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**Mobile Instant Messaging Use and Social Capital:  
Direct and Indirect Associations with Employee Outcomes**

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**Abstract**

This study explores how mobile instant messaging use, affordances, and social capital may directly and indirectly influence positive employee outcomes. A field survey of 245 Hong Kong real estate agents showed that their MIM use and affordances were positively associated with job performance, job satisfaction, and relational satisfaction, and with online bridging and bonding social capital. While bridging capital was not associated with any of the three outcomes, bonding social capital was positively related to the two satisfaction measures. However (with one small exception), neither type of social capital mediated relationships between MIM use and affordances, and employee outcomes.

*Keywords:* affordances, job satisfaction, mobile instant messaging, performance, relational satisfaction, social capital

## **Mobile Instant Messaging Use and Social Capital:**

### **Direct and Indirect Associations with Employee Outcomes**

With high adoption rates of the smartphone in many countries, individuals are now able to communicate with others, use a wide variety of applications, and access the Internet nearly any time and any place (Mobilezine, 2013). Smartphone adoption among U.S. adults nearly doubled from 35% in 2011 to 64% in 2015 (85% among 18-29 year-olds) (Smith, 2015). In particular, smartphone users can communicate with their network contacts easily via mobile instant messaging services (MIMs), a portable form of instant messaging. A recent PEW national US survey shows that just over a third (36%) of smartphone owners and 29% of adult Internet users use messaging applications (apps) (Duggan, 2015). MIM adoption by smartphone users is much higher in most other countries (emarketer, 2014).

These MIMS are changing [A1] the way people communicate both socially and professionally. Mediated communication with infrequent as well as close contacts can build bridging or bonding social capital, that is, different resources embedded in different kinds of social relationships (Ellison et al., 2007). These resources in turn can be used for personal and social gains, including improving employee outcomes.

Our recent search of multiple relevant research databases (e.g., ABI/INFORM Complete, Computers & Applied Sciences Complete, and PsycINFO) indicates that previous research has examined social media use and social capital, or new media use and employee outcomes. However, surprisingly, no study has empirically investigated the relationships among new media use (in particular, MIMs), social capital, and employee outcomes. Our study focuses on the extent to which MIMs are directly associated with social capital and employee outcomes, and indirectly with employee outcomes through social capital.

## **Review**

## **Social Capital**

Generally, social capital refers to an individual's social relationships that provide access to resources embedded in those relationships to the individual (Szreter, 2000), and possibly for the relevant social grouping as well. Wilken (2011) briefly notes the origins and evolution of the concept of social capital. Some conceptualize social capital as primarily an individual resource (Coleman, 1990). Others emphasize social capital as the resources embedded in relationships (not individuals) and social structure, instead of collective assets such as norms and trust (Lin, 2001). Lin assumed that individuals, motivated by personal gains, actively seek opportunities and resources by negotiating their social environments. Still others consider social capital as more of a "public good" although often quite local, created and shared within a network (Putnam, 2000), as a byproduct of other activities (Wilken, 2011). The central components of social capital are social relations and norms of reciprocity (Putnam, 2000). People can potentially use social capital for both instrumental benefits (e.g., information acquisition, financial gains, and job leads) and emotional support (e.g., empathetic learning and expression of sympathy) (Coleman, 1988; Kikuchi & Coleman, 2012; Putnam, 2000). Social capital is associated with productivity and economic outcomes, as it fosters coordination and cooperation (Wilken, 2011).

Putnam's (2000) two-dimensional model of social capital, bridging capital and bonding capital, guides much research. *Bridging capital* refers to resources embedded in social network ties that are irregular or seldom in frequency, heterogeneous in backgrounds, and low in interpersonal closeness. The low expectation of relational commitments and responsibilities in such weak ties allows easy inclusion of a large number of people with different views, information, resources, and talents. More diverse personal networks are related to a wide range of benefits, including health, innovations, knowledge, and job information (Granovetter, 1974; Rogers, 2003). Bridging capital can provide individuals with

new opportunities, quick dissemination of information, high diversity in content and relations, and exposure to new ideas (Kobayashi, 2010; Putnam, 2000). Bridging capital, resulting from communicating with diverse, weak ties, affords an individual a broad horizon, new opportunities, and exposure to a variety of information sources.

By contrast, *bonding capital* lies in close, strong, and homogenous ties in an individual's social network. These close ties, including family members and close friends, feel a sense of relational obligation and thus reciprocate emotional and substantive support for one another (Adler & Kwon, 2002; Putnam, 2000). Strong ties and associated bonding social capital provide learning resources and socialization, social influence, and contextual information. Bonding social capital involves greater trust, reciprocity, and obligations. However, bonding social capital may also exclude outsiders, encourage excessive claims and requests, limit individual choice, reduce openness to new ideas, and reinforce conformity (Chen, 2013; Lin, 2001; Rogers, 2003; Sheer, 2012; Wilken, 2011).

Bridging links actors across divisions, whereas bonding reinforces identities. They are not, however, mutually exclusive; indeed, both are necessary (Wilken, 2011). These two types of capital, although different, can complement each other in contributing to an individual's ability to gain personal benefits, that is, converting social capital to tangible gains. The concept of social capital is directly relevant to collectivistic cultures (including Chinese culture) due to the emphasis of social relationships in everyday interactions. For example, the young Chinese generation accumulates both bonding and bridging capital via social networking sites (Chu & Choi, 2010).

### **IM in the Workplace: Usage and Affordances**

Present-day organizations rely on Internet-based computer technologies and mobile phones, including IM. D'Urso and Pierce (2009) observed that the growing availability of communication technologies such as IM is transforming communication practices in the

modern organization, and the workforce has become tech-savvy. IM is becoming a mainstream means of communication for both work and social purposes (Mackiewicz & Lam, 2009). MIMs provide easy, fast, convenient, and nonintrusive ways of connecting with people (Ramirez, Dimmick, & Lin, 2008). Employees regularly carry out a variety of tasks during and outside of work locations and hours via IM (Smith, 2007). Such IM use is quite pervasive among working professionals in China (Ou & Davison, 2011). Five general purposes of IM use include to (a) quickly communicate information, (b) obtain information during a communication with a third party, (c) reach people who may be unavailable through other media, (d) obtain information from multiple parties, and (e) obtain information quickly in order to complete a task (Pazos, Chung, & Micari, 2013). Mobile phones with MIMs offer a wide variety of types of usage and affordances.

**Usage.** Prior work has identified at least four kinds of MIM usage relevant to this study: usage, services, features, and contacts. *Overall MIM usage* pertains to cumulative or total use of various capacities of MIMs. Some of the often-examined indicators of overall usages include years of using MIMs, total hours spent on MIMs daily or weekly, number of people cumulated on the contact list, and total number of people contacted daily (see Flanagin, 2005; Sheer, 2011).

*Various MIM services* are available for use on smartphones. The default messaging service associated with the phone number is installed by the mobile service provider. Users can easily receive and send text messages through such MIMs (Cameron & Webster, 2004). In addition, users can install free MIMs provided by social media. MIM apps grew nearly three times as fast as all mobile apps in 2014 (emarketer, 2014). The most frequently downloaded MIM apps in 2013 were Snapchat, Facebook Messenger, Kik Messenger, and Skype.

