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The Impact of the User-It Artifact Interaction on Technology Implementation and Value: Mobile Social Networking and Mobile Social Capital

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THE IMPACT OF THE USER-IT ARTIFACT INTERACTION ON TECHNOLOGY IMPLEMENTATION AND VALUE: MOBILE SOCIAL NETWORKING AND MOBILE SOCIAL CAPITAL

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ABSTRACT

Despite investment and cutting-edge features, the majority of new mobile phone subscribers have adopted low-cost handsets instead of the latest mobile devices (Karjaluoto et al., 2005). According to the U.S. Census Bureau report, only 37% of cell phone users selected a smartphone in 2007. The Census Bureau forecasted the figure would increase by less than 10% in 2008. However, only 24% of cell phone users owned a smartphone in 2010, 27 % in 2011 and 30% in 2012. Therefore, the purpose of this study is to propose a conceptual model of the impact of mobile social capital on mobile networks of practice usage and benefits from the usage to understand what makes people use mobile technology. To do so, this study utilizes social network theories to introduce the concept of "mobile social capital" for users of mobile technology and its benefits from usage to investigate the question "Do IT artifacts provide users benefits via mobile social capital?"

The current research proposes that mobile social capital is embedded within user-IT artifact interaction, thus differentiating it from social capital and bestowing unique features induced by mobile technology. This research also proposes a link between mobile networks of practice (MNP) and several dimensions of value coming from MNP usage.

A sample of 191 professional LinkedIn users participated in the empirical test. The data from the surveys are analyzed using Partial Least Squares (PLS). This study found that Ability, Motivation, and Commitment have a significant effect on mobile networks of practice (MNP)

usage. MNP usage has the significant impact on Self-reactive, Status, Monetary, Activity, Novel, and Social outcomes. In addition, professional fit as a moderator has a significant effect on the relationships 1) MNP usage and Status outcomes and 2) MNP usage and Social outcomes. This study extends our knowledge of (1) the traditional theories related to technology implementation and value, (2) the impact of mobile technology, and (3) IT artifacts in the IS discipline.

DEDICATION

I dedicate this dissertation to my family, especially

to my father and mother;

to my father-in-law and mother-in-law;

to my sisters and brother-in-laws;

to Hyeyeon and Hyeyul.

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I. INTRODUCTION

In the 21st century, mobile technology is one of the hottest issues regarding innovations that affect social environments in economics and business, but its continued rise in popularity is debated. Many companies have made huge investments to develop new and fast mobile communication devices with a strong conviction that mobile technologies are the next 'killer application' (Buchanan & Farrant, 2001). However, many people don't choose to use a tablet laptop computer even though it is one of the most advanced personal computers with mobile technology (Tuan, 2010). Despite investment and cutting-edge features, the majority of new mobile phone subscribers have adopted low-cost handsets instead of the latest mobile devices (Karjaluoto et al., 2005). According to the U.S. Census Bureau report, only 37% of cell phone users selected a smartphone in 2007. The Census Bureau forecasted the figure would increase by less than 10% in 2008. However, only 24% of cell phone users owned a smartphone in 2010, 27 % in 2011 and 30% in 2012.

Why don't people choose cutting-edge technology in mobile phones? To answer this question, information systems (IS) research has explored the determinants of technology adoption through models such as the technology acceptance model (Davis, Bagozzi, & Warshaw, 1989), task-technology fit model (Goodhue & Thompson, 1995), innovation diffusion theory (Moore & Benbasat, 1991), and unified theory of acceptance and use of technology (Venkatesh, Morris, Davis, & Davis, 2003). The technology acceptance model (TAM), for example, was developed based on the theory of planned behavior (Ajzen, 1991) and looks at the effect of

perceived ease of use and perceived usefulness on one's intention to use technology. Despite past research efforts, new technologies call upon scholars to take another look at their roles in technology adoption.

As newly adopted information technology (IT) changes the workplace (Bruque et al. 2008-9), mobile communication technology, one of the most powerful technology advancements, has transformed the individual usage platform from online to mobile (Gallen, 2008). For example, the number of unique visitors to the Facebook mobile site increased from five million per month in January 2008 to 25 million in February 2009 (Mobile, 2009) and to 845 million monthly active users in February 2012 (Fach, 2012). In addition, global revenues from mobile social networking are predicted to be between $29 billion and $52 billion by 2012 (Mobile, 2009). This phenomenon is accounted for by modern technological development, especially mobile technology, that meets people's lifestyles which are increasingly mobile because of the growing speed of transportation and a subsequent wider geographic reach (Kakihara & Sorensen, 2002). Furthermore, one of the most favorable mobile technology artifacts is mobile social networking which is social networking where actors with similar interests converse and connect with one another using mobile devices. Thus, technology adoption research should undertake to address newly developed technologies and their artifacts, for instance mobile technology and mobile social networking. Including these additional dimensions will carry us toward a more comprehensive understanding of technology adoption and implementation. Finally, this paper will investigate how to make people use IT artifacts, such as social networking sites, by examining how social capital influences usage of IT artifacts and benefits.

STATEMENT OF THE PROBLEM

The purpose of this study is to examine the impact of mobile social capital on usage of mobile networks of practice and the benefits from this usage. This study utilizes social network theory, social ties theory, social capital theory, social response theory, social cognitive theory, and a resource-based view model in order to explore the research question *"Do IT artifacts provide users benefits via mobile social capital?"* Previous studies including TAM have investigated the importance of social influence as a factor to explain innovation adoption and technology acceptance (Moore & Benbasat, 1991; Taylor & Todd, 1995; Venkatesh & Davis, 2000; Venkatesh, Morris, Davis, & Davis, 2003; Venkatesh, Brown, Maruping, & Bala, 2008). However, the evolving understanding of social networks presents opportunities to shed new light on the effect of social influence on the processes of innovation adoption. Previous studies have predominantly restricted the social "referent" to a specific person or a local group of colleagues. For example, potential users are influenced by people who are important to them in their organization (Venkatesh, Morris, Davis, & Davis, 2003). Unlike users in the pre-Internet era, people are now connected with and affected by *networks* rather than a specific actor. Thus, my research suggests that social influence includes influence between users and networks (IT artifacts). The current study terms these networks that are based on mobile devices **"mobile networks of practice"** and these interactions **"user-IT artifacts interaction."** As the characteristics of information technology such as networks of practice and objects of relationships within networks are altered due to changes induced by mobile technology, the determinants of technology adoption should be re-examined. This research suggests that this new insight about social influence can be used to more accurately describe technology adoption and implementation.

CONTRIBUTION

The current research presents important contributions and implications for theory, research, and practice. First, for technology acceptance theorists, this study extends the technology adoption model to recognize the influence of the relationships between users and IT artifacts on technology adoption instead of the impact of inter-personal relationships on acceptance. To extend the theories including technology acceptance theory, the current study describes "mobile social capital," embedded in the interactions between users and "mobile networks of practice" and investigates its unique impact on technology adoption and implementation by demonstrating how innovation induces change in usage context and how context affects technology adoption and implementation. **Mobile networks of practice**, developed in this study, refers to the broader concept of networks of practice where the sharing of practice-related knowledge occurs primarily through mobile-based communication technology. **Mobile social capital**, which also is developed in this study, refers to resources reflecting the character of social relations between users and mobile networks of practice. Second, for the social network theorists, the current study presents meaningful extensions by exploiting new IT phenomena. This research integrates mobile technology into networks of practice and delineates how social ties work differently in mobile networks of practice. Given the distinct features of mobile technology, such as mobility, accessibility, localizability, and personalization, mobile networks of practice have blurred the boundary between "strong ties" and "weak ties." This study argues that weak ties in mobile networks of practice also provide high levels of accurate and expert knowledge as much as strong ties do in previous types of networks of practice.

There are also important implications for researchers investigating the impact of networks of practice on innovation diffusion. The current study delineates how to utilize social

networks theory to explain the processes of technology adoption and implementation by employing mobile social capital as a determinant of IT artifacts usage and benefits from the usage. Previous studies have focused on the relationships between network characteristics and system use (Sykes et al., 2009) rather than the impact of resources derived from networks of practice such as social capital. The framework provided by the current study to evaluate the effect of mobile social capital on networks usage and values will help future researchers utilize social network theory to explain job and organization performance.

To practitioners, innovations and the new market created by them are a major source of concern for many organizations. Mobile technology encourages users to create virtual space that develops knowledge related to innovations. The current research demonstrates how resources such as information created for use in mobile networks of practice affect innovation diffusion. According to a 2007 survey, 51% of American consumers are watching and/or reading content created by others via mobile devices, and 40% of all consumers are creating their own entertainment (August et al., 2007). User-generated content is the cheapest and most powerful marketing method for organizations. Thus, for practitioners, this study will present the opportunity to approach customers through a place created by customers.

User-generated content by mobile technology features two important aspects for practitioners: 1) time sensitive information and 2) mass-personalized information. First, mobile technologies offer real-time information. Accessibility, one of the benefits of mobile technology, provides users time-sensitive information in real-time (Chen & Nath, 2004; Nath, Siau, & Sheng, 2005; Lee & Shim, 2006) as mobile technologies allow users to create and access timely information and services from anywhere at any time. Real-time information and services allow users to make better decisions, enhancing the accuracy of information in context (Nath, Siau, &

Sheng, 2005). This results in greater business opportunities. For example, some insurance companies report increased revenue by 17-21% by implementing remote access to information systems (Chen & Nath, 2004). Therefore, as demand for the right information and services "in context" arises, service providers and content providers are more likely to supply better and more plentiful information and services to increase their revenue. In turn, this increment may be transformed into value that can be used to create the next level of information and services, inherently creating even more value to users.

Second, user-generated information can include personalized feedback about products and services for businesses. Decades ago, people predictably consumed stable amounts of mass-produced products in a mass culture. However, advances in technology have shifted the pattern of consumption by refining lifestyles and fragmenting culture (Castells, 2000). This brings a challenge to firms to understand and meet "hyper-differentiated" consumer demands (Arakji & Lang, 2007). User-generated information that reflects hyper-differentiated consumer demands could be a key factor in understanding these demands. According to reinforcement models, people tend to repeat actions when it brings them positive reinforcement (Ferster, 2002). For example, people in conversation are more likely to talk to a partner who agrees with them (Verplanck, 1955). Joyce and Kraut (2006) show that receiving a response to initial posts in online discussion influences posters' likelihood of posting again. This study predicts that mobile social capital is one of the sources that encourage users to participate in mobile social networking where they post their own information through mobile technology about products and service.

PROPOSITIONS

The following propositions presented below are developed in Chapter II and are diagrammed in Figure 1-1: Conceptual model of mobile social capital and technology implementation and value.

SOCIAL CAPITAL THEORY

Social capital refers to the valuable resources embedded in relations of mutual acquaintance or recognition. Coleman (1988) argues that social capital is a resource that exists in the structure of relations among actors. The principal proposition of social capital is that networks of relationships constitute a resource facilitating members' social affairs and that the network community develops resources which maintain the community and creates productivity or other capital such as human capital. While social capital is normally developed by interactions among people, mobile social capital is generated through relations between actors and mobile networks of practice. While social capital facilitates the actions, communication, and exchange of members with other members, mobile social capital promotes the actions, communications and exchange between actors and mobile networks of practice. Thus, mobile social capital relies on the relationships between people and mobile networks of practice and generates resources such as human and intellectual capital. The overview (in the next chapter) of social capital theory and actor-IT artifact interaction provides the impetus for the following proposition:

Proposition 1: Mobile networks of practice provide an opportunity to accumulate mobile social capital.

SOCIAL COGNITIVE THEORY AND RESOURCE-BASED VIEW

According to social cognitive theory (SCT), expected outcomes of behavior are formed by our own direct experience or mediated by vicarious reinforcement observed in social networks (LaRose & Eastin, 2004). SCT posits that a human behavior is an outcome of reciprocal interactions and that behavior is reinforced by actions in the past (Bandura, 1986), in other words, past experience is an important component of current expectations (LaRose & Eastin, 2004). That is, people's experience is one of the strongest predictors of expected outcomes. The current study suggests that user interaction with mobile networks of practice will affect expected outcomes about mobile networks of practice for future usage. The link of IT usage and outcomes is a feedback loop in which the initial use of an IT results in outcomes and post-adoptive behaviors such as continuous and extended use is reinforced based on the outcomes (Jasperson, Carter, & Zmud, 2005). The current study focuses on the front-end or beginning point of this loop; that is, we conceptualize our dependent variable as expected outcomes of the value derived from usage of mobile networks of practice.

In addition, according to the resource-based view (RBV), firms create value by combining heterogeneous resources that are economically valuable and difficult to imitate (Barney, 1991) . In the IS discipline, RBV considers IT use and IT capabilities as resources and the more they are rare, inimitable, valuable, and sustainable, the more IT business value is created (Mata, Fuerst, & Barney, 1995). Thus, the greater the use of IT, the more likely firm is to create value from IT use. Bringing this down to the individuals level, we suggest that the more a user interacts with MNP, the more value is created for that user.

Proposition 2: Users with greater MNP use are more likely to develop higher MNP value.

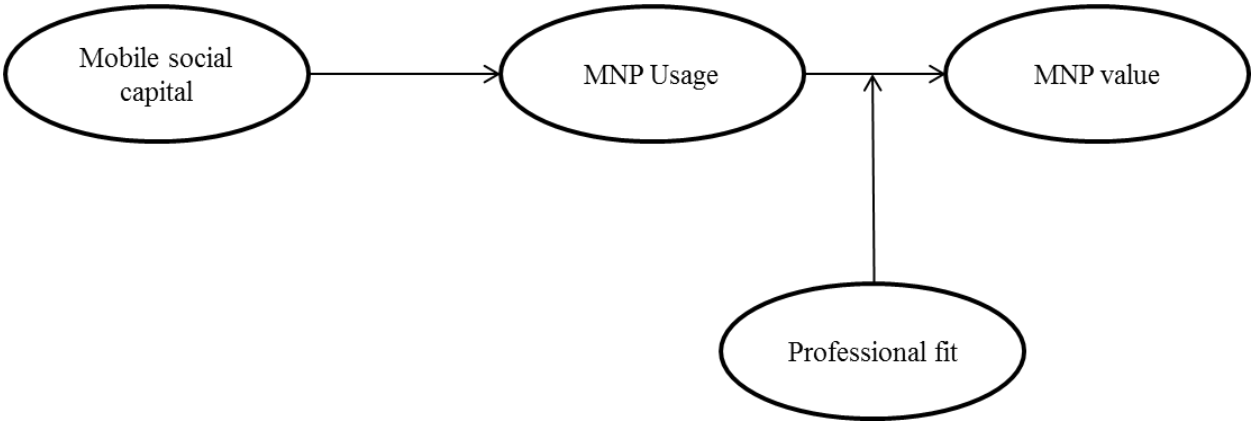


Figure 1-1: Conceptual model of mobile social capital and technology implementation and value.

