, the trends in Kobayashi and Boase's (2014) study are coherent and point to the need for more work in this area to be done with a focus on cognitive mechanisms and psychological outcomes. It might be that consequences of mobile communication for network connections and contacts flow through cognitive orientations toward the intimate and non-intimate realms of social life.

Only one other study (Campbell & Kwak, 2011) indicated network constraint, with frequent mobile communication for maintaining personal relationships leading to fewer conversations with new people in public settings. Like Boase and Kobayashi's (2014), this one is unique from others in the literature – in this case by accounting for the nature of the content of mobile-mediated exchanges rather than the particular channel used. The finding

Table 1. *Sources of Empirical Findings by Category.*

	Diverse Ties	Weak Ties	New Ties
Constraint	Kobayashi & Boase (2014)	Kobayashi & Boase (2014)	Kobayashi & Boase (2014)
			Campbell & Kwak (2011)
Overshadowed	Ling, Bertels, & Sundsoy (2012)	Boase & Kobayashi (2012)	Hampton, Livio, & Sessions Goulet (2010)
	Ling & Stald (2010)	Ling, Bertels, & Sundsoy (2012)	Igarashi, Takai, & Yoshida (2007)
	Ling, Sundsoy, Bjelland, & Campbell (2014)	Miyata, Boase, Wellman, & Ikeda (2005)	Ishii (2006)
	Hampton & Ling (2013)		Miyata, Boase, & Wellman (2008)
	Hampton, Sessions, & Ja Her (2011)		
	Miyata, Boase, & Wellman (2008)		
Supportive	Campbell & Kwak (2012a)	Boase & Kobayashi (2008)	Boase & Kobayashi (2008)
	Hampton, Lee, & Ja Her (2011)	Campbell & Kwak (2012b)	Campbell & Kwak (2011)
	Igarashi, Takai, & Yoshida (2007)	Kobayashi, Boase, Suzuki, & Suzuki (2013)	
	Lee (2014)		

for social grooming maps onto theoretical propositions that an emphasis on the intimate realm of relationships detracts from engaging more broadly. It may be that these theoretical expectations were fulfilled in this case, whereas not in most others, because the measurement of mobile communication was more conceptually sensitive than those that captured mere frequency of use. Whereas most of the research tends to be concerned with the effects (or in many cases associations) of frequent texting and/or voice calling, Campbell and Kwak (2011) showed that social outcomes of mobile communication, in this case engaging with others in public, can be highly dependent upon what people do through the technology, rather than with it. Considering the existing emphasis on overall texting and calling frequency, there is an opportunity for future research to provide new insights by incorporating more content patterns into the study design and linking them to indicators of network connections and encounters.

Because it offers more findings, the evidence of mobile communication supporting diverse, weak, and new tie contact provides a better opportunity for synthesis in order to identify trends and explanations. On the surface, the evidence for support may seem contradictory to that of constraint, but this is not necessarily the case. For example, Campbell and Kwak's (2011) negative effect for relational use, discussed directly above, is accompanied by findings showing that mobile communication for news and for coordination each had a positive effect on conversations with strangers in public. These findings help reinforce the point that using a content-centered approach to conceptualizing and measuring mobile-mediated exchanges can be a fruitful way of shifting the conversation from whether to how mobile communication helps or hinders breadth in network connectivity.

Another area where we see this kind of support is in the studies of Japanese students conducted by Igarashi et al. (2007) and Boase and Kobayashi (2008). In the case of Igarashi et al., texting, when added to face-to-face contact, helped lead to more diffuse social networks, while Boase and Kobayashi found evidence of weak tie development through texting. It is highly possible that these findings were shaped by the nature of the samples, particularly with regard to the young age of participants. As Ling (2004, 2005) explained, adolescence is a very distinctive period of social and physical maturation in which young people broaden their horizons as they experience new freedoms, develop a sense of personal identity, and expand the territories of peer interaction. Others have explained unique mobile communication practices among teens as shaped by the structures, institutions, and practices of youth culture (Goggin & Crawford, 2011). From both perspectives, mobile communication has come to play a central role in the ways that youth construct and navigate their distinctive social landscape, and the complementary pieces of empirical evidence that texting can broaden teen social circles may well be a reflection of this. At the same time, there are the strikingly different trends in Kobayashi and Boase's (2014) study of texting and cognitive manifestations of telecocooning among Japanese youth, which as noted above warrants further investigation into differences between and relationships among attitudinal, structural, and behavioral indicators of network connectivity.