MIMs share some common *features*. The most basic feature is texting, or transmitting

mobile-to-mobile text-based messages and emoticons. These MIMs allow users to express emotions via both verbal and nonverbal channels (Lancaster et al., 2007). Other common features include instant transmission of images, video and audio files (Lawton, 2003; Yang, Lu, & Gupta, 2013). Users can not only communicate with others one-on-one, but also create mobile chat rooms to engage in mediated group discussions with multiple users (e.g., see Chinese user behavior in Song & Wang, 2011).

*Mobile work contacts* refer to those people on an employee's mobile contact lists with whom he/she communicates about work or business related matters. Employees increasingly use IM at work to communicate with colleagues (Garrett & Danziger, 2008). For example, Cavazotte et al. (2014) discuss lawyers' use of mobile devices provided by their company. The lawyers appreciated the device because it facilitated efficient communication with clients and colleagues, regardless of time and place, and increased their accessibility. Matusik and Mickel (2011) interviewed employees from different occupational settings and described similar findings. These employees explained that communication technology devices helped them save time, stay connected, and rapidly respond to business partners.

**Affordances.** Based on Gibson's (1986) general concept of affordances, media affordances are the kinds of uses or purposes to which users can put a particular medium. Media affordances are constituted through relationships between the actors, their uses of the medium, and the features of that medium (Treem & Leonardi, 2012). Thus while different media have more or less identifiable features or technological capabilities/constraints, affordances depend on how an actor perceives and uses the medium. In turn, different outcomes may be associated with a particular medium depending on which affordances emerge via which actors. Mobile phones may provide a wide array of (overlapping and not well-explicated) affordances (see Campbell, 2015; Chen & Ling, 2015; Cho, Trier & Kim, 2005; Dennis, Rennecker, & Hansen, 2010; Hampton, 2016; Hu, Wood, Smith, &



Westbrook, 2004; Muller, Raven, Kogan, Millen, & Carey, 2003; Nardi, Whittacker, & Bradner, 2000; Ou & Davison, 2011; Rennecker, Dennis, & Hansen, 2006). One affordance constraint particularly relevant to this study is that mobile phone users usually need to know the other person's phone number. Thus texting or IM is especially related to interactions with specific individuals, and not to groups, organizations or places (Campbell & Kwak, 2010).

### **New Media and Social Capital**

Social capital is an important construct for understanding uses and implications of new media (Ellison, Steinfield, & Lampe, 2007; Leiner, Hohlfeld, & Quiring, 2009). Researchers have been interested in influences on and outcomes from social capital embedded in online and mediated networks (e.g., Kobayashi, 2010; Phua & Jin, 2011; Resnick, 2001; Wellman & Frank, 2001). For example, studies have focused on social capital as an outcome from different social network/media sites (e.g., Facebook or Myspace) (Ellison et al., 2007), intensity of Internet use (Sum, Mathews, Pourghasem, & Hughes, 2008; Wellman, Haase, Witte, & Hampton, 2001), user characteristics (e.g., size, heterogeneity) of online networks (Kobayashi, 2010), and differences between online and offline networks (Vergeer & Pelzer, 2009).

Communication with social contacts through the Internet, especially social media, can generate social capital (e.g., Chu & Choi, 2010; Donath, 2007; Ellison et al., 2007; Leiner et al., 2009; Phua & Jin, 2011; Rojas, Shah, & Friedland, 2011; Wellman et al., 2001; Williams, 2006). Internet users, compared to nonusers, tend to have a larger network of contacts, from whom the users could seek help (Boase, Horrigan, Wellman, & Rainie, 2006). Spending time using the Internet for networking and expanding network size is similar to investing to accumulate social capital (Leiner, Hohlfeld, & Quiring, 2009). Active participation in such networks helps to gather resources that individuals can use for future needs (Verggeer & Pelzer, 2009). One ongoing debate is whether online media (from Internet to mobile phones)

favor the creation of bridging or bonding social capital.

**Bonding social capital increases.** Most people using mobile phones, and especially IM, typically maintain contact with a small number of close ties (Chen & Ling, 2015; Hampton, Lee, & Her, 2011; Kim et al., 2007; Ling, 2008). Media affordances of persistence and awareness may favor bonding over bridging social capital, by decreasing intransitivity among network relations, and therefore reducing diversity (Hampton, 2016). Thus “...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” (Hampton, 2016, p. 116).

**Bridging social capital increases.** Conversely, Internet use may contribute primarily to bridging capital because the Internet enables users to quickly build up a large number of contacts, but simultaneously allows very little time to spend on each contact (Ellison et al., 2007). Others suggest that because they are individually owned, portable, and generally involve known contacts, mobile phones are highly individuating: their use may reduce broader involvement in society (e.g., bridging ties) (Campbell & Kwak, 2010). Mobile phone use is not likely to increase network heterogeneity (and thus bridging social capital) because of users’ intimate and local networks and shorter messages (Kobayashi, Ikeda, & Miyata, 2006). While various new media (Internet, blogging, sharing photos, social media) have differing relationships to network diversity, IM had no direct or indirect influence in Hampton, Lee, and Her’s study (2011). Karikoski and Kilkki (2013, p. 115) concluded that “both SMSs and voice calls are used for bonding and bridging social capital, but SMSs are used more for bonding purposes than [are] voice calls.”

**Both increase.** Other studies and reviews find, however, limited support for perspectives that mobile communication constrains diverse, weak, and new tie contact (Campbell, 2015). Facebook features help users to form and maintain both strong ties (e.g.,

families and close friends) and weak ties (e.g., acquaintances and schoolmates), which contribute to both kinds of social capital (Valenzuela, Park, & Kee, 2009). Strong ties may be maintained or increased, without reduction in weak ties. Wilken's (2011) review reinforced that conclusion, but it also suggested that newer location-, content-, event-, or indirect link-based mobile phone apps help create bridging social capital among people who do not know each other.

### **The Research Context: Real Estate Agents and Mobile Instant Messaging in Hong Kong**

**Real estate agents.** A real estate agent's job typically includes searching, providing, and exchanging information with business partners and clients, and communicating with them, for buying and selling real properties, while frequently on the move. Thus they seek and exchange resources through close as well as temporary contacts. According to the National Association of Realtors in the US (2013), 92% of real estate agents use smartphones for contacting clients making business referrals, and 80% of them access social media for real estate businesses. Real estate agents in the US use smartphones not only for personal daily use but for also for conducting businesses to enhance responsiveness and efficiency (Collis, 2012). In addition to direct collaboration with colleagues and outside agents via mobile phones, real estate agents use mobile social network messaging to create and develop contacts for potential business (Real Estate Insider Magazine, 2013). Their work requires access to both dense trusted networks as well as diverse and changing networks. Thus, smartphone messaging not only supports real estate agents accomplish their work tasks (e.g., transmitting real estate information), but also provides opportunities to agents to conveniently network with, and develop new, contacts. Given these information and communication needs, for both performance and relationships, MIMs would seem particularly useful for real estate agents.

**Hong Kong: Media and real estate agents.** In 2013, Hong Kong boasted the second

highest smartphone penetration rate in the world at 87% among adults aged 15 to 64 years old (Mobilezine, 2013). The continued increase in smartphone ownership triggered the rise of mobile Internet use (in particular, social networking and web search) in Hong Kong, where 76% of smartphone users engaged in mobile social networking (Nielsen, 2012). With higher smartphone penetration rate than in the US (Nielsen, 2012), business-related use of smartphone among real estate agents in Hong Kong is likely more prevalent as well.