II. LITERATURE REVIEW

INTRODUCTION

The purpose of Chapter II is to provide an in-depth review of the relevant literature along with social ties theory, social response theory, and social capital theory, as they relate to the development of the conceptual framework, research model, and hypotheses, including new concepts: "mobile networks of practice" and "mobile social capital." The first part focuses on the theoretical background to conceptualizing mobile networks of practice and "user-IT artifact interaction." The term, mobile networks of practice, is developed through the integration of literature regarding networks of practice and mobile technology. With the use of information technology becoming more widespread, people interact with IT artifacts in a way that the current research argues is consistent with interactions with social actors. This interaction affects users' attitude toward technology related to IT artifacts. The next part of this section introduces mobile social capital and its impact on usage of IT artifacts. Mobile social capital embedded within user-IT artifact interaction is characterized by five dimensions: accessibility, ability, motivation, commitment, and trust. Hypotheses are developed to measure the relationships between the five mobile social capital dimensions and usage of IT artifacts. In addition, hypotheses related to the dependent variable, benefits from IT artifacts usage, are developed. Finally, professional fit moderates the relationships between IT artifacts usage and implementation benefits.

CONCEPTUAL DEVELOPMENT OF MOBILE NETWORKS OF PRACTICE

The following section explores the concept of mobile networks of practice. The first part of this section explores the characteristics of mobile technology. Networks of practice have originated from the social theory of "learning in practice." Thus, the following section focuses on communities of practice and networks of practice to conceptualize "mobile networks of practice."

MOBILE TECHNOLOGY

The current study defines mobile networks of practice and mobile social capital as one way of examining in greater depth how mobile social networking is related to users' intention to adopt mobile technology. Mobile technology is a critical factor to theoretically develop mobile networks of practice and mobile social capital because it has transformed ways of interacting with users. The essential features of mobile technology are high levels of mobility, accessibility, personalization, and localizability.

MOBILITY

In the past, users of computing services have been limited to one physical location due to lack of mobility of these services. For example, a user may need to come to his or her office to use computer. However, mobile devices enable freedom from the limitations of space and time. Mobility provides identical or similar services at different sites while the users of these devices are on the move (Lyytinen & Yoo, 2002). Mobility consists of two dimensions: spatiality and temporality (Kakihara & Sorensen, 2002). Spatiality refers to unlimited geographical movement of users, resources, and devices. Temporality includes more than a clock-time perspective, as

time is based on each user's perspective, and this perceived value of time differs in different contexts.

A small size, light weight, and an "always-on" nature are necessary conditions of mobility (Lyytinen & Yoo, 2002). Given the small size and light weight of mobile devices, people can carry them anytime and anywhere (Gebauer & Shaw, 2004). Karjaluoto, et al. (2005), in an empirical study of mobile phones, found that the size of the device is a factor that affects mobile phone choice. Given the always-on nature of mobile devices, users don't hesitate to use them anytime and anywhere - the short delay to activate the device and its portability encourage people to perform computing while mobile.

Given the spatial and temporal freedom of computing services, mobility enables users to make transactions or search for information regardless of location and offers enhanced convenience of information search (Jih, 2007). Users with mobile devices will have a presence everywhere and communicate with each other independent of the user's location.

ACCESSIBILITY

Accessibility, also known as connectivity and reachability, has been used in the study of wireless device characteristics (Ng-Kruelle et al., 2002; Wen & Gyires, 2002). In addition, accessibility and mobility have been combined under "ubiquity" (Akesson, 2007; Friesen, 2002). The present study separates mobility and accessibility as, technically, mobility does not require access to the Internet or other users whereas accessibility always requires accessing the Internet (Phillips, 2008). Therefore, accessibility refers to real-time connection, independent of the user's location and time of access (Clarke III, 2001; Hong & Tam, 2006). Clarke III (2001) argues that accessibility is what differentiates m-commerce from e-commerce. With accessibility, consumers

will go beyond the constraint of time and place when accessing e-commerce. The development of wireless devices has brought a variety of communications applications to users such as short message service (SMS), multimedia message service (MMS), personal message service (PMS) and email. The technologies leapfrog the temporal and spatial limitations of traditional communication methods via asynchronous communication applications such as SMS and MMS. Moreover, transferring graphical information tends to motivate users to share timely and multidimensional information with other users.

Accessibility provides users time-sensitive and real-time data (Chen & Nath, 2004; Nath, Siau, & Sheng, 2005; Lee & Shim, 2006). Mobile technologies allow users to have access to timely information and services from anywhere at any time. Real-time information and services enable users to make better decisions, enhancing the accuracy of information in context (Nath, Siau, & Sheng, 2005). This results in greater business opportunities. For example, some insurance companies project increases in revenue by 17-21% with remote access to information systems such as a 'policy administration and service system' (Chen & Nath, 2004). Therefore, as demand for the right information and services in context arises, service providers and content providers are more likely to supply better and more plentiful information and services to increase their revenue. In turn, each information increment is transformed into value that is incorporated into the next information increment, and services are thus distributed to users with more value.

Accessibility also provides a variety of entertainment services (Harris et al., 2005; Fang et al., 2005). Harris et al. (2005) examined adoption patterns of m-commerce services and showed that entertainment services are one of the important factors in m-commerce adoption. In the midst of the information era, people continuously want to access new information and like to

disclose and gather information in the cyber world through blogging and Internet browsing (Leung, 2004; Oblinger & Oblinger, 2005).

In short, accessibility allows users to have access to a variety of services from anywhere at any time, resulting in greater satisfaction with mobile devices. With mobility, accessibility suggests new paradigms of interaction inspired by widespread access to information and computational capabilities (About & Mynatt, 2000). Maximum benefits to users can be found in situations where they want to instantly interact with others or disclose their feelings or information. Thus, mobile technology with high levels of accessibility meets users' desire to share what they have.

PERSONALIZATION

By definition, users have exclusive access to their mobile platform. A mobile device belongs to only one user and is personalized to that user. Personalization refers to a device, applications, or services that are customized to the owner's preferences and interests. Abowd et al., (1997) suggest that mobile devices rarely incorporate a second user's preference. This personalization offers users the opportunity to receive tailored and personalized marketing messages and information about services and products (Clarke, 2001). From the perspective of companies, personalized services increase customer loyalty and increase their satisfaction, through closer connections (Ng-Kruelle, 2002; Jih, 2007). Service providers are therefore motivated to deliver customized and focused information to each user (Bauer et al., 2005). This motivates users to actively participate in information-seeking activity because they are easily able to search appropriate information with lower search costs.

Identifitiability is a naturally generated characteristic of mobile devices because a device has a built-in ID generated by the service provider (Mahatanankoon, Wen, & Lim, 2005). Due to its identifiability, personalization also provides security for transactions such as the purchase of a ticket, mobile banking, or payment for a soft drink (Zhang, Yuan, & Atcher, 2002). Therefore, the probability of counterfeit use with mobile devices is lower than with other communication and computing technologies. As another example, a payment mechanism may be built into a device with a secure mechanism such as a PIN number or subscriber identity modules (SIMs) (Zhang, Yuan, & Atcher, 2002). This function not only triggers users to make a payment with the device but also provides security. Given the personal identifiability nature, it is possible for a mobile device to provide one-to-one customized service in a specific spatial and temporal context. In turn, this one-to-one communication enables real-time feedback and interactivity (Moore & Benbasat, 1991).

Low search costs due to tailored information also prompt more participation in mobile social networking. Given the personal nature of the mobile devices, individual-oriented communication can have a profound impact on how users interact with people in mobile networks or with the network itself.

LOCALIZABILITY

Services based on geographical position are a distinct characteristic of mobile devices. This gives service providers and content providers a chance to deliver localized information and services to users. Clarke (2001) argues that leveraging location-specific information is the key value of mobile devices. As global positioning systems (GPS) technologies are getting smaller and more affordable, localizability provides rich and relevant information (Zhang, Yuan, &

Atcher, 2002). Location can determine consumers' information needs and service choices (Rao & Minakakis, 2003). These appropriate information demands are localized by the geographic context. In other words, businesses have recognized that consumers in different geographic areas respond to different information and services (Chen & Nath, 2004). Location-based information services are able to transfer value to users by providing contextual information and services such as driving directions and local commercial services where users happen to be (Zhang, Yuan, & Atcher, 2002; Bauer et al., 2005; Akesson, 2000).

The four characteristics about mobile technology are related to each other. When they are synthesized and coordinated, superior mobile services are provided to users. As such, the real-time connection and 'everywhere' presence of mobile technology offers capabilities uniquely beneficial to users. In addition, the advantages presented by the omnipresence of real-time knowledge, localized information, and continual access to networks attract people to communicate with others through mobile devices. Thus, mobile technology-induced advantages have influenced daily life. Significant transformations in people's lives take place with mobile technology when they communicate with others with mobile devices. These situations from IT-induced change have been termed *technochanges* (Bruque, Moyano, & Eisenberg, 2008-9). It is difficult for users of modern technology to anticipate the effect of technochanges on their lives without the recognition of the environmental shift in which users and technology interact. In order to explore mobile networks of practice and user-IT artifacts interaction, this research needs to speak more fully to networks of practice. The following sections discuss mobile technology-induced change in networks of practice and the relationships between users and IT artifacts related to mobile technology.

NETWORKS OF PRACTICE

Networks of practice are referred to as "a group of individuals, loosely connected and often geographically dispersed, who share a common practice" (Taylor & Murthy, 2009, p. 152). The term "networks of practice" stems from communities of practice defined as "groups of people who share a passion for something that they know how to do and who interact regularly in order to learn how to do it better" (Cross, Laseter, Parker, & Velasquez, 2006, p. 33). Communities of practice consist of voluntary participants who are geographically connected. Participation is discretionary; that is, it is not controlled by the leaders who initiate or maintain the community of practice. In addition, communities of practice include geographical proximity among members. This enables frequent and physical contact, allowing people to engage in learning and to exchange knowledge with each other (Cross, Laseter, Parker, & Velasquez, 2006)

Networks of practice are distinguished from communities of practice by methods of contact and by density. While activities in communities of practice are geographically or personally restricted, networks of practice are proposed to extend the domain of community or the reach of knowledge transfer. Thus, unlike a community, which is a group of people in an area and whose main communication channel is face-to-face, a network is an aggregated group of individuals geographically dispersed. The relations among network members are virtual and most of them will never meet face to face (Brown & Duguid, 2001). In addition, networks refer to a group of individuals who are just linked by their social status while networks *of practice* are formed by people who share a common practice. For example, a business school of a certain university may be a community, business schools of universities around the world would be a network, and members of business schools of universities who share common practices can be a network of practice.

Despite the inherent difference from communities of practice, networks of practice share the benefits of communities of practice. Networks of practice provide "privileged sites" for learning, problem solving, and knowledge production. In addition, networks of practice are important repositories for the development, maintenance, and combination of knowledge. Finally, knowledge combination in networks of practice creates more knowledge than the sum of the parts (Brown & Duguid, 2001). Network members provide for one another knowledge that scaffolds knowledge creation in practice.

Given the lack of physical contact and geographical decentralization, networks of practice require coordination via third parties, often in the form of professional associations. Third parties such as conferences and publications enable members to exchange knowledge without physical meetings, strong ties, or members even knowing each other (Brown & Duguid, 2001). With advances in communications technology, the channels of networks of practice have been evolving to use electronic methods such as websites, electronic bulletin boards, blogs, and e-mail. Unlike traditional networks of practice, which are embodied in published journal articles, conference presentations, phone calls, and physical meetings, electronic networks of practice are based on electronic content and channels. Wasko and Faraj (2005) defined electronic networks of practice "as a special case on the broader concept of networks of practice where the sharing of practice-related knowledge occurs primarily through computer-based communication technologies" (p. 37). With faster, cheaper, and broader-bandwidth channels, electronic networks of practice aggregate the knowledge of many people around the world. Moreover, electronic networks of practice reach people in the absence of acquaintance, physical proximity, a history of prior relationships, and demographic similarity (Constant et al., 1996). More formally, Wasko and Faraj (2005) identify two distinct characteristics of electronic networks of practice in terms

of member's activity: 1) self-organizing and 2) open activity system. First, networks of practice are organized by voluntary participation. Second, the term open activity means that participation is open to users who are willing to engage with others to share knowledge and help solve problems common to the practice. In other words, electronic networks of practice refer to an open space, constituted by electronic technology, for anybody who shares common practices to voluntarily exchange knowledge and solve problems. From an organizational perspective, electronic networks of practice include three types of resource flows: asset flows, knowledge flows, and status flows (Chi, Holsapple, & Srinivasan, 2007). Asset flows contain resources such as money, computer systems, and equipment. Knowledge flows involve knowledge concerning business processes, business strategy, and technology. Status flows include influence and legitimacy. Typically, individual mobile social networking rarely includes asset flow because their types of relationships do not support financial aid (Wellman & Wortley, 1990). Thus, in the following sections the current study focuses on knowledge and status flows in mobile networks of practice.

Another distinction of electronic networks of practice is the lack of personal interaction and strong membership of a specific network. Theory of organizational motivation suggests that direct relationships among members motivate them to help others in a large organization (Shamir, 1991). The theory assumes that people are related and that people have loyalty to organizations. Virtual relationships do not normally meet these two assumptions. However, even though electronic networks of practice include neither strong ties like personal relationships nor physical contact, social relationships and knowledge transfers do take place in electronic networks of practice. How can this happen in electronic networks of practice? In networks literature, weak ties and social capital account for stranger's help and knowledge contribution in electronic

networks of practice (Constant et al., 1996; Wasko & Faraj, 2005). Constant et al. (1996) argue that a diversity of contributors enhances the usefulness of advice for solving problems. Thus, people tend to find useful information from electronic networks of practice and, as a result, tend to help others. Wasko and Faraj (2005) describe knowledge contribution by strangers in electronic networks of practice using social capital and individual motivations. To summarize, knowledge contributions are motivated by the social capital embedded in these virtual social relationships.