One strategy researchers may use to help explain these seemingly divergent trends, and to build on this line of inquiry more generally, is to design more robust analytic models through inclusion of mediating and moderating effects of key variables. Two studies in the support category of findings point to the potential of mediating and moderating effects for providing insight where direct and main associations fall short. In the case of Hampton et al. (2011), mobile phone ownership was not directly associated with network diversity, however it was indirectly related to it through participation in local community activities. In the case of Campbell and Kwak (2012b), significant effects were observed only after moderating variables were included to account for network characteristics. Accordingly, it may be useful for future research to place greater emphasis on indirect and interactive associations to help fill in the gaps. In particular, this approach may reveal that consequences of mobile communication for diverse, weak, and new ties flow through and/or differ across cognitive orientations and social outlooks.

As opposed to the categories of constraint and support, the findings from the overshadowed perspective do little to indicate whether and how mobile communication helps or hinders the development of broader networks of diverse and lesser known others. These studies tend to emphasize the intensive support given to the innermost realm of social ties through mobile communication, with some evidence that other ICT channels offer greater capacity

to support broader network contact and structure. While several of the studies in the overshadowed category provided opportunities to detect network constraint, others did not, but they still help portray an image of imbalance in the role that mobile communication plays in the inner and outer realms of personal connectivity. The suggestion here is not that mobile communication detracts from network breadth in a zero-sum fashion. From the overshadowed perspective, mobile communication serves as an added layer of communication that tips the balance of social contact in ways that add to the intimate sphere (Rainie & Wellman, 2012; Wellman et al., 2003), but without detracting from the outer realm of network contact.

Beyond supporting this theoretical position of mobile communication as an added layer of close tie contact, the scenario suggested by the overshadowed category raises important questions about what it means when the balance is tipped like this, especially considering mobile communication's breadth and depth as a means of social mediation. In fact, it is the fastest and most widespread diffusing medium to date. Mobile communication is approaching or exceeding saturation in both wealthy and developing societies. Not only that, it has become deeply embedded in the very structure of social collectives and society itself (Ling, 2012). These trends, combined with those in the findings from the overshadowed perspective, raise questions such as: What does it mean when a fairly new yet nearly ubiquitous aspect of the social ecology favors the intimate realm of social life? If not at the expense of broader network contact, what does this added layer of bonding distinctively mean for the quality and nature of social connectedness, not to mention the various aspects of daily life shaped by our personal connections?

It is beyond the scope of this review to fully grapple with these questions. Instead, I will highlight select examples to help illustrate ways in which mobile communication, as an added layer of bonding with core ties, may have both positive and negative implications for personal and public well-being. To start with, there are many benefits of having and staying connected to close personal ties. Individuals turn to their core networks as resources for social support, emotional aid, companionship, and assistance during a crisis (Wellman and Wortley, 1990). In that sense, there may be something to celebrate about mobile communication favoring of the intimate realm of network connectivity when it does not distract from the outer realm. At the same time, Ling (2012) has theorized that this favoring of the intimate realm through mobile communication gives rise to heightened expectations for personal accessibility. Ling argued these heightened expectations are born out of the embedding of mobile communication as a basic social fact that has become ingrained into social structure. As with social mediation through mechanical timekeeping, being accessible to others through mobile communication has become, Ling argued, a taken for granted in our personal relationships. Ling's sociological perspective on mobile communication as a taken-for-granted part of the social ecology has been applied at the psychological level of cognitive processes underlying use of the technology. Bayer and Campbell (2012) investigated the effects of less conscious mobile phone use, which resonates with Ling's argument about taken for grantedness. The authors found automaticity in texting habits to be a stronger predictor of texting while driving than most of the traditional predictor variables examined, which tended to include indicators of conscious cognitive processing. Here, there are theoretical grounds for hypothesizing that intensive close tie contact through mobile communication fosters the embedding of heightened expectations for accessibility, which leads to less conscious use of the technology (like a reflex) and increased likelihood of texting behind the wheel (for elaboration of this argument see Campbell, Ling, & Bayer, 2014). The point here is not so much to resolve the lingering puzzle of why people text and drive when they know it is dangerous, but rather to illustrate the fact that, even without deterioration of diverse, weak, and new ties, increased connectedness to the inner realm of personal ties raises important questions, and in some cases concerns, about personal and public well-being.