To examine MIM use and social capital among Hong Kong realtors, we first reviewed related literature, browsed real estate blogs, and interviewed realtors about the issues arising from the literature. These sources refer to many of the MIM *usage types* and *affordances* noted above. Cumulative, *overall usage* indicators provide information about the general MIM use patterns of real estate agents. Real estate agents can use their favored MIM *service* to communicate with their contacts for work collaboration with colleagues, do business with clients, and generate leads via informal social interactions with contacts (National Association of Realtors, 2013). In Hong Kong, the most frequently downloaded free MIMs included Facebook and WhatsApp, followed by Line and WeChat (IPSOS, 2011). MIM *features* enable real estate agents to organize meetings, schedule appointments, send home listings and documents, and conduct other day-to-day activities in an efficient and timely manner (Collis, 2012). Mobile *work contacts* for realtors entail colleagues (including coworkers and superiors), outside agents, clients, and other job-related people (e.g., attorneys and government officials). In addition to collaborating with colleagues and outside agents via mobile phones, real estate agents reportedly use mobile social network messaging to create and develop contacts for potential business (Real Estate Insider Magazine, 2013). These kinds of uses indicate that smartphones facilitate real estate work through a variety of *affordances*. Among others, these include scheduling and managing timing of interactions (including reducing interruptions), communicating and exchanging information with others

across locations and time periods, accomplishing multiple overlapping tasks, and looking up relevant and time-sensitive real estate and financial information.

With a foundation of traditional Chinese values and the influence of the British colonial rule, Hong Kong is a fusion of Eastern and Western culture. Largely collectivistic in interpersonal relationships and task collaboration (particularly among ingroup members), the working people in Hong Kong are accustomed to modern rational management practices (Sheer, 2013). In Hong Kong, one of the freest economies in the world, people are expected and motivated to work hard for financial gains; fast pace, overtime work, long hours, and high levels of stress characterize the workplace (Bishop, 2011). The real estate workforces reflect the stressful, fast-paced, collectivistic work culture in Hong Kong.

This research context, reflecting both real estate professional culture and Hong Kong Chinese culture, is unlikely to differ drastically from real estate practices in Western countries. In their study of intercultural business negotiations, Sheer and Chen (2003) concluded that professional culture tended to exert a much greater influence than national culture on business practices. Further, Hong Kong, a former British colony, has assimilated business practices heavily from Western traditions rather than “indigenous” Chinese traditions.

### **Model, Hypotheses, and Research Questions**

This review indicates that mediated communication interaction, in particular MIM use and affordances, creates and sustains social relationships that constitute social capital. By definition, social capital provides resources that might be convertible to outcomes – in this study, employee outcomes. Figure 1 portrays our model of these relationships. MIM use and affordances are associated directly with selected employee outcomes and with social capital (although differentially for bridging and bonding), and indirectly with employee outcomes through the mediation of social capital. The following sections provide conceptual and empirical justifications, and related hypotheses, for these relationships. For topics with

insufficient prior theoretical or empirical bases for directional hypotheses, we raise associated research questions.

--- Figure 1 goes about here ---

### **MIM Affordances and Use, Employee Outcomes, and Social Capital**

**Employee outcomes.** Workplace IM use has been linked to a variety of employee outcomes, including job performance, job satisfaction, and relational satisfaction.

*Job performance.* IM has gained popularity in and outside the workplace due to convenience and efficiency (Cook, 2008; Shaw, Scheufele, & Catalano, 2007). IM provides an efficient means of obtaining task relevant information with minimal disruption, allows an employee to ask for clarifications without having to engage in a longer conversation, and facilitates low-intensity collaboration (Garrett & Danziger, 2008). IM is also used for internal work collaboration, external collaboration with business partners, internal coworker relationship maintenance, and external relationship building with business partners (Zhang & Fjermestad, 2008). Employees enjoy the convenience and efficiency of IMs for communicating work-relevant matters (Cook, 2008; Zhou, 2005). Further, one advantage of smartphone apps for MIMs is that usage is not charged against a phone's short messaging service or data limits.

Task-relevant information transmitted in a timely way through IM can enhance low-intensity collaboration among employees and influence work outcomes (Garrett & Danziger, 2008). Communication with coworkers via IMs can improve perceptions of greater individual and team productivities (Shaw, Scheufele, & Catalano, 2007). IM can support collaborative tasks and multitasking. Employees from three IT organizations in Pazos, Chung, and Micari's (2013) study provided examples, such as "(a) obtaining additional information about a project/task on which they were simultaneously working, (b) responding to queries about one project/task while simultaneously working on another project/task, and (c) being engaged

in a low-intensity task (one that does not require intensive focus) and completing small, unrelated tasks simultaneously” (p. 77).

In one study of three organizations, IM use was associated with reductions in email, voice mail, telephone, teleconference, pager, and face-to-face (ftf) communication, seen as an improvement in communication efficiency and effectiveness (Muller et al., 2003). Ou and Davison (2011) concluded from their study of working professionals in China that “IM can significantly contribute to communication performance in the workplace, where the benefits overwhelm the negative effects associated with work interruption” (p. 61). IM showed the strongest (positive) effect of all CMC tools on communication quality. Others (e.g., Goveia, 2008; Ou, Davison, Zhong, & Liang, 2010) have also asserted that IM use can boost employee *job performance*.

One intriguing use of IM with both positive and negative implications is “invisible whispering” (similar to “backchannel”) – use during ftf or teleconferencing meetings, with others in the meeting or elsewhere (Dennis, Rennecker, & Hansen, 2010). This alters the meeting’s social and spatial boundaries, affecting dynamics of collaborative decision making, allowing meeting direction, task support, clarification seeking, subgroup participation, social support; and managing extra-meeting activities. This invisible whispering improved both meeting outcomes and individual performance relating to efficiency, effectiveness, participation, satisfaction, team relationships, and individual attention. However, it could also have mixed implications, such as overload, attention, and early decision closure.

*Job satisfaction.* Yet IM use in the workplace is not limited to tasks and explicit performance, because organizational members engage in both work and social communication (Mackiewicz & Lam, 2009). Causal modeling of IM influences, use and outcomes by Pi Liu, Chen, and Li (2008) showed that IM use by employees in 15 companies was positively associated with satisfaction with both the formal and informal communication

of an organization (although much stronger for the former). IM use in the workplace is said to positively affect organizational life (Wilkins, 2007), which enhances *job satisfaction*.

However, the interruptions (and thus imposed multitasking) that also come with IM use seem to reduce process satisfaction (though only for monochronic, not polychronic, users) (Li, Gupta, Lou, & Warkentin, 2011).

*Relationship satisfaction.* Employees with working relationships share task accomplishment goals, but they must first reduce uncertainty about work and social expectations, through communication, observations, and documents. They need frequent as well as spontaneous contact with each other so that they can discuss emerging issues whenever necessary and maintain mutual understanding about their projects (Kraut et al., 1990). IM supports a range of informal workplace communication activities (Nardi, Whittacker, & Bradner, 2000). IM can achieve synchronous, iterative communication, as well as provide asynchronicity for more thoughtful request or responses, provision of additional attached material, and continuation of the work context over time and place (Cho, Trier, & Kim, 2005; Muller, Raven, Kogan, Millen, & Carey, 2003).