Montazemi et al. (2008) argue that actors within networks use direct ties to acquire knowledge that they need. Direct ties create reciprocal exchange between actors, and relationships are maintained by creating trust and a sense of obligation from social relationships. Social capital is embedded in the relationships and facilitates knowledge transfer and other social activities. However, given the discussion above, indirect ties (arm's-length ties) can enable actors to obtain information with less time and mutual obligation because they are characterized by weakness and diversity. Thus, arm's-length ties provide an effective and efficient method to gather public knowledge which is scattered throughout the network.

MOBILE NETWORKS OF PRACTICE

Building upon the general description of networks of practice and mobile technology literature, this study defines "mobile networks of practice" as the broader concept of networks of practice where an aggregation of individuals interact primarily through mobile-based communication technology. Unlike traditional networks, mobile networks of practice have blurred the line between strong ties and weak ties. In mobile networks of practice, actors are

connected and interact with *networks* rather than individual actors. In the 'user-IT artifact interaction' literature, humans tend to respond to computers and to bestow gender and personality to IT (Nass, Moon, & Carney, 1999; Nass & Moon, 2000). Given the nature of mobile technology, people can access networks anytime and anywhere. This implies that real-time information and responses can be generated through multiple actors simultaneously due to the absence of communication traffic. In addition, one of the features of information generated via mobile networks of practice is localized information, which enables actors who do not visit a particular area to acquire localized information about the area anytime and anywhere.

SOCIAL TIES IN MOBILE NETWORKS OF PRACTICE

Social tie theory examines the impact of the strength of ties among actors on activity in networks. Strong ties enhance efficiency of knowledge transfer (Burt, 1997) by assembling relevant knowledge and expertise (Cross & Cummings, 2004) and allowing actors to gather information quickly (Pil & Leana, 2009), providing redundant information. On the other hand, weak ties contribute a diversity of knowledge. Granovetter (1973) suggests that strong ties contribute to the *vertical* accumulation of knowledge while weak ties contribute to the *horizontal* expansion of knowledge. Bridges in the weak ties literature play a critical role in information flow among cohesive clusters. In other words, bridges represent relationships between people who belong to different groups and whose relationships are not as strong as the relations between people who belong to the same group. These bridges represent the *possibility* of information exchange between different groups (Granovetter, 1973).

Unlike networks of practice, mobile networks of practice feature different types of social ties due to distinct interactions in networks of practice. Mobile technology enables actors to connect with users anywhere in the world even though they don't know each other and don't

realize that they are connected to each other. This implies that the target audiences are public rather than a specific target such as friends. The notion of strength of a tie is described by interaction time, emotional intensity, intimacy, and reciprocal interaction (Granovetter, 1973). That is, strong ties represent high levels of these four elements while weak ties indicate the opposite. Mobile social networks can link people in the absence of acquaintance, physical proximity, a history of prior relationships, emotional closeness, and demographic similarity. Thus, people in mobile networks of practice are not connected through strong ties. At the same time, people in mobile networks of practice are not weakly connected. Users' interaction with networks is not temporary but through ongoing social relationships. From this perspective, ties in mobile networks can be both strong ties and weak ties because people are not emotionally and intimately related, but they frequently and continuously interact with networks.

Based on the argument above, mobile networks of practice include both types of tie *simultaneously*. While weak ties that play the broker between networks allow for the accumulation of a diversity of knowledge (Granovetter, 1973), strong ties facilitate knowledge transfer and encourage actors to share intimate information. Until recently, there were few studies of the effect of social ties in mobile networks of practice on technology adoption. Studies of social ties have not given scrutiny to the impact of mobile technology-induced change on networks, ways of communication, and technology adoption. The gap may arise due to the lack of understanding technochanges when exploring newly developed networks. In order to explore the contribution of social ties theory to mobile networks of practice, the current study proposes to examine mobile networks of practice as IT artifacts and to explore the outcomes of interactions of users with this artifact. This research discusses IT artifacts in the next section.

IT ARTIFACTS

In the early 2000s, scholars within the information systems discipline wrote about the "identity" of the field. To settle relevance issues in the IS field, Straub and Watson (2001) argued that study in the IS domain must include at least one IS variable in a model and challenged researchers to study the essential characteristics of IS. Similarly, Orilikowski and Iacono (2001) point to the lack of centrality of a core subject matter, information technology (IT), from IS publications. Thus, conceptualizing information technology "artifacts" (IT artifacts) is crucial to ensuring the rigor and relevance of research in the IS discipline. IT artifacts are defined as "bundles of material and cultural properties packed in some socially recognizable form such as hardware/software" (Orlikowski & Iacono, 2001, p.121). IT artifacts are created by being newly developed or evolve by being integrated with legacy artifacts (Baxter & Berente, 2007). For these reasons, the current study proposes that mobile networks of practice be recognized as an IT artifact developed in conjunction with mobile technology whose impact should be made a part of IS research (Benbasat & Zmud, 2003; Whinston & Geng; 2004).

Conceptualizing technology in the IS field is a starting point for theorizing about IT artifacts by Orlikowski and Iacono (2001). They developed five broad metacategories of technology by reviewing 188 articles published in the journal *Information Systems Research* (ISR). These five metacategories are: the tool view, the proxy view, the ensemble view, the computational view, and the nominal view.

First, from the tool view, technology is an engineering artifact, expected to do what its designers intend it to do. This view has largely emphasized the technical aspect of technology. Technology, separated from users, is definable and unchanging. In addition, technology is a tool equipped with information processing capabilities. Orlikowski and Iacono (2001) found four

categories of the "tool" view: as a tool for labor substitution, a tool for enhancing productivity, a tool for information processing, and a tool for changing social relations. Technology is assumed to replace labor through mechanization and automation. Mechanization and automation as critical features of technology improve productivity by increasing speed and accuracy. Beyond the view of labor substitution and enhanced productivity, technology is to alter and enhance the ways of information processing. Technology enables people to communicate with hundreds of people simultaneously through a variety of forms such as text, pictures, and videos. From a perspective of changing social relations, technology shifts social networks, communication patterns, and work activities associated with the introduction of new technologies that offer different capabilities.

Second, the proxy view has focused on key elements in common that are understood to represent the essential aspect, property, or value of the information technology. Researchers with this view argue that the critical aspects of information technology can be captured through some set of surrogate measures such as individual perceptions, diffusion rate, and capital. For example, information technology can be defined by measures of users' perceptions of the technology or by measures of diffusion. Similarly, the researchers who adopt this view may focus on how many people in organizations are using electronic data interchange. The last category of the proxy view of technology measures technology through the costs associated with the technology.

The ensemble view is the third view of the conceptualization of technology. Under this approach, technology is understood through dynamic interaction between people and technology. This stream focuses on how the differential use of a system is influenced by a variety of cultural and social factors. In this conceptualization, technology is represented as a development project in terms of the social processes of designing, developing, and implementing technical artifacts in

a specific organizational context. In addition, technology is conceptualized as a production network and embedded system. The former focuses development of new technology through collaboration among inventors, researchers, organizations, and governments while the latter understands technology as an evolving system embedded in a complex and dynamic social context.

The fourth conceptualization is the computational view of technology. Unlike the ensemble view, this view concentrates on the computational power of information technology related to the capabilities of the technology to represent, manipulate, store, retrieve, and transmit information, thereby supporting, processing, modeling, or simulating aspects of the world. Two types of conceptualizations are included in this view: technology as algorithm and technology as model. First, technology that is considered an algorithm is applied to build new or enhance existing computational systems. Second, data modeling or simulation that focuses on developing mathematically specific mechanisms, techniques, and approaches to explain social, economic, and informational phenomena is another type of technology in this view.

The last view of conceptualization of technology is the nominal view of technology. From this view, IT artifacts are not described, conceptualized, or theorized. Technology is the 'omitted' variable.

Based on the five technology metacategories, Orlikowski and Iacono (2001) propose five premises in theorizing about IT artifacts. First, IT artifacts are not natural, neutral, universal, or given but are designed, constructed, and used by people who have different interests, values, and assumptions. Second, they are always associated with historical and cultural aspects. Thus, their impacts differ with regard to time and space. Third, they consist of a multiplicity of fragmentary

components. It is important to understand each piece as well as the whole of IT artifacts. Fourth, they are ongoing social and economic practices that experience various transitions over time, evolving alone or with new technology. Finally, they are dynamic. The stability of IT artifacts is fragile because of new materials, new functions, and different usage. Thus, IT artifacts are embedded within contexts where inventors, developers, and users' interests, values, and assumptions are permeated and are kept modifying or evolving by historical and cultural ongoing interactions.

Building on Orlikowski and Iacono's (2001) five premises, Benbasat and Zmud (2003) emphasize IT artifacts as a solution to identify a core research agenda in IS field. They conceptualize IT artifacts as "the application of IT to enable or support some task(s) embedded within a structure(s) that itself is embedded within a context(s)" (p. 186). Their definition incorporates four elements of IT artifacts: IT, tasks, structures, and contexts. For example, a man-made online service website that is considered the IT artifact includes the four elements (Kang & Lee, 2010). An online service website contains PCs, browsers, and Internet connections as IT. 'Task' is to share information and task structure includes interaction etiquette and rules. Finally, task context involves membership rules, members' interests, and membership values and norms.

Conceptualizing mobile networks of practice as IT artifacts helps to extend the IS discipline by including newly-introduced phenomena (Whinston & Geng, 2004). The current research proposes that mobile networks of practice produced by mobile technology have emerged as new IT artifacts and require the work of IS scholars to explain their role and impact on technology adoption. Benbasat and Zmud (2003) argue that IS research should include at least one construct intimately related to an IT artifact and propose a nomological net (network),

including the constructs intimately related to them (Figure 2-1). However, in Benbasat and Zmud's nomological net, the object of impact of the IT artifact is not addressed. The current study proposes that mobile social capital is an outcome of the interaction between users and the IT artifact encompassing these mobile networks of practice and that this mobile social capital affects mobile technology adoption. By utilizing the concept of the IT artifact, this research extends the boundary of IS research and results in a more complete understanding of adoption of mobile technology.

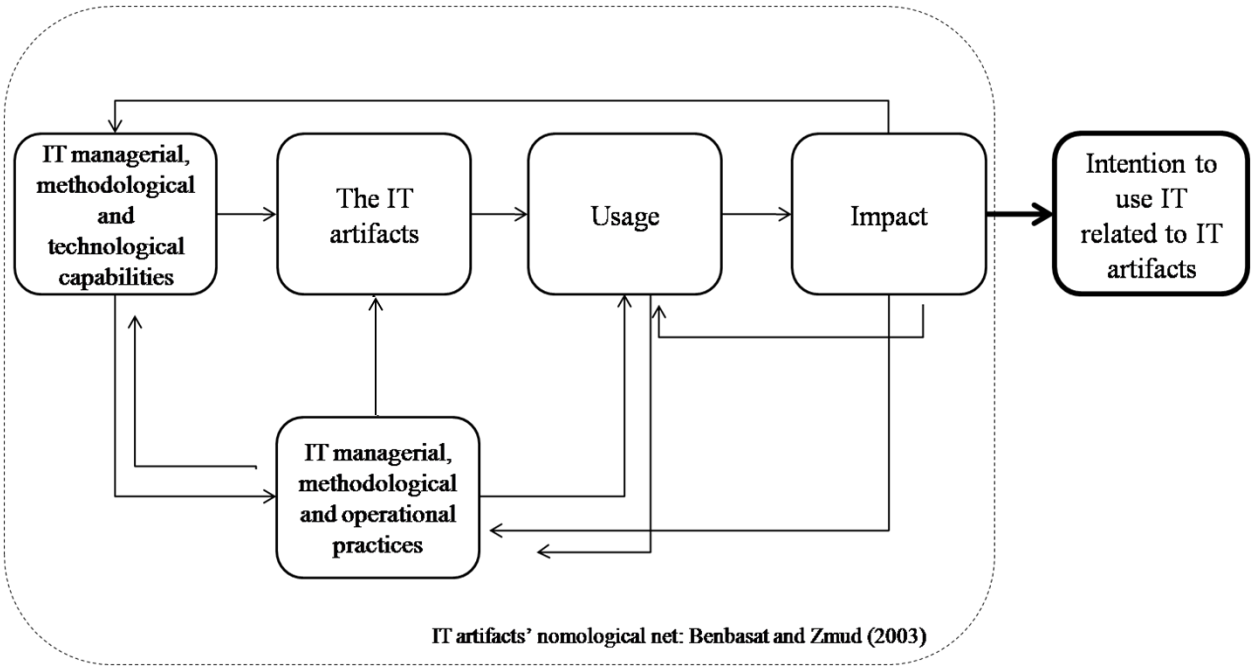


FIGURE 2-1: EXTENDED IT ARTIFACTS' NOMOLOGICAL NET

USER-IT ARTIFACTS INTERACTION

Recent research about IT artifacts suggests their use beyond just tools to improve productivity. Technology advancements have evolved the role of IT artifacts to meet users' expectations and requirements. Baxter and Bernte (2007) demonstrate how new IT artifacts are accepted, adapted, and embedded in practice where they already exist, emphasizing intimate

cognitive relationships between designers and the artifact. In-depth case study identifies four themes associated with embedding a new artifact: 1) systems designers' motivation of artifacts, 2) anchoring new artifacts in relation to the old, 3) building trust in artifacts, and 4) unlearning past practices. The first theme confirms that IT artifacts are not neutral but affected by different users' interests, values, and assumptions. The second theme shows that IT artifacts are ongoing due to continuous transition through social interactions with legacy IT artifacts. Vance, Elie-Dit-Cosaque, and Straub (2008) found empirical support that trust exists not only between people but also between people and IT artifacts. As people interact with IT artifacts, their perception toward them is transformed by relying or depending on them and by perceiving them as more than just tools. Based on the dynamic perspective, Al-Natour and Benbasat (2009) argue that the nature of IT artifacts has shifted from utilization, such as productivity and performance, to social actors. Thus, IT artifacts, as social actors, should be evaluated with measures beyond the scope of productivity (e.g., usefulness).