While this review provides direction for more theoretically driven research, it is important to bear in mind that the results and implications should be treated as preliminary. Variation in concepts and measures made synthesis challenging. At the same time, this variation was useful for observing global patterns in the work so far. Just looking at diversity, indicators range from occupational variation of network ties, like-mindedness of network ties, inter-network linkages, socio-demographic difference, and others. Furthermore, there was variation in the way these indicators were applied to just core ties

or all known contacts. Moving forward, scholars should be sensitive to this variation in conceptualization and measurement. As this line of research grows, scholars will want to identify and attend to more nuanced contours of diverse, weak, and new ties, which may allow for theoretical refinement and greater coherence in measurement.

Future research in this area should strive for expanded and more nuanced predictor variables as well. As noted, the relevant research so far has emphasized traditional features of mobile telephony. Just as mobile texting and calling were layered onto traditional means of connecting with network ties, so too have the internet, apps, and location-based services been layered onto texting and calling for the growing population of smartphone users. Expanded functionality, interface, and user practices make smartphones a game-changer for the ways in which people stay connected while carrying out everyday life. Beyond point-to-point interpersonal communication, smartphones allow for group messaging, participation in social media, mass-mediated flows of content, games that can be played individually and collectively, and numerous other activities that have the potential to alter the range of network connections and resources available for users. By way of example, Humphreys and Liao (2011) observed the use of location-based services for strangers to exchange recommendations and information about local places in the community. Although these individuals may not meet in person, they are still able to harvest network resources by using mobile technology in ways beyond conventional modes of interpersonal contact. Wilkin (2011) pointed to other examples of how strangers can meet through Bluetooth apps that connect people based on mutual interests, rather than existing relationships. These are only a couple of illustrations of how our understanding of mobile communication and network breadth can be enriched by widening the scope to better account for contemporary and emergent uses of smartphones. It may be that the observed trend for insignificant associations between mobile communication and network breadth in the overshadowed sections, which usually involved texting or calling, does not hold up for smartphone users with a more expanded set of features at their disposal. Or, perhaps there are different stories to be told about the implications of traditional and emergent mobile communication practices, pointing to an important avenue for future investigation of the ways in which mobile communication may help or hinder weak, diverse, and new tie contact.

Concluding Remarks

At the outset I advanced the concept of network privatism to capture notions that mobile communication in the intimate realm of close ties detracts from being connected to diverse, weak, and new ties. A close reading of the relevant empirical research, along with analysis of global patterns in the findings, suggests that mobile communication indeed favors close personal ties, but not necessarily at the expense of network breadth. Therefore, this review ends with a re-worked conceptualization of network privatism – that traditional forms of mobile communication (texting and calling) tend to serve as an added layer of interaction that favor, or tip the balance, toward close personal ties without necessarily taking away from breadth in network contact. Due to the limitations and variation in the research thus far, it is important that scholars investigate more contemporary mobile communication practices while also using more theoretically refined constructs and expanded measures as they continue with this line of inquiry.

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