The contributions of IM to building relationships is by and large due to its easy-to-use rich media applications that provide a more social experience than email communication (e.g., Lancaster, Yen, Huang, & Hung, 2007; Peslak, Ceccucci, & Sandall, 2010; Wilkins, 2007). IM can help develop and maintain these relationships, within and across departments and organizations (Cho, Trier & Kim, 2005). Text messaging can also maintain and strengthen personal relationships through increased flexibility of micro-coordinating and asynchronous contacting, instead of depending on prearranged times and places (Chen & Ling, 2015; Wilken, 2011). Employees use IMs not only to communicate with coworkers but also to maintain external relationships (e.g., business partners) (Zhang & Fjermestad, 2008). For example, IM use in one Korean organization was associated with reported improvements in



working relationships within and across departments, and across organizations (Cho, Trier, Kim, 2005). Thus IM use can increase *relationship satisfaction*.

H1: MIMs use is positively associated with a) job performance, b) job satisfaction, and c) relationship satisfaction.

RQ1: How are MIMs affordances associated with a) job performance, b) job satisfaction, and c) relationship satisfaction.

**Social capital.** As communication and interaction function to create, maintain, and strengthen social networks (Ellison et al., 2007) and social relationships (Rojas et al., 2011), we would expect that uses of MIMs should influence bridging and bonding social capital, although possibly in different ways across media and across social capital types. The Chinese phenomena of *guanxi*, interpersonal relationships based on favor/social obligation exchange (Lee & Dawes, 2005), directly pertains to the concept of social capital. For instance, Chinese working professionals use mobile devices to gain swift online *guanxi* that build trust and provided mutual benefits (Ou, Pavlou, & Davison, 2014). As noted previously, mobile phones in general and texting in particular reinforce bonding social capital, due to the need to know the other person's messaging account. However, professional information needs may also foster bridging social capital, from diverse sources and contacts. Similarly, Sun and Shang's (2014) analysis of responses from 281 Chinese users of intraorganizational microblogs showed that structural social capital mediated the relationship between social use of social media and work related usage.

H2: MIMs use is positively associated with a) bridging and bonding social capital.

RQ2: How are MIMs affordances associated with a) bridging and b) bonding social capital?

**Social capital and employee outcomes.** By definition, social capital should help foster instrumental as well as emotional benefits and other positive outcomes (Bourdieu,

1985; Putnam, 2000). A pertinent question is whether social capital is positively associated with employee outcomes (e.g., whether real estate agents can convert their mediated social capital from business relationships to positive outcomes). Depending on the nature of one's work, job performance and job satisfaction may be affected by both bridging and bonding social capital. We might expect that relational satisfaction would be most likely related to bonding social capital, as it explicitly emphasizes close social aspects.

H3: Bridging and bonding social capital are positively associated with a) job performance, b) job satisfaction, and c) relationship satisfaction.

**Social capital as mediator between MIMs and outcomes.** At the conclusion of his review, Campbell (2015) called for inclusion of mediators and moderators in the study of mobile phones and network effects, which may help make results more consistent. Thus a final question of this study is whether MIM usage and characteristics affect employee outcomes directly, and/or indirectly, through their associations with social capital. In other words:

H4: a) Bridging and b) bonding social capital mediate the relationships between MIM usage and affordances, and employee outcomes.

## **Methods**

### **Sample and Procedures**

Based on cultural equivalence, a back-and-forth translation between English, Chinese, and English was used to resolve discrepancies and create a Chinese version and an English version of the questionnaire. We use the Chinese version in the survey, but the English version for reporting purposes.

Two research assistants visited real estate offices in shopping malls in different parts of Hong Kong and conducted a field survey with real estate agents. Those offices staffed an average of 12.5 agents, with a minimum of 5 and a maximum of 25 people. The two research

assistants approached a total of 277 real estate agents; 250 of them completed written questionnaires, generating a response rate of 90.3%. All respondents reported using smartphones for daily communication. Of the 250 questionnaires, five from top-level managers who did not have commission-based clients and did not work as agents were not included, resulting in a final sample size of 245 real estate agents.

## **Measures**

Principal components analysis (tables available from the authors) and Cronbach's alpha reliability provided the basis for mean scales.

**MIM Use.** *Overall use.* Respondents wrote their best estimated answer to four questions about years using MIMs on one's smartphone, average hours a day spent communicating with people via smartphone messaging, average number of people they communicated with daily via smartphone messaging, and the total number of people on one's smartphone contact list. *Varied MIMs.* Respondents indicated, on a 1 (rarely) to 7 (frequently) scale, how often they used each of the following MIMs: default messaging provided by the telecom service provider, WhatsApp, Line, WeChat, Facebook, and other (specify; none mentioned). *MIM features.* Respondents indicated, on a 1 (rarely) to 7 (frequently) scale, how often they used each of the following MIM features: text messaging, group chat, video, image/photo, audio, file attachment, and other (specify; none mentioned). *Work contacts.* Respondents also answered, using a 1 (rarely) to 7 (frequently) scale, "How often do you use an MIM to communicate with the following people respectively?" for each of these categories: coworkers, superiors, clients, real estate agents outside the company, and other business-related contacts. The scale was computed as the mean of the five items loading on one component.

**MIM affordances.** Respondents noted, from 1 (very little) to 7 (a great deal), "To what degree does MIM use help you gain the following advantages?" The 11 items included

control timing, reduce interruptions, increase communication, have timely communication, monitor whether the other party is online, connect people in different regions and time zones, help with multitasking, share information, keep records, enhance privacy (e.g., not to be heard by another), replace other channels (e.g., fax and telephone). These particular affordances were derived from the pilot review and interviews noted above. No consistent component emerged, so we use each affordance separately.

**Social capital.** The social capital measures were adapted from Williams' (2006) Internet Social Capital Scale (ISCS) which consists of two subscales, bridging capital and bonding capital, for each of online and offline contexts. We are concerned only with the two online subscales. With 10 items for each, Williams' online bridging capital scale had a Cronbach's  $\alpha = .84$ , and the bonding capital scale had an  $\alpha$  of .90. Because the reality of field surveys limits survey time, we created a short version from the original scales based on the statistics of the ISCS reported in two studies (Stefanone, Kwon, & Lackaff, 2012; Williams, 2006). Five items of online bridging capital and five items of online bonding capital were selected based on the highest overlapping factor loadings reported in both studies (as no item-total correlations were reported in either study). The rating scale ranged from 1 (not at all) to 7 (very much so). Two means scales were created from the two sets of unidimensional items.

**Employee outcomes** measured respondents' reports of their job performance, job satisfaction, and relationship satisfaction. To ensure that measures were efficient for the field survey and still showed interval-scale-like properties, two items were adapted from earlier works (e.g., Jex & Britt, 2008; Sheer, 2013) for each of the three outcomes. *Job performance* consisted of the mean of annual income compared to others (a highly relevant measure for real estate agents), and estimated overall performance, with response values ranging from 1 (extremely poor) to 7 (extremely good). *Job satisfaction* was the mean of satisfaction with annual income and position. *Relationship satisfaction* was the mean of satisfaction with

relationship to one's supervisor and to one's coworkers. Respondents rated the four satisfaction items from 1 (highly dissatisfied) to 7 (highly satisfied).