Research investigating in greater depth how IT artifacts, as social actors, interact with users and the relations impact users' technology adoption has two benefits: 1) extension of the traditional technology adoption model and 2) extension of the IT artifact discussion within the IS discipline. First, the traditional model of technology adoption such as the technology acceptance model (TAM) and innovation diffusion theory should incorporate new constructs to explain the role of IT artifacts as communication mediators in the technology adoption process. For instance, one of the 'IT artifacts as social actor' is the online network, such as online social networking sites (Kang & Lee, 2010) which allow users to share a variety of information regardless of topic including personal information (Casteleyn, Mottart, & Rutten, 2009). Moreover, this study proposes that mobile networks of practice induced by mobile technology have emerged as a

novel and radical IT artifact facilitating communication among users all around the world. The current study proposes that mobile networks of practice as social actors affect technology adoption through the user- IT artifact interaction in which mobile social capital lies. Unlike social capital, mobile social capital is embedded within user-IT artifacts interactions. This distinguishes mobile social capital from social capital by differentiating its origin and bestowing unique features induced by mobile technology. Thus, the present study predicts a unique role of mobile social capital in the adoption of technology; that is, conceptualizing mobile networks of practice enhances the explanation of the process of technology adoption by incorporating features of IT artifacts.

THEORY OF SOCIAL RESPONSE

The theory of social response can be used to help conceptualize IT artifacts as social actors. According to this theory, people are social animals and are socially oriented. This nature of people is also associated with non-human beings that exhibit human-like characteristics. For instance, people tend to apply social norms to computers and perceive computers as gendered social actors even though they know that this is inappropriate (Nass, 1994). Despite this dissonance, social responses to computer technology can occur subconsciously and automatically (Moon, 2003). Social response theory asserts that when technology represents a set of characteristics associated with humans such as communication and interactivity, people tend to respond by exhibiting social behaviors and making social attributions (Moon & Nass, 1996). Nass et al. (1999) used a series of experiments to demonstrate that people consider computers as social actors; in their study, participants tended to have consistent attitudes and behaviors toward computers but exhibited distinct attitudes and behaviors only to certain computers. In addition, relationships between users and technology psychologically differ from the relationships

between users and the person(s) behind the technology (Moon, 2000). In other words, a computer can become a social actor, as a human being does during social interactions. These interactions are dynamic relationships and past interactions have subsequent effects on future interactions. One of the most likely explanations for this phenomenon is that "…these social responses are neither a result of user's ignorance about computers nor a result of any psychological or social dysfunction; rather, computers are treated as social actors even when users know that machines do not possess feelings, intentions, "selves," or human motivations" (Moon, 2003, p. 127). Thus, based on discussion above, the current study proposes that mobile networks of practice could be considered social actors. Similarly, mobile social capital is proposed to develop from the interactions between users and mobile network of practice. The following section discusses social capital and defines mobile social capital.

CONCEPTUAL DEVELOPMENT OF MOBILE SOCIAL CAPITAL

The following section defines the concept of mobile social capital, drawing upon research on social capital. The first part of this section explores social capital and its impacts on social networking. Based on an examination of social capital, this study defines mobile social capital and develops hypotheses for empirical testing.

SOCIAL CAPITAL

The concept of social capital has made its way into a wide range of social science disciplines. Multiple disciplines apply the concept of social capital to explain questions that develop in their own fields. Through diverse applications, the original meaning of the term and its heuristic value have been tested and extended. The term "social capital" was originally developed to describe relational embeddedness inside the family (Burt, 1997). Recent research has applied the concept to a broad range of social phenomenon, including the benefits to

organizations (Nahapiet & Ghoshal, 1988; Reed & Srinivasan, 2005), organization performance and turnover (Dess & Shaw, 2001), career success (Seibert, Kraimer, & Liden, 2001), ventures performance (Florin, Lubatkin & Schlze, 2003), and the benefits of group social capital (Oh, Lanianca, & Chung, 2006).

Early studies focused on conceptualizing social capital in terms of a resource developed and maintained by social relationships and used for creating other resources. Thus, social capital refers to the valuable resources embedded in relation to mutual acquaintance or recognition. Coleman (1988) argues that social capital is a resource that exists in the structure of relations among actors. Nahapiet and Ghoshal (1988) define social capital as "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit" (p. 243). Nahapiet and Ghoshal (1988) propose that social capital is developed to explain the resource from the relationship of a network based on trust, cooperation, and collective action. The principal proposition of social capital is that networks of relationships constitute a resource facilitating members' social affairs and that the network community develops resources that maintain the community and creates productivity or other capital such as human capital. That is, members of a community can access the resource by meeting the obligations of being a member of the community.

As a new concept, social capital has been conceptualized through comparison with other capitals. Social capital is developed by changes in the relationships among people, while physical capital is created by changes in materials, and human capital is created by changes in persons. In addition, whereas the purpose of physical capital is to facilitate production and human capital makes people able to act in new ways, social capital facilitates the actions of members in a social community. While human capital is embedded in an individual as skills and

knowledge, social capital exists in relationships among people. Thus, social capital relies on the relationships among social community members, is created and maintained by the continuous effort of members, and generates resources such as human and intellectual capital (Coleman, 1988).

Another stream of research upon which social capital has concentrated is the morphology of social capital. Portes (1998) proposes two elements of social capital: (1) the social relationship, which allows members to access resources possessed by their relationships and (2) the amount and quality of those resources. Furthermore, Portes suggests that a systematic analysis of social capital must distinguish among (1) "the possessors of social capital" (e.g., family, social community, and country), (2) "the sources of social capital" (e.g., norms and obligations), and (3) the effects of social capital (e.g., access to knowledge). Using a different approach, Nahapiet and Ghoshal (1988) suggest three dimensions of social capital: structural, relational, and cognitive dimensions. The structural dimension embodies the impersonal properties of the network of relations as a whole and refers to the overall pattern of connections between actors in terms of measures such as density, connectivity, and hierarchy. In contrast, the relational dimension describes the kind of personal relationships developed from interactions among community members. The relational dimension influences members' behaviors such as behavior based on respect and friendship, trust and trustworthiness, norms, sanctions, identity, and identification. The last dimension, cognitive, refers to resources providing shared representations, interpretations, and systems of meaning among members. These resources constitute intellectual capital, including shared language, codes, and narratives.

Adler and Kwon (2002) present six characteristics of social capital. First, social capital is a long-lived asset that can be developed with other resources. Social capital can create human

capital (Coleman, 1988), and social and human capital is utilized for new resources (Pennings, Lee, & Witteloostujin, 1998). Second, social capital is both appropriable and convertible. In other words, social capital can be used for diverse purposes. Social capital is appropriate for sharing emotion among friends and information among workers in an organization. At the same time, social capital can be convertible for diverse purposes. Social capital from friendships can be applied to create financial benefits. Social capital from hierarchical relationships in an organization can be used for creating personal relationships or aiding organizational performance. Third, social capital can be a complement of other resources. As a complement, social capital can reduce transaction costs between organizations or partners leading to economic efficiency. Fourth, social capital charges a maintenance fee. Due to unpredictable depreciation, social capital requires continuous efforts to sustain it. Fifth, social capital is a public good, which is not diminished by consumption. Last, social capital is embedded in relationships rather than actors. Moreover, it does not belong to a specific actor. Sixth, it is hard to measure investment to develop social capital. Even though social capital can be measured, the contribution of social capital has multiple aspects that are not easy to measure because relationships among people include immeasurable factors.

Studies regarding the consequences of social capital have revealed "information" and "influence" benefits. Burt (1997) suggests that social capital is a function of brokerage opportunities in a network and defines social capital as "the information and control advantage of being the broker in relations between people otherwise disconnected in the social structure" (Burt, 1997, p. 340). He argues that social capital is the asset provided by an individual's position in networks. An actor's benefits from networks vary based on position. Actors with more strong and weak ties can access more information than others (access benefit), acquire

information earlier than others (timing benefit), and have more power to include others for new opportunities (referral benefit). That is, "better connected people enjoy higher returns" (Burt, 2000, p. 3).

MOBILE SOCIAL CAPITAL

The current study has developed the construct "mobile social capital," defined as a resource reflecting the character of social relations in actor-IT artifact interaction. Mobile social capital is an asset that can benefit the actors (e.g., having information and enhancing IT usage skill) and innovation related to mobile networks of practice (e.g., adoption and implementation). In describing mobile social capital, the present research defines actors as members who have interaction with mobile networks of practice. Consistent with social capital, mobile social capital is also a moral resource, the supply of which increases rather than decreases with use. While social capital is normally developed through interactions among people, mobile social capital is generated through relations between actors and mobile networks of practice. While social capital facilitates the actions, communication, and exchange of members with other members, mobile social capital promotes the actions, communications and exchange between actors and mobile networks of practice. Thus, mobile social capital relies on the relationships between people and mobile networks of practice and generates resources such as human and intellectual capital.

However, mobile social capital has distinct benefits aside from those based on social capital (Burt, 1997). Social capital provides access, timing, and referral benefits in terms of information. However, mobile social capital distributes the benefits to more actors in networks because mobile social networking gives all actors identical content and contacts with others. Any actor who has greater benefits from his/her positions with more connections can be a manager in a network. Thus, Burt's (1997) argument that social capital varies on a position in a network is

not effective in a mobile social networking setting. In addition, even though mobile social capital is an asset derived from positions in networks, benefits such as access, timing, and referrals are less likely to vary with position. The benefits will be affected by an actor's willingness to access networks, an actor's ability to find, interpret, and apply information, and an actor's attitude toward networks.

Consistent with the fundamental proposition of social capital theory, mobile social capital provides an opportunity for actors to access resources embedded in relationships between actors and IT artifacts, that is, mobile networks of practice. This is adapted to the current study context, suggesting that accessibility, as a structural dimension of mobile social capital, refers to the conditions to access resources in mobile networks of practice. Ability is conceptualized as cognitive mobile social capital and is developed through shared culture and norms. In mobile networks of practice, shared culture and norms help actors to participate in mobile networks of practice by enhancing actors' capabilities of performing actions. Relational mobile social capital is identified by three dimensions: motivation, commitment, and trust. In addition, relational social capital posits that people are motivated by expectations of receiving some value from contributing to a network's activities (Constant et al., 1996). Mobile social capital also motivates actors to participate in activities by generating both expectation and obligations simultaneously. Social exchange theory asserts that an expectation about social rewards makes people engage in social interaction. Commitment exists when actors desire to maintain relationships with mobile networks of practice. Trust, one of the relational social capitals from Nahapiet and Ghoshal's framework, is adapted for use here. While trust in their study is realized at an organizational level and exists between and among actors, trust in the current study is found within the relationships between actors and the IT artifact (mobile networks of practice) and its contents.

This research discusses the five dimensions of mobile social capital in detail and develops corresponding hypotheses in the following section.

III. RESEARCH MODEL AND DEVELOPMENT OF HYPOTHESES

In this section, we build our research model based on the theories discussed above. The research model is based on an extended conceptual model including a moderator and is diagrammed in Figure 3-1.

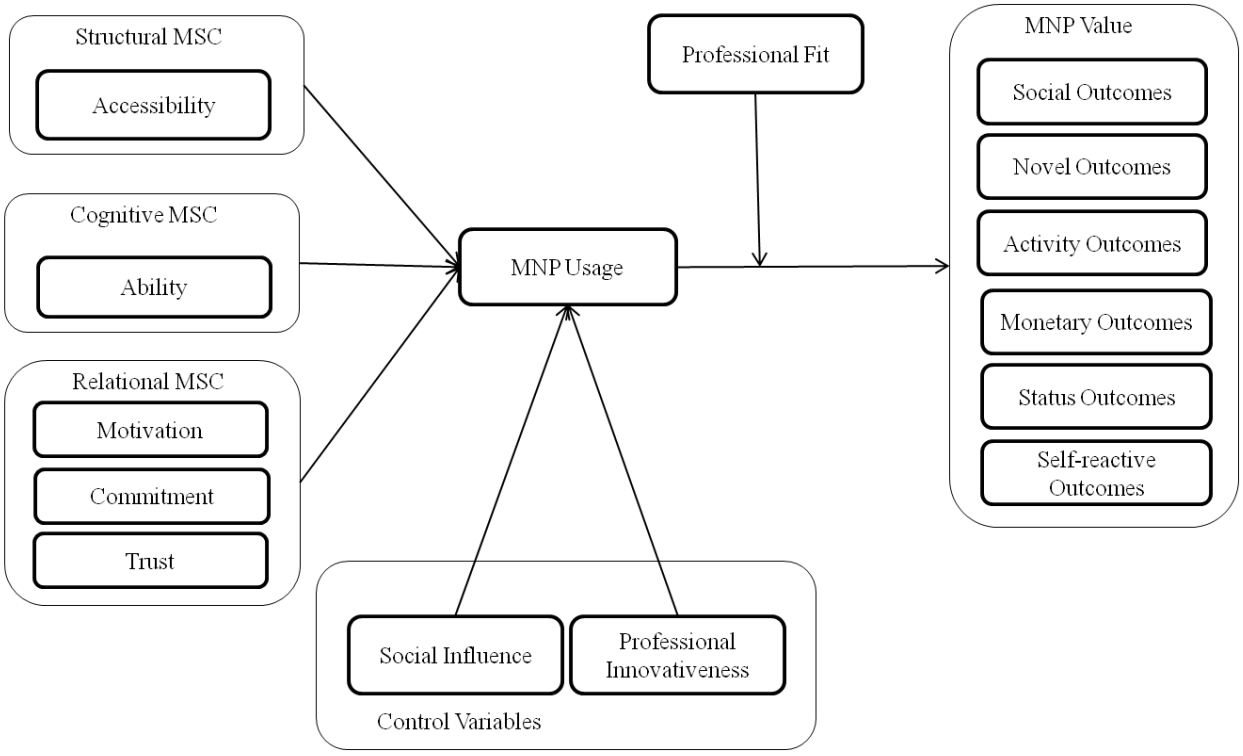


FIGURE 3-1: EXTENDED CONCEPTUAL MODEL INCLUDING MODERATOR

ACCESSIBILITY

The literature on social capital has identified three dimensions for this construct: structural, cognitive, and relational dimensions. Structural social capital refers to actors' interactions within and between networks. Interaction ties are characterized by network ties,

networks configuration, and appropriate organization (Nahapiet & Ghoshal, 1998). Network ties, as a fundamental component of social capital, provide access to resources within relationships between/among actors. Network configuration refers to the properties of a network's structure, such as density, connectivity, and hierarchy. While ties provide the channels of resource-transfer, network configuration directly contributes the processes of developing resources. That is, social ties create opportunities for social capital transactions (Adler & Kwon, 2002), and network configuration provides the mechanism for generating resources. Ties have different influences on the development of social capital depending on the extent of their strength (Burt, 1997; Cross & Cummings, 2004 ;Granovetter, 1973; Pil & Leana, 2009). While closure provides cohesiveness for social capital as well as benefits such as efficiency within an organization or community, weak ties provide a diversity of knowledge (Adler & Kwon, 2002).