**Controls.** These included gender (m/f), age, education, income source (salary & commission/commission), position (manager/agent), real estate agent experience (years), number of employees in the company, and number in the respondent's office. Without providing a review, these controls are appropriate because of possible relations between women and relational satisfaction and social capital, age and performance (experience) and satisfaction (youthful valuation), education and performance (experience), income source (stable or fluctuating based on commissions) and relational satisfaction (an emphasis on sales), agent position and relationships (value of contacts), and more organizational and office employees and performance and social capital (access to resources and competition).

## Results

### Descriptives

Table 1 provides the descriptive statistics for all items and scales. (Correlation tables are available.)

--- Table 1 goes about here ---

**Sample.** Respondents averaged 4.8 (ranging from .5 to 20) years of experience as real estate agents and had been with their current company for an average of 3.5 years, with 15.1% upper or lower-level managers and 84.9% frontline real estate agents. Furthermore, 13.1% received a basic salary or salary plus sales commission and 86.9% relied mostly on sales commission. Of the respondents, 28.6% of were female. In addition, 4.5% of respondents were 20 years old or younger, 31% were between 21-29, 38.4% between 30 and 39, 16.7% between 40 and 49, and 9.4% between 50 and 59. 5.7% graduated from junior high school, 79.6% from high school, and 15.7% from college or graduate school. Over two-thirds (68.2%) worked in large companies (over 500 employees), and the mean number of

employees in the office was 12.5.

**MIM use.** *Overall use.* Respondents on average had used MIMs for 3.7 years, spent 5 hours a day using MIMS, messaged 17.2 people per day, and registered 321.3 total contacts (see note to Table 1 for skewness transformations). *Varied MIMs.* WhatsApp was the most frequently used MIMs ( $M=6.7$ ), followed by WeChat, Facebook, Line, and the default SMS messaging. WhatsApp was the only service used by everyone, with a minimum value of 4 (all of the others had a minimum of 1), and no combination of services represented a unidimensional scale. Thus, we use a simple mean index ( $M=4.27$ ) of the five services in the multivariate analyses. *MIM features.* The most frequently used MIM feature was texting ( $M=6.3$ ), followed by image sharing (likely property photographs and maps) and group chat (as each possible deal involves multiple parties), with low use of file attachment, video, and audio ( $M=3.1$ ). *Work contacts.* Consistent with literature on the prevalence of IM use in the workplace (e.g., Cook, 2008; D'Urso & Pierce, 2009), real estate agents communicated with coworkers most frequently, followed by clients and supervisors, and the least with external agents. The average frequency of communicating via MIMs with the five kinds of contacts was 5.41.

**MIM affordances.** The most important *affordances* were timely communication ( $M=6.1$ ), and share information ( $M=6.0$ ), with a smooth decline to the two least (but still) important, enhance privacy ( $M=5.0$ ), and monitor whether the other party is online ( $M=4.8$ ).

**Social capital.** Both *online bridging* ( $M=5.08$ ) and *bonding* ( $M=4.48$ ) social capital were significantly higher than the midpoint (4) of the response scale (one sample t-tests,  $t(244) = 16.1$  and  $7.5$ , respectively, both  $p < .001$ ). Bridging was significantly greater than bonding social capital (paired t-test,  $t(244) = 9.28$ ,  $p < .001$ ), and were positively correlated ( $r = .51$ ,  $p < .001$ ).

**Employee outcomes.** *Job performance* ( $M=4.42$ ), *job satisfaction* ( $M=4.44$ ), and

*relationship satisfaction* ( $M=5.06$ ) were significantly greater than the midpoint (4, neutral) of the response scale (one sample t-tests,  $t(244) = 5.4, 5.4, 15.2$ , respectively, all  $p < .001$ ).

### **Hypotheses and Research Questions**

For H1, RQ1, H2 and RQ2, we use hierarchical linear regression, with separate blocks for each of the MIM use concepts, affordances, and demographics, and use stepwise entry within blocks having more than one variable.

**MIM use and affordances and employee outcomes (H1a, b, c; RQ1a, b, c).** Thirty-nine percent of the variance in *performance* was explained by several MIM use variables: daily hours, mean MIM services frequency, and mean number of work contacts, and by less use of MIMs for record keeping, but not by any MIM features. Demographic influences included greater number of years as an agent, higher education, and working for an organization with fewer overall employees. Forty percent of *job satisfaction* was similarly explained by more daily hours MIM use, mean MIM services frequency, and mean number of work contacts, and by less use of MIMs for timely communication, but not by any MIM features. The only demographic influence was working for an organization with fewer overall employees. Finally, 43% of *relational satisfaction* was explained by no overall MIM use measure, by lower MIMs services frequency, less use of image but more of audio features, and more work contacts. Significant affordance influences were further reduction of interruptions, but less privacy enhancement. Demographic influences included more years as an agent, being an agent as opposed to having at least some managerial responsibilities, and being female and younger. Table 2 presents the results for H1 – RQ1.

--- Table 2 goes about here ---

**MIM use and affordances and social capital (H2a, b; RQ2a, b).** There were more significant influences on online bridging (61% of variance explained) and bonding (44%) social capital, especially more of MIM features and affordances, but not simple hours used.

For *bridging social capital*, significant usage influences included a longer contact list, more frequent use of MIM services; use of the video, audio and sending files features; and greater extent of the affordances of reducing interruptions, increasing communication, and monitoring whether the other party is online. Demographic influences included greater tenure with the agent's company, being an agent without managerial responsibilities, being female, and having higher education.

Online *bonding social capital* had a wide array of influences, in some cases the reverse of bridging capital influence. Usage variables included more years using MIMs, a longer contact list, greater frequency of MIM services, not using texting but using group chat, and communicating with more work contacts. Influential affordances included less control of timing and less timely communication, but increased communication, help with multitasking, and privacy enhancement. The only significant demographic association was being an agent with less managerial responsibilities.

**Social capital and employee outcomes (H3a, b, c).** Here we use linear regression with the two social capital explanatory variables force-entered in the first block. Online bridging social capital was not significantly associated with performance ( $\beta = -.01$ ), job satisfaction ( $\beta = -.06$ ), or relational satisfaction ( $\beta = .06$ ). Online bonding social capital was not significantly associated with performance ( $\beta = .06$ ), but was with job satisfaction ( $\beta = .16, p < .01$ ) and relational satisfaction ( $\beta = .14, p < .05$ ). Only 4% of the variance in performance was explained by the overall regression, but 9% for job satisfaction, and 15% for relational satisfaction.

**Negative associations.** Several of the hypothesized research question relationships were significantly negative associations in the final regressions (Table 3). The mean of usage of the five MIM services ( $\beta = -.21, p < .001$ ) and sending audio files ( $\beta = -.11, ns$ ) were associated with *less* bonding social capital. Developing trust and support among close ties



requires time and ongoing interactions; emphasizing speed and scheduling does not seem the way to accomplish bonding capital. Taking advantage of the affordance of record keeping via MIMs was related to lower performance ( $\beta = -.12, p < .05$ ), and taking advantage of more timely communication is associated with less job satisfaction ( $\beta = -.20, p < .001$ ). The first may be due to the small keyboards and limited searching features of MIMs; the second to increased pressures of accessibility and response obligations.