Mobile networks of practice dilute the impact of strong ties and modify the effects of weak ties due to the nature of mobile technology and the virtual community. Mobile technology connects millions of people around the world, even though these people do not necessarily know each other (Clarke III, 2001; Lyytinen & Yoo, 2002). People still tend to reveal information about themselves in a virtual community (Schau & Gilly, 2003). As a result, even though people are weakly tied, mobile networks of practice derive benefits from both strong and weak ties including knowledge transfer efficiency *and* a diversity of knowledge (Burt, 1997; Nahapiet & Ghoshal, 1998). From the perspective of strong ties, a large number of ties represents the large number of available routes for the diffusion of knowledge (Weenig, 1999), which makes knowledge transfer efficient. That is, the diffusion of knowledge proceeds faster as actors contact networks more frequently. According to weak ties literature, the larger the number of ties, the larger the number of available resources, which provides actors with a diversity of knowledge.

Accessibility as structural mobile social capital characteristically produces efficiency of communication or an exchange of resources and a variety of information including intimate information through wide and weak ties.

Based on social capital literature, the current study proposes *accessibility* is an important facet of structural mobile social capital, defined as the extent to which actors are able to access mobile networks of practice. Given the transferable nature of social capital (Nahapiet & Ghoshal, 1998), social capital in physical networks can be transferred to mobile networks of practice. In addition, the aggregation of the social capital of an individual can be transferred into networks (Burt, 2000). This phenomenon can be observed from user-IT artifact interaction. Mobile social capital in mobile networks of practice is also an accumulation of the social capital of individuals. That is, users can access all the information in mobile networks of practice through interaction with networks rather than individual connections with each source provider. The more users access networks, the more information is accumulated. Thus, people are more likely to participate in mobile networks of practice to obtain broad and in-depth information.

Hypothesis 1: Accessibility is positively related to mobile networks of practice (MNP) usage.

ABILITY

Cognitive social capital is related to shared norms and culture from an individual perspective and shared vision and goals based on a group or organizational point of view. Shared goals represent "the degree to which network members share a common understanding and approach to the achievement of network tasks and outcomes" (Inkpen & Tsang, 2005, p. 153). The main theme of cognitive social capital is that actors who have a shared mental framework

with others can share information more efficiently and effectively (Lee, Wong, & Chong, 2005). One of the key benefits of cognitive social capital is solidarity, the willingness of actors to subordinate their needs to the goals or the objectives of the relationships (Atuahene-Gima & Murray, 2007). Given the difference in viewpoints and ideas among actors, cognitive social capital diminishes misunderstandings. This promotes frequent interaction and develops intellectual capital. Shared culture refers to shared behavior governed by relationships (Inkpen & Tsang, 2005). Shared culture is interchangeable with shared norms, which sometimes create obligations to do things in a way expected by relationships or networks. Shared language or codes are discussed as one of the cognitive social capital components that also provides the attainment of shared understanding between actors (Lee, 2009). Shared language forms perceptual codes and provides a frame of reference. Shared language and culture makes it possible for actors to communicate with each other thorugh predictable codes.

Consistent with the notion that cognitive social capital facilitates communication between actors through shared references, mobile cognitive social capital also promotes communication by improving the ability to communicate with each other. However, unlike physical networking, the communication method of mobile social networking is characterized as being asynchronous and having indirect digitalization and disembodiment. Therefore, to participate in mobile social networking, actors require a level of skill to create, post, and read content. In addition, because of the diversity of mobile social networking contexts (such as agents and topics), each mobile network of practice has a unique norm and culture in creating, posting, reading, and replying to content. Thus, ‘ability’ as mobile cognitive social capital includes not only cognitive ability to absorb norms and culture but also technical ability to create, post, and read content. In other

words, ability is the resource that makes shared interpretations possible through shared methods of interacting with content based on shared norms and culture.

Mobile cognitive social capital depends on shared language and culture more than on shared visions and goals. Given the nature of social networking, mobile networks of practice often focus on sharing information for fun rather than achieving a goal in organizations. The main communication method in mobile networks of practice is asynchronous interaction such as texting. Actors create and post articles, and others read and reply to them. According to social presence theory, the appropriate level of social presence during communication facilitates completion of a task (Fulk & Steinfield, 1990). Electronic communication typically contains lower social presence than face-to-face communication (Miranda & Saunders, 2003). In other words, mobile social networking's low social presence communicates norms and culture through typed text in reading and replying to content, which is the only communication method. That is, the more they share norms and culture embedded within the contents, the more easily and more often actors interact with contents in mobile networks of practice. Shared norms and culture provide actors the ability to perform activities based on a shared reference or mental framework (Adler & Kwon, 2002). Thus, mobile cognitive social capital is operationalized as the ability to perform activities such as creating, posting, and reading articles in mobile networks of practice by improving the capability of performing activities in mobile networks of practice. This leads to Hypothesis 2.

Hypothesis 2: Ability is positively related to MNP usage.

MOTIVATION

Relational social capital refers to the affective nature of the relationship between/among actors, which facilitates exchanges of resources with actors. Relational social capital exists when actors have a positive and strong identification with actors as well as networks (Wasko & Faraj, 2005). Identification represents the processes of becoming one with another person or group of people by developing a comparative frame of reference (Nahapiet & Ghoshal, 1998). The current study conceptually recognizes three dimensions of relational social capital: motivation, commitment, and trust.

Regarding motivation, a key question in mobile networks of practice is what motivates donors to help recipients in the absence of immediate or certain returns. In addition, why would actors respond to a request for knowledge from a stranger in a mobile network of practice that has very low social presence? Theories of prosocial motivation recommend two approaches to investigate this (Constant, Sproull, & Kiesler, 1996). First, the standard rational actor model posits that all actors are identically motivated by self-interest (Adler & Kwon, 2002). People are not only utilitarian but also self-expressive of feelings, attitudes, emotions, and self-concept (Shamir, 1991). Behavior driven by self-expression enables actors to gain self-esteem by helping others or responding to others in networks. In addition, people are motivated to obtain and maintain a sense of self-consistency (Shamir, 1991). Self-consistency refers to a continuity of self-concept from past to future. Once actors mentally get self-rewards by helping others, they want to maintain this psychological state by continuing to help others. Thus, the benefits from satisfying self-desire motivate actors to participate in mobile networks of practice. Second, formalistic sociology posits motivation as an effect of network structure (Adler & Kwon, 2002), such as organizational citizenship and norms of generalized reciprocity (Constant et al., 1996).

This suggests that people who have a strong organizational orientation are more likely to feel a responsibility to respond to others (Constant et al., 1996). This accounts for socialization, shared destiny, and enforced trust (Portes, 1998).

As it applies to social networks, motivation can also be represented as consummatory motivation and instrumental motivation. Consummatory motivation represents socialization; for example, socialization makes people obey traffic rules (Adler & Kwon, 2002). This causes people to feel an obligation to behave in this manner through internalized norms. Another dimension of consummatory motivation is bounded solidarity. For instance, bounded solidarity motivates wealthy members to endow a church anonymously. Bounded solidarity is salient in mobile networks of practice; for instance, when actors with more knowledge may be willing to provide knowledge to help others in networks (Wasko & Faraj, 2005).

Instrumental motivation might be less obviously active in mobile networks of practice. We suggest that actors may not expect direct rewards from their contribution and aid for others. Donors may believe that they may receive rewards from someone in the future. A prominent type of reward in mobile networks of practice is having access to knowledge or information. For example, actors are able to have access to information about nearby restaurants. The information is either real-time information through synchronous communication or cumulative information via asynchronous interaction. This reward is not a direct compensation corresponding to contribution to knowledge in mobile networks of practice; however, the belief of having access to knowledge or information can be psychologically rewarding. This internalized belief as a perceived reward may motivate actors to participate in activities and to help others.

In this study, *motivation* refers to the extent to which actors are willing to participate in activities related to mobile networks of practice. The definition includes consummatory, which is

that actors participate in mobile networks of practice due to bounded solidarity through shared destiny and instrumental motivation, an expectation of reward. Thus, highly motivated actors are more likely to participate in mobile social networking than less motivated actors are.

Hypothesis 3: Motivation is positively related to MNP usage.

COMMITMENT

Commitment represents the desire to maintain relationships (Mathwick, Wiertz, & Ruyter, 2008), including the obligation to engage in continuous interaction in the future (Nahapiet & Ghoshal, 1998; Wasko & Faraj, 2005). While norms are shared by multiple actors and exist in the relationships among them, obligations are expectations developed within particular relationships (Coleman, 1988). In an organizational setting, a sense of obligation to the organization motivates members to share valuable knowledge and information (Constant et al., 1996).

In a mobile social networking context, commitment is developed through interaction between actors and mobile networks of practice (user-IT artifact interaction). Initially, people join and learn about networks through observation rather than participation. As they learn and adapt shared norms, culture, and knowledge, they can more fully participate in activities (Mathwick et al., 2008). In a sense, mobile networks of practice hold a 'credit slip' to be redeemed at some later date by a user. Therefore, actors of networks can access the resources by meeting the obligations of being a member of the networks. This socialization process is the *commitment* component of mobile relational social capital, which refers to the extent to which actors feel obligated to engage in future action and which arises from frequent interaction. Similarly, relationships among direct ties are maintained by creating trust and a sense of

obligation from social relationships (Montazemi, Siam, & Esfahanipour, 2008). Thus, we predict that more committed actors are more likely to participate in activities in a mobile network of practice due to a perceived obligation to maintain relationships with the mobile network of practice.

Hypothesis 4: Commitment is positively related to MNP usage.

TRUST

Trust broadly refers to the belief that predictable and valued expected outcomes will be delivered by the trustee (Nahapiet & Ghoshal, 1998). Additionally, trust is confidence in an exchange partner's reliability and integrity (Morgan & Hunt, 1994). Trust is an important component of online exchange relationships characterized by uncertainty, anonymity, lack of control, and potential opportunism. Previous studies have identified three dimensions of trust in online settings: ability, integrity, and benevolence (Bhattacherjee, 2002; Garbarino & Lee, 2003; Lee & Turban, 2001). Ability refers to the trustor's perception of the trustee's competencies and knowledge salient to the expected behavior. Integrity refers to the trustor's perception that the trustee will adhere to a set of principles or rules of exchanges acceptable to the trustor during and after the exchange. Benevolence is the extent to which the trustor believes the trustee intends to do good, beyond a mere motive for profit.

In networks, trust represents a progressively deeper degree of relational quality, including a deep sense of actors' reliability and faithfulness in resource exchange (Moran, 2005). Trust can be both an antecedent of social capital by allowing actors to reliably exchange resources (Coleman, 1988) and a dimension of social capital existing within the relationship between/among actors (Nahapiet & Ghoshal, 1998), strengthening the relationship through more communication, information sharing, and collaboration (Chow, 2009). This study adopts the

latter focus and defines *trust* as the extent to which actors believe that mobile networks of practice provide predictable and reliable results. I propose that trust formed in the relationship between actors and mobile networks of practice reflects the quality of the relationship. Thus, actors with a high level of trust in mobile networks of practice are more likely to participate in mobile social networking activities.

Hypothesis 5: Trust is positively related to MNP usage.

MNP USAGE AND MNP VALUE

According to social cognitive theory (SCT), expected outcomes of behavior are formed by our own direct experience or mediated by vicarious reinforcement observed in social networks (LaRose & Eastin, 2004). Research by Bandura (1986) organized these expected outcomes into six basic types of incentives for human behavior: social, novel, activity, monetary, status, and self-reactive incentives. Social incentives stemming from rewarding interactions often occur in conjunction with expressions of interest and approval from others. Social incentives are critical for successful relationships where people have an influence over each other (Bandura, 1986). Novel sensory incentives include the search for novel information (including knowledge) and are similar to information seeking gratifications. Activity incentives are the desire to take part in enjoyable activities such as watching TV, Internet surfing, playing games, and completing academic or other tasks. Monetary incentives stem from the fact that money can purchase most anything people desire, and recent studies indicate that monetary incentives include saving money as well as finding bargains online and saving time (Peters, 2009). Status incentives are attempts to seem ‘cool’ or important. Self-reactive incentives involve attempts to regulate dysphonic moods.

SCT posits that a human behavior is an outcome of reciprocal interactions and that behavior is reinforced by actions in the past (Bandura, 1986); in other words, past experience is an important component of current expectations (LaRose & Eastin, 2004). That is, people's experience is one of the strongest predictors of expected outcomes. Of particular relevance to the current study are SCT studies that have examined media consumption behavior through expected outcomes such as Internet use (LaRose, Mastro, & Eastin, 2001; LaRose & Eastin, 2004; Peters et al., 2006), cellular phone use (Leung & Wei, 2000), mobile communication devices (Peters & Allouch, 2005), and mobile technology (Peters, 2009). Similar to these studies, the current study suggests that user interaction with mobile networks of practice will affect expected outcomes about mobile networks of practice for future usage. The link between IT usage and outcomes is a feedback loop in which the initial use of an IT results in outcomes and post-adoptive behaviors such as continuous and extended use and is reinforced based on these outcomes (Jasperson, Carter, & Zmud, 2005). The current study focuses on the front-end or beginning point of this loop; that is, we conceptualize our dependent variable as expected outcomes of the value derived from usage of mobile networks of practice at one point in time.

In addition, according to the resource-based view (RBV), firms create value by combining heterogeneous resources that are economically valuable and difficult to imitate (Barney, 1991) . In the IS discipline, RBV considers IT use and IT capabilities as resources, and the more they are rare, inimitable, valuable, and sustainable, the more IT business value is created (Mata, Fuerst, & Barney, 1995). Thus, the greater the use of IT, the more likely the firm is to create value from IT use. In addition, the IS success model of DeLone and McLean (1992) also suggests a strong link between system use and system impact. Bringing this down to the

individual's level, we suggest that the more a user interacts with MNP, the value is created for that user.

Hypothesis 6: Users with greater MNP use are more likely to devleop higher MNP value.

MODERATOR: PROFESSIONAL FIT

How might a given role influence technology use? According to identity theory (Abrams & Hogg, 1990), a person plays several roles in his or her professional and personal life. Identity theory suggests that people tend to seek distinct meanings and expectations based on specific roles. In addition, people tend to behave in a manner that maintains meaning and expectations for specific roles. For example, when a company recommends that employees use an IT, the employees are more likely to use the IT if they believe it will help advance their careers. Empirical evidence for the positive relationship between fit and systems use has been found in the task-technology fit model, which explains the importance of fit between task and technology in describing technology usage and performance impact (Goodhue & Thompson, 1995). Consistent with task-technology fit, job fit has also been shown to be a critical factor affecting the utilization of technology (Thompson, Higgins, & Howell, 1991). Speier and Venkatesh (2002) found that professional fit significantly and positively influences sales forces' automation tool usage, which results in improving subjective outcomes such as organizational commitment and job satisfaction. Professional fit refers to the degree to which IT enhances professional development or long-term career opportunities (Speier & Venkatesh, 2002). While job fit accounts for the impact of a *specific job's* compatibility on technology (Thompson, Higgins, & Howell, 1991), and the task-technology fit model demonstrates the importance of congruence between a *specific task* and technology (Goodhue & Thompson, 1995), professional fit is a

global fit between professional career and technology (Speier & Venkatesh, 2002). Thus, we propose that the more the usage of a mobile network of practice (MNP) fits a user's professional needs, the stronger the relationship between MNP value and MNP usage.

Hypothesis 7: Professional fit will moderate the relationship between MNP usage and outcomes such that high levels of professional fit will strengthen this relationship, with the strongest relationship occurring when MNP usage and professional fit are both high.

CONTROL VARIABLES

SOCIAL INFLUENCE

According to the theory of reasoned action (Fishbein & Ajzen, 1975) and the theory of planned behavior (Ajzen, 1991), an individual's intention to perform a given behavior captures the motivational factors that influence a behavior (Ajzen, 1991). The motivational factors are indications of how hard people are willing to perform a behavior and of how much of an effort they exert to perform the behavior. Social factors are one of the motivational factors that influence behavioral intention to perform a given task.

However, the importance of social influence in the prediction of behavioral intention is expected to vary across situations (Ajzen, 1991). Building on the theory of reasoned action (TRA), even though TAM is less general than TRA, the technology acceptance model (TAM) explains behavioral intention to use computer-based technology (Davis, 1989).More than a decade of IS research has revealed that social influence can exert a strong impact on an individual's decision to use a system (Harrison, Mykytyn, & Riemenschneider, 1997; Mathieson, 1991; Taylor & Todd, 1995; Thompson, Higgins, & Howell, 1994; Robertson, 1989; Venkatesh

& Davis, 2000). Social influence is defined as "the degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh, Morris, Davis, & Davis, 2003, p. 451). Social influence can affect actors' IT usage decisions in two ways: 1) through social pressure and 2) by affecting how the actors interpret technology (Robertson, 1989).

Social pressure is conceptualized as subjective norms in TPB (Ajzen, 1991) and TRA (Davis, Bagozzi, & Warshaw, 1989) and image in innovation diffusion theory (IDT) (Moore & Benbasat, 1991). Subjective norms are actors' normative beliefs reflecting actors' perceptions that referents who are important to them think they should or should not perform the behavior in question (Harrison, Mykytyn, & Riemenschneider, 1997; Venkatesh, Morris, Davis, & Davis, 2003). Evidence of the phenomenon that subjective norms are directly and positively related to belief and intention to use IT has been found in several IS research studies (Mathieson, 1991; Taylor & Todd, 1995). Furthermore, subjective norms are relatively more important prior to or in the early stage of implementation with limited direct experience than in the post-implementation stage (Taylor & Todd, 1995). Image is social approval that includes other perceptions of the action by actors (Moore & Benbasat, 1991). Image refers to the extent to which the usage of an innovation affects an actor's image (Venkatesh, Morris, Davis, & Davis, 2003). Image has also been found to be a determining social factor of one's intention to use IT (Benbasat & Zmud, 2003).

Second, intention to use an IT is determined by the social group surrounding the user through the social group's interpretations about the IT (Robertson, 1989). Social groups form ideas about a new technology through experiences. The ideas derived from their social groups influence actors' perceptions or attitudes about an IT, and identification and internalization are

important attitude influencing processes. Identification can change attitudes through actors' willingness to maintain a satisfying relationship in a social group, allowing actors to share attitudes with referents in the social group (Nahapiet & Ghoshal, 1998; Robertson, 1989). Internalization occurs when a user accepts a social group's interpretation about an IT because the induced attitudes are congruent with one's own values; that is, the values of the individual and the group or organization are the same (O'Reilly & Chatman, 1986).

In sum, social influence is defined as the degree to which an individual perceives that important others believe he or she should use MNP. Favorable social group perceptions about MNP should lead to positive perceptions regarding the manner in which MNP usage builds a good image in the social group. Therefore, a positive attitude toward MNP will strengthen the relationship between mobile social capital and MNP usage. Since social influence has been shown to affect systems usage (Venkatesh, Morris, Davis, & Davis, 2003), social influence is included as a control variable for MNP usage.

INNOVATIVENESS

New information technologies and their artifacts require users' investments in order to derive benefits from their usage (Yi, Fiedler, & Park, 2006). The investments can be physical resources (Ajzen, 1991; Venkatesh, Morris, Davis, & Davis, 2003), and psychological aspects (Cowart, Fox, & Wilson, 2008). Innovativeness, one of the mental resources, reduces perceived risk accompanied with adopting a new technology (Cowart, Fox, & Wilson, 2008).

Innovativeness is defined as the degree to which an individual member of a system is relatively earlier in adopting a new technology than the other members (Rogers, 2003). Agarwal and Prasad (1998) found that people with higher innovativeness are more likely to take risks in

adopting a new IT. In addition, the act of taking risks with a new IT likely develops positive intentions towards the new IT. In sum, people with high levels of innovativeness are more likely to adopt new information technology.

The existing literatures have identified two distinct conceptualizations of innovativeness: innate innovativeness and actualized innovativeness (Cowart, Fox, & Wilson, 2008; Midgley & Dowling, 1978). First, innovativeness is based on inherent personal characteristics. From this perspective, innovativeness is defined as "the degree to which an individual makes innovation decisions independently of the communicated experience of others" (Midgley & Dowling, 1978, p. 235). The often view of innovativeness is somewhat akin to a function of a number of dimensions of social factors such as situational factors and communicated experience. This view defines innovativeness as "the desire to seek out the new and different" (Cowart, Fox, & Wilson, 2008, p. 1115). From this view, novelty seeking includes a willingness to adopt a new product, novel experiences, and new services such as mobile social networking through mobile devices.

According to Midgley and Dowling (1978), the two different conceptualizations of innovativeness are not independent. In other words, all members of networks inherently possess some degree of innovativeness. The innate innovativeness is transformed into actualized innovativeness through social experience such as product involvement, product category, and communicated experience. Cowart, Fox, and Wilson (2008) empirically present the positive relationships between actualized innovativeness and behavioral intentions to adopt new products.

In the IS discipline, Agarwal and Prasad (1998) conceptualize global innovativeness and domain-specific innovativeness in an IT context. Consistent with Midgley and Dowling's (1978) innate innovativeness, Agarwal and Prasad's global innovativeness is a personality trait

possessed by all individuals to a greater or lesser degree. However, Goldsmith and Hofacker (1991) argue global innovativeness exhibits low predictive power when it is applied to any specific innovation category. While global innovativeness is considered innate and not a function of social experience, domain-specific innovativeness represents socially developed attitudes toward an innovation. In an IT environment, domain-specific innovativeness is operationalized as personal innovativeness in IT (PIIT), which is defined as "the willingness of an individual to try out any new information technology" (Agarwal & Prasad, 1998, p. 206). Yi, Fiedler, and Park (2006) empirically show the positive impact of PIIT on behavioral intention to adopt IT (online shopping and PDA purchase intention). Rijnsoever and Donders (2009) also find a significant impact of domain-specific innovativeness on technology adoption.

Social capital studies also show that social capital affects the innovativeness of firms (Santos-Rodrigues, Dorrego, & Jardon, 2010) and individual innovativeness through knowledge and information (Casanueva & Gallego, 2010). For structural social capital, dense relationships provide more opportunities to access and control information and other innovation-related resources. Cognitive social capital improves efficiency of resources exchanges between social actors. Relational social capital also increases the efficiency of exchange by establishing stronger emotional bonds. Based on previous IS and social capital research, it is conceivable that personal innovativeness would affect MNP usage. Therefore, this study included personal innovativeness as a control variable.

IV. RESEARCH DESIGN AND METHODOLOGY

INTRODUCTION

The research model in Chapter II illustrated the proposed relationships between mobile social capital constructs and their impact on system use. This chapter highlights the research method and associated methodological issues in studying this empirically. In particular, this chapter addresses the justification of the research method, the profile of the sampling frame, data collection procedures, psychometric concerns, and data analysis strategy.

RESEARCH DESIGN

The purpose of this dissertation is to understand the impact of mobile social capital on usage of mobile networks of practice and the benefits from this usage. Figure 4-1 shows five hypotheses indicating the relationships between five mobile social capital dimensions and usage, six hypotheses related to the relationships between IT artifacts usage and its benefits, and six hypotheses indicating the moderating impacts of professional fit on the relationships between usage of IT artifacts. Therefore, this dissertation requires a research method that efficiently, as well as effectively and objectively, tests the hypotheses.

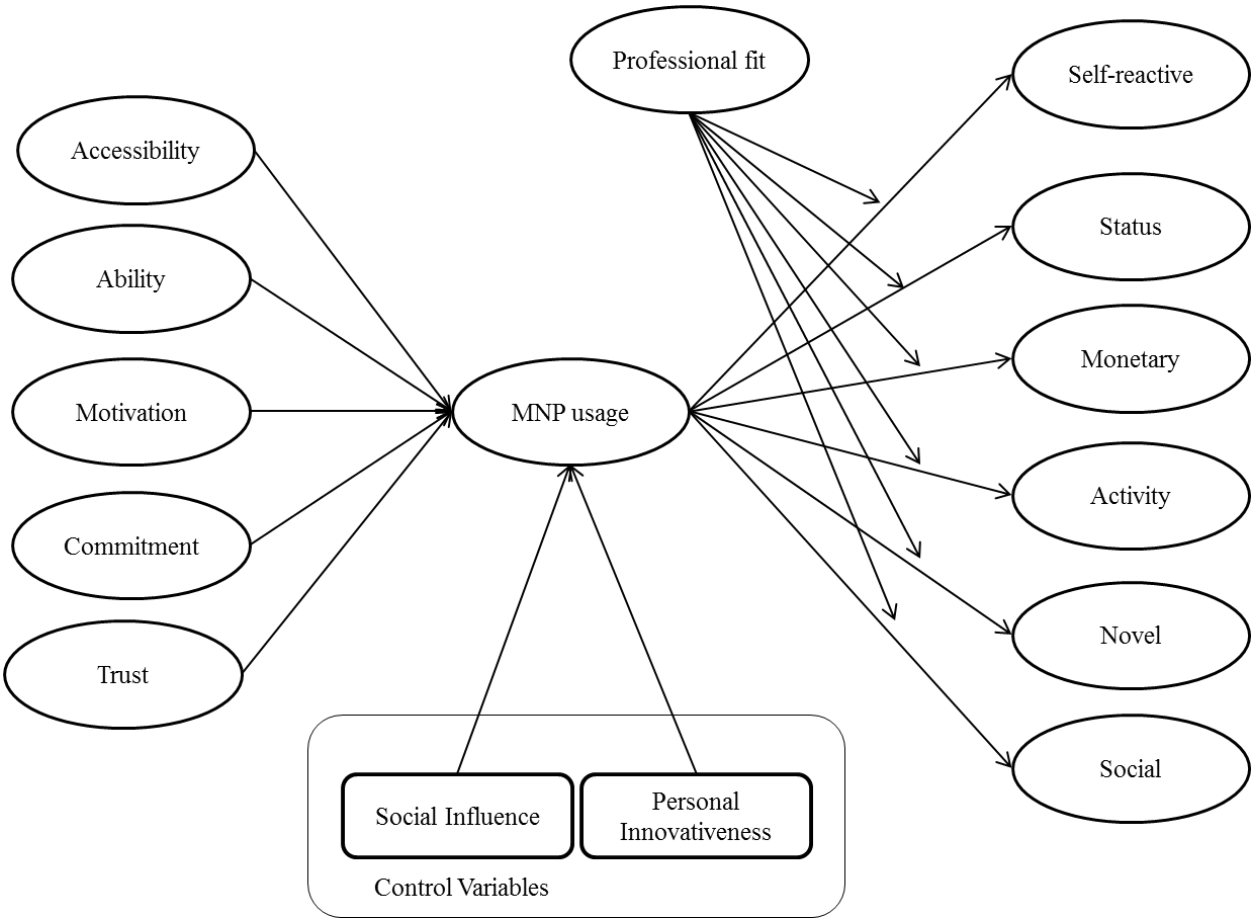


Figure 4-1: Research model

RESEARCH MODEL

A set of surveys was used to assess the proposed research model. Surveys were used because a self-administered survey is appropriate for collecting data to test the conceptual model due to the perceptual nature of the variables of interest. Second, surveys have served as a principal quantitative method of scientific inquiry that has enabled investigators to collect the necessary data to test hypothesized relationships among variables and generate results relative to a population of interest. Third, self-administered surveys have provided a cost-effective approach to examine individuals' attitudes, behaviors, and intentions. Finally, powerful statistical

techniques can be used to analyze quantitative data to examine significant relationships among the constructs. In total, these four reasons promote the use of a survey to answer the research questions and to uncover the proposed relationships between constructs.

INSTRUMENT DEVELOPMENT AND VALIDATION

The instrument was developed and validated based on the procedure recommended by Churchill (1979), which consists of specification of domain of construct (Appendix A provides dimensions of constructs), generating sample of items, data collection for pilot study, purifying measures, primary data collection, assessing reliability and validity, and developing norms (Appendix B lists conceptualized and operationalized definitions). The procedure taken here includes developing a questionnaire based on previously validated instruments with modifications to fit into the current research context, followed by pilot testing the instrument with students of a business school. Chapter II detailed the key literature upon which the constructs were developed. Question items for measuring the independent and dependent variables are listed in the following sections and are based on a 5- point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). A listing of the operationalization of the proposed measures is provided in APPENDIX A.