**Mediation by social capital of relationships between MIM use and affordances and employee outcomes (H4a, b).** For testing H4a and b, we use hierarchical regression, entering bridging and bonding social capital in the first block, and the significant explanatory variables from the H1 and H2 regressions, each force-entered within their relevant blocks. If a relationship in the H1 or H2 regressions was significant, but not in the H4 regression, that is noted as “ns” in Table 3, and considered potential evidence of full moderation by a significant social capital variable. Partial moderation would be indicated by a substantial decline in a still significant coefficient. Further, both conditions would require initial significant relationships between MIM use and the particular social capital, and social capital and the particular outcome (Baron & Kenny, 1986).

--- Table 3 goes about here ---

For *performance* (adjusted  $R^2 = 39\%$ ), there was no significant influence of bridging or bonding capital, and no substantive changes in the other coefficients, representing no mediation. For *job satisfaction* (41%), bonding capital was a significant influence ( $\beta = .16, p < .01$ ), but there was no substantive drop in other coefficients. *Relational satisfaction* (43%) was also significantly influenced by bonding capital ( $\beta = .16, p < .01$ ), and exhibited mediation of the influence of the affordance of enhanced privacy (from  $\beta = -.17, p < .01$  to  $\beta = -.08$  ns). However, this affordance was not a significant influence on bonding capital, so this change does not represent mediation either. The one remaining indicator of mediation is the

role of mean varied MIMs: it had a significantly negative influence on *relational satisfaction* ( $\beta = -.13, p < .05$ ), but significantly positively influenced *bonding* ( $\beta = .14, p < .01$ ) (Table 2), and a significantly negative influence on relational satisfaction controlling for bonding ( $\beta = -.21, p < .001$ ). Thus we directly tested for the mediation effect of mean *varied MIMs* on *relational satisfaction* by *bonding social capital*, controlling for the other significant influences in the H4 regression: work contacts, reduce interruptions, years as agent, position, and age. The Process (Hayes, 2013) mediation analysis module for SPSS (model 4) indeed showed that the mediation was significant, but very small. The direct effect was ( $\beta = -.28, p < .001, SE = .056, CI$  from  $-.39$  to  $-.17$ ), while the indirect (mediation) effect was low and barely significant ( $\beta = .03, p < .05, SE = .017, CI$  from  $.01$  to  $.08$ ).

Thus, there is moderate direct influence on employee outcomes by bonding or bridging social capital (neither for performance, only bonding for job satisfaction and relational satisfaction). However, very little evidence of mediation by online bridging or bonding social capital exists. Rather, online bridging and bonding social capital largely influence some employee outcomes independently from, but complementary to, some types of MIM use and some affordances.

## **Discussion**

### **MIM Use by Real Estate Agents**

The agents were quite heavy MIM users, which is not surprising for a job that requires constant finding and exchanging property and financial information with both coworkers and clients. Although the agents used the feature of text messaging most frequently, they preferred the newer social-media-based messaging services that have both the basic texting feature and advanced capabilities such as group chat and sending images. They valued several MIM affordances, such as increasing communication, sharing information, connect people in different regions and time zones, and help with multitasking

### **MIM Use and Employee Outcomes**

The primary MIM factors associated with employee outcomes were hours per day, frequency of using a variety of MIM services, and frequency of communicating with work contacts. Controlling for social capital and use of MIM features were not significantly associated with any of the three outcomes. Only a few affordances were related to these outcomes. Lower performance was associated with using MIMs to keep records, because either jobs requiring a lot of record keeping were more administrative (although there was no significant difference in this affordance between respondents who had at least some managerial role and those who were only agents), or such record keeping interfered with the primary goals of real estate agent work. Using MIMs for timely communication was negatively associated with job satisfaction, perhaps because that need implies stressful, high-paced work. Interestingly, relational satisfaction was associated with using MIM to reduce interruptions. That is, this affordance allowed users to focus more on the current interpersonal communication, emphasizing the relationship. Consistent with the literature review on IM use, these findings clearly show that, in modern real estate agencies, communication technology is playing an important role in daily routines. Different aspects of MIM use and affordances contribute to an employee's job performance, job satisfaction, and relationship satisfaction.

### **MIM Use and Social Capital**

The real estate agents reported a higher bridging capital than bonding capital, as reported elsewhere. All four categories of MIM use, a number of affordances, and multiple demographics contributed to social capital, but patterns of associations were fairly different for the two types of social capital. Unique or stronger associations with *bridging capital* seem to indicate a slightly more instrumental use of MIMs involving multiple parties and multimedia resources and features, managing focus on and access to others, greater seniority,

and perhaps more homophily (female and higher education). Unique or stronger associations with *bonding capital* include longer time/experience with using MIMs, longer contact lists, less texting, more frequent communication with work contacts, less affordance for controlling time and timely communication, more affordance for increased communication, help with multitasking, and keeping records. These associations indicate a greater investment in stronger, more, and less managed interactions; after all, stronger social relationships need time to develop. These findings are consistent with findings of the literature (e.g., Ellison et al., 2007; Rojas et al., 2011) in that an agent accumulates social capital from people he/she interacts within his/her networks.

### **MIM Use, Social Capital, and Employee Outcomes**

Approximately 40% of the variance in each of the performance, job satisfaction, and relational satisfaction scales was explained by different combinations of social capital, MIM use, MIM affordances, and demographics. Different aspects of MIM use were associated with the two kinds of social capital, which were differentially related to the outcomes. However, taking into account MIM use and affordances, and demographics, only online bonding social capital was associated with job satisfaction and relational satisfaction, but not with job performance. The stronger bonds within close others in one's networks and the more informational and connectedness resources available thus improve satisfaction with both job and relationships. Further, these relationships were independent of the associations of MIM use and affordances, and demographics. Thus social capital does not mediate, but complements, the other influences on employee outcomes. Intriguingly, controlling for the other influences, relational satisfaction is either not associated with, or associated negatively with, MIM use and features, although is associated with communication with more work contacts through IM, and bonding social capital.

### **Theoretical Implications**

Our findings support the link between mobile communication and social capital in that real estate agents' greater use of MIM to communicate with their work contacts was associated with more of both types of online social capital, which subsequently but differentially affect employee outcomes. These results suggest that bonding capital and bridging capital need to be treated as related but individually viable constructs, as they are differentially associated with MIM uses and affordances, and behave differently in contributing to employee outcomes. In particular, bonding capital seems to foster positive psychological outcomes (job and relational satisfaction) but not tangible outcomes (performance). Our results reinforce prior theorizing that online bonding social capital is more enduring and psychologically rewarding than bridging capital.

Two issues arise regarding further theoretical development in understanding the relationships among mobile communication (here, IM), social capital, and employee outcomes. The first issue stems from our finding that the links between mobile communication and social capital and the social capital and employee outcomes are independent of each other (i.e., only one slight mediation by social capital between MIM use and employee outcomes). Possibly, certain types of mobile communication are instrumental and directly serve organizational outcomes, while other types foster social capital that does not translate to employee outcomes immediately. The second issue pertains to what conditions facilitate the conversion of social capital fostered by MIMs to tangible work outcomes. Time needed to convert social capital to tangible outcomes can be a good indicator for conversion efficiency.

### **Practical Implications**

Communication technology is central to daily activities in modern organizations. Respondents in the present sample were voluntary, heavy users of IM on their smartphones for their mobile, information- and relationship-intensive work-related activities. They took

advantage of advanced, multimedia features in communicating with work contacts (co-workers and clients), and accumulated resources from their social capital, which led to improved (at least psychological) outcomes. These results lend support to the general positive impact of technology on some organizational processes and psychological outcomes, but with attention to negative implications of some of the features and affordances. Organizations with characteristics similar to real estate firms can encourage employees to use new communication technologies to improve task and psychological conditions. For example, managers can consider using mobile messaging as a legitimate means to increase work connectivity, particularly for group tasks that involve input and feedback from participating members who are not at the same locale. At the same time, organizations need to maintain a balance between encouraging members to engage in work-related mobile communication and demanding timely responses – as the latter could add to work pressure and interruptions, and decrease job satisfaction. In a broader sense, mobile messaging extends work connectivity beyond the boundaries of work units and those of organizations, so the role of the organization may not be as central as it has been (see Matusik & Mickel, 2011). Accordingly, organizations may need to adjust their communication technology policies to accommodate the increasing work connectivity with external members.

### **Limitations and Future Research**

Appel et al. (2014) critiqued the Williams (2006) measures as not valid indicators of the structural aspects of social capital. This study did not have network measures (as we surveyed individuals from different agencies) but future research on associations of real estate agents' use of new media, their social capital, and employee outcomes should include structural indicators. The scope of generalizing research findings often is limited due to sample characteristics and research design. In particular, current findings may be generalizable only to organizations with work routines and interactions similar to real estate

companies. Although this study provides empirical support for the theoretical relationships between MIM use and social capital, and relationships between social capital and employee outcomes, the closed-ended research design did not probe *how* MIM use contributed to social capital and employee outcomes, particularly as features and affordances did not play much of a role statistically. Follow-up studies can add a more qualitative approach to examine how MIM interaction fosters social capital and how social capital facilitates certain employee outcomes. For example, communication themes, topic initiation and responding, and differentiation in interaction with strong ties versus weak ties could be three interrelated research areas. Future research is also needed to explore why social capital so far was associated with psychological outcomes but not with more tangible employee outcomes.

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Table 1.  
*Item and Scale Descriptives*

<b>Survey Items and Scales</b>	<b>M</b>	<b>SD</b>
<b>MIM Usage</b>		
<b>Overall MIM usage</b>		
Years of Using MIMs	3.7	2.12
Hours on MIMs Daily	5.0	2.47
People Contacted MIM Daily (values 1-4: 1-9 16.3%, 10-13 33.9%, 14-20, 32.2%, 21-100 17.6%) *	2.5	.97
Total MIM Contacts (values 1-6: 1-50 4.5%, 51-100 11.0%, 101-280 33.5%, 281-500 38.0%, 501-700 8.2%, 701-1500 4.9%) *	3.5	1.1
<b>Use of varied MIMs (frequency)</b>	4.27	1.06
Default Messenger	3.1	1.88
WhatsApp	6.7	0.60
Line	3.4	2.27
WeChat	4.2	2.23
Facebook	4.0	2.17
<b>Use of MIM features (frequency)</b>		
Texting	6.3	1.31
Group Chat	5.6	1.75
Video	3.1	1.54
Image	5.8	1.19
Audio	3.1	1.71
File Attachment	3.3	2.07
<b>Work contacts messaged (frequency) (<math>\alpha = .77</math>)</b>	5.41	.99
Coworkers	6.4	1.09
Superiors	5.2	1.74
Clients	6.1	1.15
Real estate agents outside company	4.3	1.56
Other business-related	5.1	1.49
<b>MIM Affordances</b>		
Control timing	5.5	1.28
Reduce interruptions	5.1	1.52
Increase communication	5.7	1.28
Timely communication	6.1	1.00
Monitor whether the other party is online	4.8	1.54
Connect people in different regions and time zones	5.9	1.04
Help with multitasking	5.9	1.11
Share information	6.0	0.95
Keep records	5.4	1.28
Enhance privacy (e.g., not to be heard by others)	5.0	1.46
Replace other channels (e.g., fax and telephone)	5.6	1.35
<b>Social Capital</b>		
<b>Bridging social capital (<math>\alpha = .77</math>)</b>	5.08	1.05
Interacting with people on my smartphone contact list makes me interested in things that happen outside of my town.	5.2	1.51
Interacting with people on my smartphone contact list makes me want to try new things.	4.8	1.46
Interacting with people on my smartphone contact list reminds me	5.4	1.25

that everyone in the world is connected.		
Talking with people on my smartphone contact list makes me curious about other places in the world.	4.9	1.57
Interacting with people on my smartphone contact list makes me feel connected to the bigger picture.	5.3	1.47
<b>Bonding social capital</b> ( $\alpha = .71$ )	4.48	1.00
If I needed an emergency loan of HK\$5,000 I know someone on my smartphone contact list I can turn to.	3.2	1.81
The people I interact with on my smartphone contact list would be good job references for me.	5.1	1.24
There are several people on my smartphone contact list I trust to help solve problems.	5.4	1.25
There is no one on my smart phone contact list that I feel comfortable talking to about intimate personal problems. (reversed)	4.9	1.39
The people I interact with on my smart phone contact list will put their reputation on the line for me.	3.8	1.58
<b>Employee Outcomes</b>		
<b>Job performance</b> ( $\alpha = .82$ )	4.42	1.21
Income compared to others	4.3	1.44
Overall performance	4.5	1.19
<b>Job satisfaction</b> ( $\alpha = .87$ )	4.44	1.28
Satisfaction with income	4.4	1.41
Satisfaction with position	4.5	1.32
<b>Relationship satisfaction</b> ( $\alpha = .84$ )	5.06	1.09
Satisfaction with supervisor	5.1	1.19
Satisfaction with co-workers	5.0	1.15
<b>Demographics</b>		
Years of experience as agent	4.8	3.64
Years in company	3.5	2.67
Position (0, 1: management 15.1%, agent 84.9%)	.85	.36
Income Source (0, 1: salary & commission 13.1%, commission 86.9%)	.87	.34
Sex (0, 1: male 71.4%, female 28.6%)	.29	.45
Age (1-5: <20 4.5%, 21-29 31.0%, 30-39 38.4%, 40-49 16.7%, 50-59 9.4%)	3.0	1.02
Education (1-4: jr high diploma 5.7%, sr high diploma 79.6%, college/ masters/ phd 14.7%)	3.1	.44
Employees in company (values 1-4: 1-15 7.8%, 16-500 26.1%, 501-2000 53.5%, 2500 12.7%) *	2.7	.79
Employees in office	12.5	7.13

\* Because of skewness, which standard transformations did not resolve, these three measures were recategorized into the approximately normally distributed categories shown.