MEASURES

Accessibility, a measure of structural mobile social capital, refers to the extent to which actors are able to access mobile networks of practice. Four scales related to accessibility have been adopted from mobile technology literature (Akesson, 2007; Gebauer & Tang, 2008) and modified to fit into the current research context to measure an actor's capability to access mobile networks of practice and their content. Accessibility is operationalized through four dimensions:

1) capability to access mobile networks of practice beyond spatial limitations, 2) capability to access mobile networks of practice beyond temporal limitations, 3) capability to access content in mobile networks of practice beyond spatial limitations, and 4) capability to access content in mobile networks of practice beyond temporal limitations.

Ability, a measure of cognitive mobile social capital, is defined as the extent of an actor's capability to participate in activities such as creating, posting, and reading messages in mobile networks of practice. Ability is assessed by using four scales developed by the research of Adler and Kwon (2002) and of Leana and Van Buren (1999), which refer to ability as the capability to provide resources. Ability assesses the actors' perceived capabilty to create, post, understand, and reply to content in mobile networks of practice.

Motivation, one of the measures of relational mobile social capital, refers to the extent to which actors are willing to participate in activities within mobile networks of practice. Five scales were developed on the basis of Adler and Kwon (2002)'s social captial study, where motivation is one of the sources of social capital, and on the basis of Constant, Sproull, and Kiesler's (1996) research, which qualitatively examines the motivation of information providers in electronic networks. Motivation captures an actor's perceptions of bounded solidarity with mobile networks of practice, the tendency of assimilating an individual's purpose with that of the mobile networks of practice, and the disposition to receive rewards from networks, to help others, and to be satisfied themselves.

Commitment, one of the measures of relational mobile social capital, refers to the extent to which actors feel an obligation to engage in future action, and arises from frequent interaction. Commitment is measured by three scales adopted with modifications from the commitment

literature (Boezeman & Ellemers, 2007; Herscovitch & Meyer, 2002) where commitments to organization and charity are measured. Commitment to mobile networks of practice captures an actor's obligations and responsibility to participate in activities related to mobile social networking and affective commitment to networks.

Trust, one of the measures of relational mobile social capital, is defined as the extent to which actors believe that mobile networks of practice provide predictable and reliable results (Garbarino and Johnson 1999). Trust is measured by the reliabilty and predictability of content in mobile networks of practice and the credibility and benevolence of mobile networks of practice. Four scales that assess trust were adopted with modification from Garbarino and Lee (2003).

Professional fit refers to the degree to which mobile social networking sites enhance professional development or long-term career opportunities. Six scales are adapted from Speier and Venkatesh (2002). Originally, Speier and Venkatesh (2002) found that professional fit significantly and positively influences sales forces automation tools usage, which results in improving subjective outcomes such as organizational commitment and job satisfaction. The scales used in current study were modified to fit the research context.

MNP usage refers to the degree to which people engage in mobile social networking sites. Five items are used to measure how long people interact with mobile social networking sites and how many contents people create in mobile social networking sites.

MNP outcomes refer to the degree to which people receive benefits by interacting with mobile networking sites. LaRose and Eastin (2004)'s six dimensions of IT usage outcomes and 29 items are adapted: Social outcomes (7 items), Novel outcomes (4 items), Activity outcomes (4

items), Monetary outcomes (4 items), Status outcomes (5 items), Self-reactive outcomes (5 items).

MOBILE SOCIAL CAPITAL INSTRUMENT VALIDATION AND PILOT STUDY

Although the scales of MNP usage, MNP outcomes, and professional fit were validated in prior studies, the items specific to mobile social capital have not been previously applied in the context of mobile technology. To validate the scales of mobile social capital, a pilot study was conducted with 25 university students. Participants in the pilot study were students in the business school of a public university in the Southern United States. Students were enrolled in an introduction to management information systems class and received extra credit for completing the survey instrument (on paper) in class. They were told that the survey was being used to get an understanding of their perceptions about mobile technology and mobile social networking. On average, respondents took about 7 minutes to complete the survey. Although the sample size in the pilot study was small, the reliability and validity of the scales were assessed by SmartPLS 2.0.M3.

PILOT STUDY - RELIABILITY

Table 4-1 presents the descriptive statistics for the measures, the internal consistency reliabilities (ICR), the average variance extracted (AVE), and the correlation matrix for all constructs in the study. Reliability is "repeatability-the ability to get the same data values from several measurements made in the same way" (Alreck & Settle, 2004, p. 57). In addition, Peter (1979) defines reliability as "the degree to which measures are free from error and therefore

yield consistent results" (p. 6). In other words, reliability is internal consistency. Reliability can be assessed as to whether the measurements of the same instrument give the same results (test-retest reliability) or whether two split-halves measurements give similar scores (internal consistency reliability) (Peter 1979). Moreover, Cronbach's alpha is used for determining the reliability of a measure. Peterson (1994) documented the magnitudes of Cronbach's alpha obtained in behavioral research. For the variables in the pilot study, all Cronbach's alpha values were .75 or greater, thus indicating that the measures were reliable. In addition, to assess the correlation of items within each of the measures, the present study used factor analysis to verify the number of items underlying each construct (Churchill, 1979). The degree of correlation between the initial raw score and the final factor score is called a factor loading (Hair, Anderson, Tatham, & Black, 1998). The factor loadings in all cases except one scale were greater than .65. One of the commitment scales had low factor loading (0.13). Thus, this item was removed. Then, the factor loadings were greater than .65 (Table 4-2).

TABLE 4-1: PILOT TEST - INTERNAL CONSISTENCY RELIABILITIES, DESCRIPTIVE STATISTICS AND CORRELATION MATRIX

		CR	CA	M	SD	1	2	3	4	5
1	**Ability**	0.96	0.94	4.36	0.78	**0.93**				
2	**Accessibility**	0.97	0.96	4.10	1.05	0.56**	**0.94**			
3	**Commitment**	0.95	0.92	2.50	1.06	0.05	0.15	**0.93**		
4	**Motivation**	0.93	0.91	3.20	1.05	0.54**	0.62***	0.45*	**0.86**	
5	**Trust**	0.87	0.81	3.05	0.91	0.2	0.34	0.58**	0.47**	**0.8**

Notes: 1. *** $p<.001$; ** $p<.01$; * $p<.05$;

2. CR: Composite Reliability; CA: Cronbach's Alpha; M: Mean; SD: Standard Deviation

3. The diagonal (in bold) represent the square root of AVE

TABLE 4-2: PILOT TEST - CROSS LOADINGS

	ACC	ABL	MOT	COM	TRU
ACC1	**0.94**	0.50	0.58	0.14	0.18
ACC2	**0.95**	0.58	0.58	0.18	0.48
ACC3	**0.93**	0.53	**0.66**	0.10	0.15
ACC4	**0.94**	0.47	0.50	0.17	0.44
ABL1	0.52	**0.93**	0.54	-0.07	0.15
ABL2	0.54	**0.94**	0.53	0.00	0.21
ABL3	0.48	**0.95**	0.46	0.09	0.12
ABL4	0.53	**0.88**	0.45	0.20	0.27
MOT1	**0.66**	0.57	**0.85**	0.23	0.21
MOT2	0.48	0.44	**0.90**	0.43	0.46
MOT3	0.50	0.37	**0.93**	0.52	0.55
MOT4	0.48	0.46	**0.75**	0.38	0.29
MOT5	0.59	0.54	**0.87**	0.33	0.44
COM1	0.15	0.17	0.44	**0.92**	0.45
COM2	0.04	-0.08	0.34	**0.95**	0.59
COM3	0.24	0.08	0.49	**0.92**	0.57
TRU1	0.24	0.05	0.39	0.53	**0.91**
TRU2	0.22	0.49	0.29	0.42	**0.65**
TRU3	0.54	0.30	0.59	0.56	**0.84**
TRU4	0.04	0.00	0.18	0.35	**0.77**

Notes: 1) ACC: Accessibility; ABL: Ability; MOT: Motivation; COM: Commitment; TRU: Trust.

2) Factor loadings that are greater than .65 are bold.

PILOT STUDY - VALIDITY

Validity refers to "the congruence or 'goodness of fit' between an operational definition and the concept it is purported to measure" (Singleton & Straits, 2005, p. 91). Peter (1979) also defines validity as "the degree to which instruments truly measure the constructs which they are intended to measure" (p. 6). Validity is assessed in various type of validity: construct validity, external validity, internal validity, convergent validity, and discriminant validity. Construct validity is "the degree to which a measure assesses the construct it is purported to assess" (Peter, 1981, p. 134). The question of external validity concerns "whether the results of a behavioral study would hold for other persons, settings, times or places" (Calder, Phillips, & Tybout, 1983, p. 112). Internal validity is referred to "inferences about whether observed covariation A and B reflects a causal relationship from A to B in the form which the variables were manipulated or measured" (Shadish, Cook, & Campbell, 2002, p. 53). Convergent validity is the degree to how related variables have similar results from different methods and discriminant validity is the degree to how unrelated variables have separated from each other. Convergent and discriminant validity are of interest here. Table 4-1 represents that the square root of AVEs for each construct were greater than the inter-construct correlations. This pattern supported convergent and discriminant validity (Pavlou, Liang, & Xue, 2007).

PRIMARY DATA COLLECTION

First, data were collected from LinkedIn and Twitter, two of the most popular mobile social networking sites. Highly active users were solicited in the business domain (those who have more than 10,000 followers) to post Tweets with our survey information to their Twitter followers. Thus, data was collected from professional business people who follow other

professionals on Twitter. To complement this, a set of online questionnaires was posted in forums related to IT, mobile technology, social networking, and social marketing in LinkedIn. Given the nature of posting online surveys at social network sites, it is difficult to calculate a response rate because it is not possible to know how many people have read the survey posts. During three weeks, 134 active users in Twitter were contacted and asked to re-tweet our survey. None of these users re-tweeted; however, 39 of them completed our survey. In LinkedIn, five survey messages were posted in five forums and 102 responses were collected. A total of 141 complete responses were collected. However, this data was not used for the primary research because of three reasons. First, the sample size from the two different sites was not comparable and balanced. Second, even with data collected from LinkedIn, participants filled out the survey based on their perceptions and experience with other social networks sites such as Facebook. Last, based on their demographic information, most of the participants were not working professionals - most were students. This violated the purpose of the current research. Thus, a new data collection was undertaken.

The data for the primary analysis were collected through the connections of a professor at a Southern university. Subjects were asked about LinkedIn usage. These data are believed to be more reliable and suitable for the current study. In total, 524 survey questionnaires were distributed and 266 surveys are received (51%). A total of 191 complete and valid responses were selected for the primary data analysis (37 percent of response rate) because 34 uncompleted surveys and 41 non-working adults were excluded. Participants were all LinkedIn users, 77% of whom were female. The participants ranged in age from 18 to over 59, with an average age of 32.8. Of these, 73% of the participants were working adults, 4% were not working but were

looking for a job, 3% were homemakers, and 20% were students or those who were unable to work.

TABLE 4-3: RESPONDENTS DEMOGRAPHICS

Demographics (*n=232*)	Frequency	Percentage
Age		
Under 20	5	2%
20-29	71	31%
30-39	124	53%
40-49	25	11%
50-59	6	3%
Over 59	1	0%
Gender		
Male	54	23%
Female	178	77%
Education		
High School	3	1%
Undergraduate	157	68%
Graduate	72	31%
Employment Status		
Employed for wage	138	59%
Self-employed	32	14%
Out of work and looking for work	5	2%
Out of work but not currently looking for work	4	2%
A homemaker	7	3%
A student	41	18%
Unable to work	5	2%

MEASUREMENT MODEL

The reliability of items was checked by examining each item's loading on its corresponding construct. Barclay et al. (1995) suggested that the item loading should exceed 0.70, and the loading of each item in our study met this criteria (APPENDIX D: CORRELATIONS BETWEEN MEASURES AND LATENT VARIABLES). Convergent validity was assessed by (1) reliability of items, (2) composite reliability of constructs, and (3) average variance extracted (AVE). As shown in Table 4-4: COMPOSITE RELIABILITY AND CRONABCH'S ALPHA, composite reliability of constructs exceeded the recommended required minimum of 0.80. Further, AVE, which measures the amount of variance that a construct captures from its indicators relative to the amount due to measurement error (Komiak & Benbasat, 2006), exceeded the threshold value of 0.50 (shown in Tables 4-5 and 4-6: CORRELATION MATRIX MODEL 1 & 2) for all constructs. Hence, all three conditions for convergent validity were met. Discriminant validity between constructs was assessed using the relationship between correlations among constructs and the square root of AVEs. As Tables 4-5 and 4-6 show, the square root for all the AVEs were greater than the correlations among the constructs, indicating that the discriminant validity criterion was met for all constructs.