Table 2.  
*Hierarchical Regressions on Employee Outcomes and Social Capital*

Explanatory variables	H1a, b, c; RQ1			H2a, b; RQ2	
	Performance	Job satisfaction	Relational satisfaction	Bridging social capital	Bonding social capital
<b>MIM Use</b>					
<b>Overall use</b>					
Years of Using MIMs	--	--	--	--	.28 ***
Hours on MIMs Daily	.52 ***	.52 ***	--	--	--
People Contacted MIM Daily	--	--	--	--	--
Total MIM Contacts	--	--	--	.12 **	.27 **
<b>Varied MIMs</b>					
Mean 5 MIMs	.23 ***	.10 *	-.13 *	.12 **	.14 **
<b>MIM features</b>					
Texting	--	--	--	--	-.18 ***
Image	--	--	-.24 ***	--	--
Group Chat	--	--	--	.21 ***	.10 *
File Attachment	--	--	--	--	--
Video	--	--	--	.11 *	--
Audio	--	--	.20 ***	.20 ***	--
<b>Work contacts</b>	.13 *	.24 ***	.37 ***	.10 *	.23 ***
<b>MIM Affordances</b>					
Control timing Reduce interruptions	--	--	--	--	-.20 ***
Increase communication	--	--	.25 ***	.20 ***	--
Timely communication	--	-.21 ***	--	--	-.23 ***
Monitor whether the other party is online	--	--	--	.23 ***	--
Connect people in different regions and time zones	--	--	--	--	--
Help with multitasking	--	--	--	--	.15 **
Share information	--	--	--	--	--
Keep records	-.12 *	--	--	--	.14 *
Enhance privacy (e.g., not to be heard by others)	--	--	-.17 **	--	--
Replace other channels (e.g.,	--	--	--	--	--

fax and telephone)					
<b>Demographics</b>					
Years experience as agent	.17 **	--	.45 ***	--	--
Years in company	--	--	--	.34 ***	--
Position	--	--	.15 *	.16 **	.11 *
Income source	--	--	--	--	--
Sex	--	--	.17 **	.21 ***	--
Age	--	--	-.25 ***	--	--
Education	.12 *	--	--	.11 *	--
Organizational employees	-.13 **	-.12 **	--	--	--
Office employees	--	--	--	--	--
Final adj R <sup>2</sup>	.39	.40	.43	.61	.44
Final F	(7,239) = 23.1 ***	(5,239) = 33.6 ***	(10,234) = 19.2 ***	(13,231) = 30.8 ***	(12,232) = 16.8 ***

Note: values are standardized beta coefficients.

N=245.

Variables within each concept entered stepwise.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Table 3.  
Hierarchical Regressions of Employee Outcomes, with Social Capital as Mediator

Explanatory variables	H3a, b, c; H4 a, b		
	Performance	Job satisfaction	Relational satisfaction
<b>Social Capital</b>			
Bridging	-.01	-.06	.02
Bonding	.06	.16 **	.16 **
R <sup>2</sup> change	.04	.09	.14
F change	(2,242) = 4.8 **	(2,242) = 11.9 ***	(2,242) = 20.8 ***
<b>MIM Use</b>			
<b>Overall use</b>			
Hours on MIMs Daily	.52 ***	.51 ***	--
<b>Varied MIMs</b>			
Mean 5 MIMs	.22 ***	.07 ns	-.21 ***
<b>MIM features</b>			
Image	--	--	.07
Group Chat	--	--	--
Audio	--	--	-.11 + ns
<b>Work contacts</b>			
	.12 +	.21 ***	.34 ***
R <sup>2</sup> change	.29	.31	.13
F change	(3,239) = 34.8 ***	(3,239) = 40.2 ***	(4,238) = 10.2 ***
<b>MIM Affordances</b>			
Reduce interruptions	--	--	.21 ***
Timely communication	--	-.20 ***	--
Keep records	-.12 *	--	--
Enhance privacy	--	--	-.08 ns
R <sup>2</sup> change	.02	.02	.04
F change	(1,238) = 6.7 **	(1,238) = 9.6 **	(2,236) = 6.9 ***
<b>Demographics</b>			
Years experience as agent	.17 **	--	.43 ***
Position	--	--	.16 *
Sex	--	--	.10 ns
Education	.12 *	--	--
Age	--	--	-.26 ***
Organizational employees	-.13 **	-.12 *	--
R <sup>2</sup> change	.06	.01	.11
F change	(3,235) = 7.9 ***	(1,237) = 5.3 *	(4,232) = 9.9 ***
Final adj R <sup>2</sup>	.39	.41	.42
Final F	(9,235) = 18.0 ***	(7,237) = 24.7 ***	(12,232) = 15.5 ***

Note: values are standardized beta coefficients.

N = 245.

First block force-entered both social capital variables. Variables within each subsequent concept block were force-entered. Only significant explanatory variables from the Table 2 regressions were used in this regression, for direct comparison for moderation effects.

Italicized coefficients indicate possible mediation. See text.

+  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

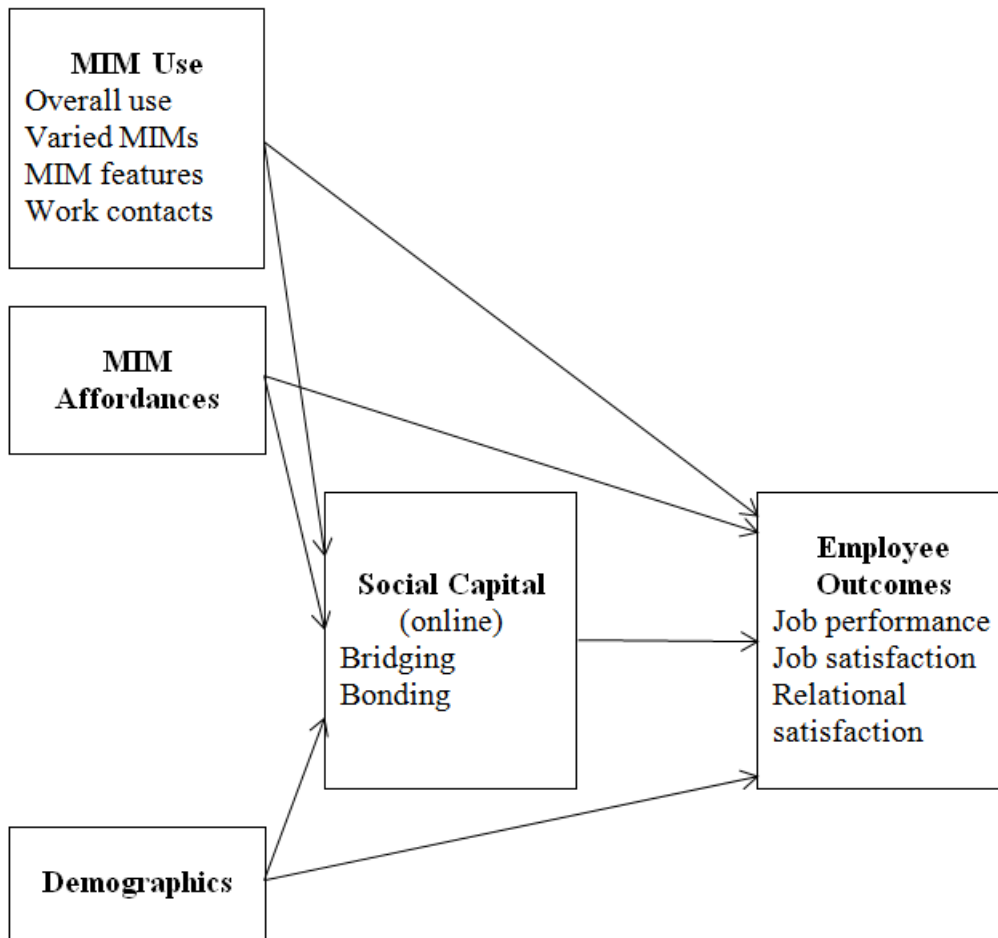


Figure 1. Model of relationships of MIM use and affordances, and demographics, with online social capital and employee outcomes.