TABLE 4-4: COMPOSITE RELIABILITY AND CRONABCH'S ALPHA

Model 1				Model 2			
N=232	Number of items	Composite Reliability	Cronbach's Alpha	*N=232*	Number of items	Composite Reliability	Cronbach's Alpha
ACC	3	0.98	0.96	ACC	3	0.98	0.96
ABL	4	0.97	0.97	ABL	4	0.97	0.97
MTV	5	0.93	0.91	MTV	5	0.93	0.91
CMT	2	0.96	0.91	CMT	2	0.96	0.91
TRS	4	0.92	0.88	TRS	4	0.92	0.88
MNU	5	0.87	0.81	MNU	5	0.87	0.81
SRO	5	0.92	0.89	SRO	5	0.92	0.89
STO	5	0.94	0.92	STO	5	0.94	0.92
MNO	4	0.95	0.93	MNO	4	0.95	0.93
ATO	3	0.86	0.75	ATO	3	0.86	0.75
NVO	4	0.94	0.92	NVO	4	0.94	0.92
SCO	4	0.89	0.83	SCO	4	0.89	0.83
PIN	3	0.91	0.86	PIN	3	0.91	0.86
SCI	3	0.95	0.92	SCI	3	0.95	0.92
				PFT	5	0.97	0.96

Notes:

1. Model 2 includes Professional fit as a moderator of the relationship between MNP usage and outcomes.

2. ACC: Accessibility; ABL: Ability; CMT: Commitment; MTV: Motivation; TRS: Trust; MNU: MNP usage; SRO: Self-reactive outcomes; STO: Status outcomes; MNO: Monetary outcomes; ATO: Activity outcomes; NVO: Novel outcomes; SCO: Social outcomes; PFT: Professional fit; PIN: Personal innovativeness; SCI: Social influence

3. Shaded areas are not applicable.

TABLE 4-5: CORRELATION MATRIX MODEL 1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	ACC	0.96													
2	ABL	0.73***	0.95												
3	CMT	0.37***	0.29***	0.96											
4	MTV	0.50***	0.59***	0.65***	0.86										
5	TRS	0.51***	0.47***	0.69***	0.63***	0.85									
6	MNU	0.29***	0.40***	0.52***	0.54***	0.42***	0.76								
7	SRO	0.42***	0.43***	0.49***	0.57***	0.57***	0.47***	0.83							
8	STO	0.32***	0.34***	0.64***	0.63***	0.60***	0.58***	0.72***	0.87						
9	MNO	0.22**	0.17*	0.35***	0.34***	0.45***	0.35***	0.54***	0.63***	0.91					
10	ATO	0.50***	0.41***	0.54***	0.52***	0.60***	0.44***	0.71***	0.67***	0.62***	0.82				
11	NVO	0.44***	0.42***	0.58***	0.62***	0.62***	0.61***	0.64***	0.77***	0.72***	0.66***	0.89			
12	SCO	0.43***	0.47***	0.64***	0.69***	0.56***	0.59***	0.63***	0.67***	0.32***	0.56***	0.64***	0.81		
13	PIN	0.57***	0.56***	0.63***	0.61***	0.67***	0.40***	0.58***	0.65***	0.34***	0.54***	0.63***	0.59***	0.88	
14	SCI	0.35***	0.41***	0.59***	0.48***	0.60***	0.54***	0.55***	0.65***	0.49***	0.48***	0.64***	0.63***	0.55***	0.93

Notes:

1. ACC: Accessibility; ABL: Ability; CMT: Commitment; MTV: Motivation; TRS: Trust; MNU: MNP usage; SRO: Self-reactive outcomes; STO: Status outcomes; MNO: Monetary outcomes; ATO: Activity outcomes; NVO: Novel outcomes; SCO: Social outcomes; PIN: Personal innovativeness; SCI: Social influence
2. ***$p<0.001$; ** $p<0.01$; *$P<0.05$.
3. Diagonal elements are the square root of the shared average variance extracted (AVE) between the construct measures and their measures; off-diagonal elements are correlations between constructs.

TABLE 4-6: CORRELATION MATRIX MODEL 2

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	ACC	0.96														
2	ABL	0.73***	0.95													
3	CMT	0.37***	0.29***	0.96												
4	MTV	0.50***	0.59***	0.65***	0.86											
5	TRS	0.51***	047***	0.69***	0.63***	0.85										
6	MNU	0.29**	0.40***	0.52***	0.54***	0.42***	0.76									
7	SRO	0.41***	0.43***	0.49***	0.57***	0.57***	0.47***	0.83								
8	STO	0.32***	0.34***	0.64***	0.64***	0.60***	0.58***	0.72***	0.87							
9	MNO	0.22**	0.17*	0.36***	0.34***	0.46***	0.35***	0.54***	0.62***	0.91						
10	ATO	0.49***	0.40***	0.53***	0.51***	0.59***	0.44***	0.71***	0.67***	0.63***	0.82					
11	NVO	0.44***	0.42***	0.58***	0.62***	0.62***	0.61***	0.64***	0.77***	0. 71***	0.66***	0.86				
12	SCO	0.44***	0.48***	0.63***	0.69***	0.57***	0.59***	0.64***	0.67***	0.32***	0. 55***	0.64***	0.81			
13	PFT	0.29**	0.28**	0.52***	0.52***	0.54***	0.61***	0.57***	0.70***	0. 56***	0.59***	0.77***	0.53***	0.92		
14	PIN	0.57***	0.56***	0.63***	0.61***	0.67***	0.40***	0.59***	0.65***	0.35***	0.54***	0.63***	0.59***	0.54***	0.88	
15	SCI	0.35***	0.41***	0.59***	0.48***	0.60***	0.54***	0.55***	0.65***	0.49***	0.47***	0.64***	0.56***	0.58	0.63***	0.93

Notes:

1. ACC: Accessibility; ABL: Ability; CMT: Commitment; MTV: Motivation; TRS: Trust; MNU: MNP usage; SRO: Self-reactive outcomes; STO: Status outcomes; MNO: Monetary outcomes; ATO: Activity outcomes; NVO: Novel outcomes; SCO: Social outcomes; PFT: Professional fit; PIN: Personal innovativeness; SCI: Social influence
2. ***$p<0.001$; ** $p<0.01$; *$P<0.05$.
3. Diagonal elements are the square root of the shared average variance extracted (AVE) between the construct measures and their measures; off-diagonal elements are correlations between constructs.

DATA ANALYSIS AND RESULTS

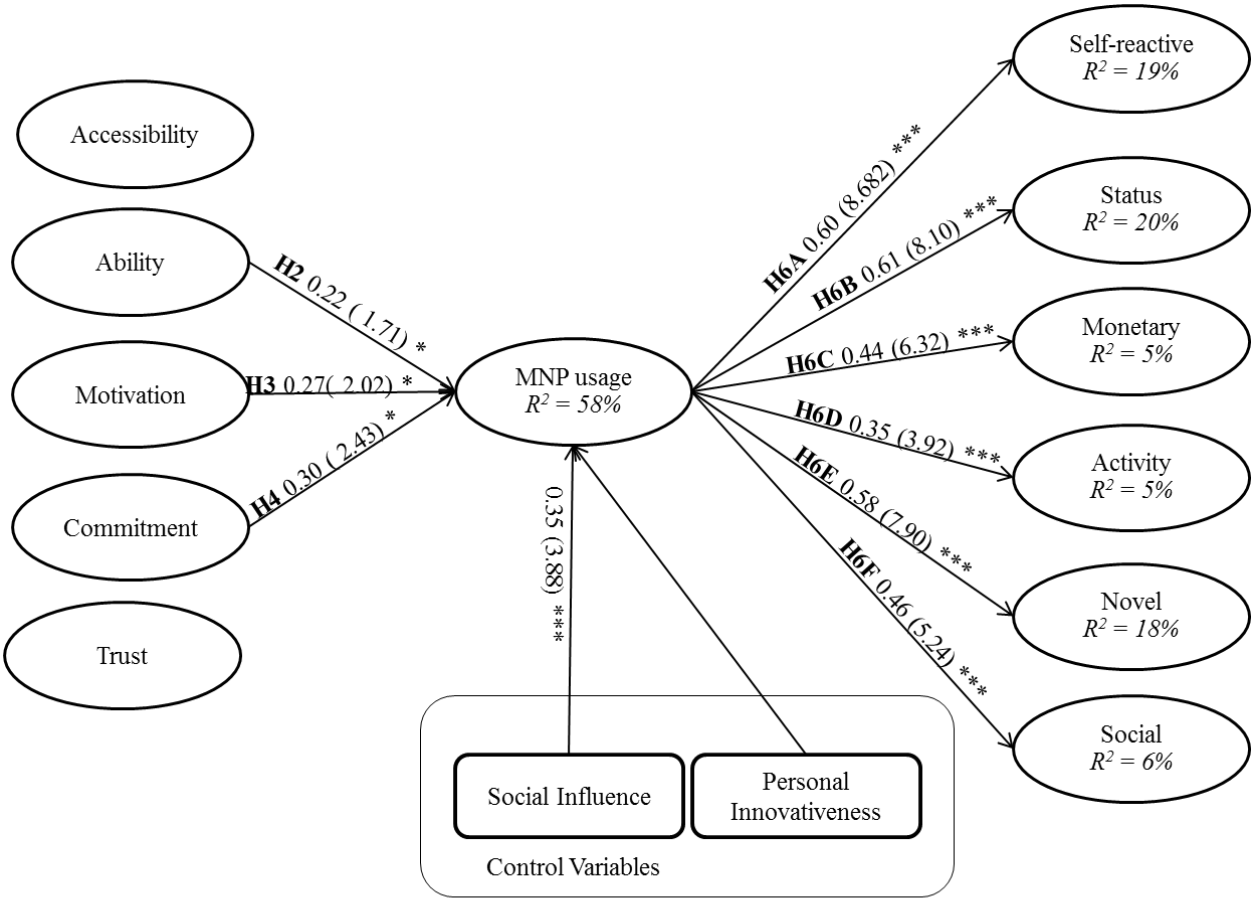
PLS (partial least squares, SmartPLS V3) was used for the data analysis. Structural equation modeling (SEM) analysis was chosen over regression analysis because SEM can analyze all of the paths in a model in one analysis. Within SEM, PLS was chosen over LISREL because this study aims at theory development instead of theory testing. Whereas LISREL requires a sound theory base, PLS supports exploratory research.

PLS was used to test two models: Model 1 (no moderator) and Model 2 (with a professional fit as a moderator). In all cases, a bootstrapping method (200 times) was employed that used randomly selected subsamples to test the PLS model. Figure 4-2 and Figure 4-3 show the research model validation results. First, both models explained the individual's perceived value for his or her career development by participating in social networking, with the following percentage of variance in outcomes explained: self-reactive outcomes, 19%; status outcomes, 20%; monetary outcomes, 5%; activity outcomes, 5%; novel outcomes, 18%; social outcomes, 6%. Figure 4 also shows the results of the research model with professional fit as a moderator, with the following percentage of variance in outcomes explained: self-reactive outcomes, 10%; status outcomes, 36%; novel outcomes, 35%; social outcomes, 30%.

Figure 4-2 and Figure 4-3 show the results of the PLS analyses and Table 5-1 summarizes the results of the hypothesis testing. In model 1, as hypothesized, ability was significantly related to the usage of mobile networks of practice ($\beta = 0.22$, $p<0.05$). Motivation ($\beta = 0.27$, $p<0.05$) and commitment ($\beta = 0.30$, $p<0.05$) in relational mobile social capital were significantly related to the usage of mobile networks of practice. MNP usage had a significant impact on self-reactive outcomes ($\beta = 0.60$, $p<0.001$), status outcomes ($\beta = 0.61$, $p<0.001$), monetary outcomes ($\beta = 0.44$, $p<0.001$), activity outcomes ($\beta = 0.35$, $p<0.001$), novel outcomes

(β = 0.58, *p<0.001*), and social outcomes (β = 0.46, *p<0.001*). In model 2, ability (β = 0.22, *p<0.05*), motivation (β = 0.26, *p<0.05*), and commitment (β = 0.30, *p<0.05*) were significantly associated with usage of mobile social networking. MNP usage had a significant impact on self-reactive outcomes (β = 0.51, *p<0.001*), status outcomes (β = 0.80, *p<0.001*), novel outcomes (β = 0.40, *p<0.001*), and social outcomes (β = 1.01, *p<0.001*). Professional fit as a moderator strengthened the relationship between use of social networking and status outcomes (β = 0.55, *p<0.05*) and the relationship between social network usage and social outcomes (β = 0.77, *p<0.05*).

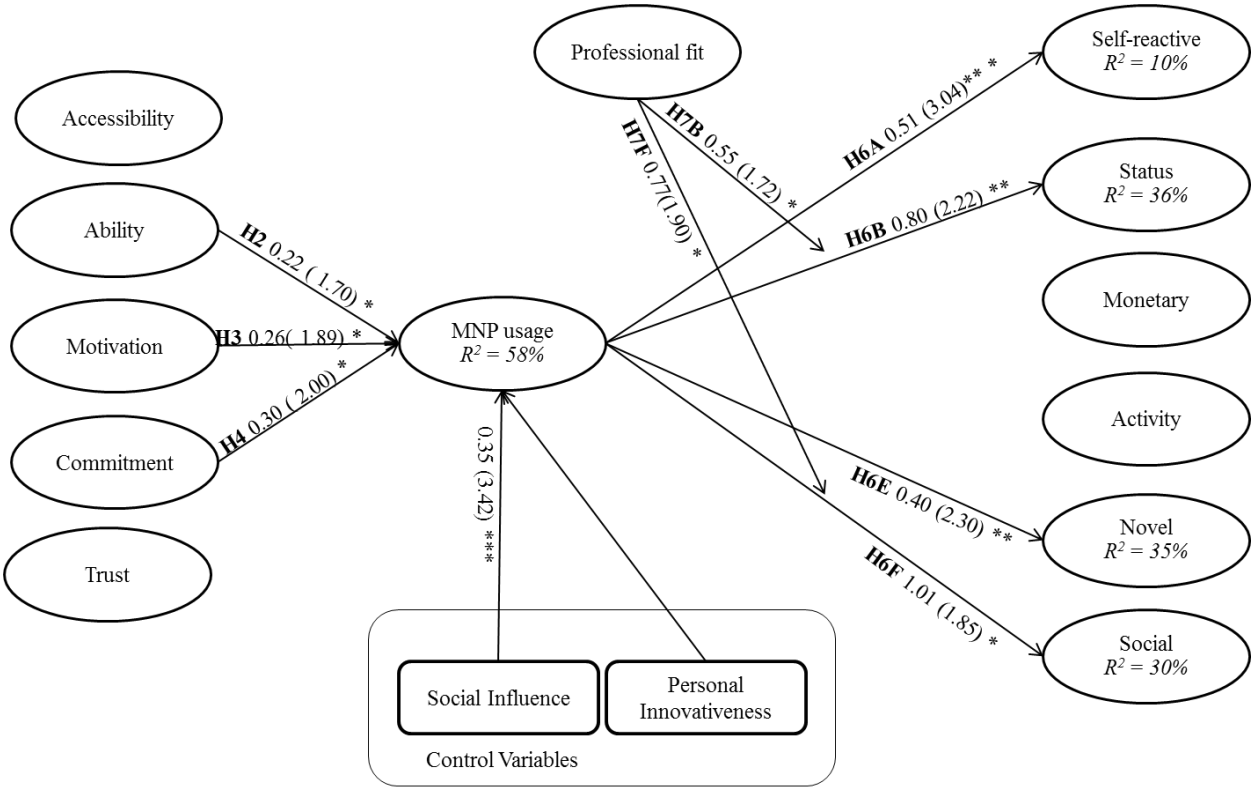
Due to the nature of the data collection, this study tested for common method bias using the PLS marker variable approach, which is designed to estimate common methods bias from PLS path modeling (Ronkko & Ylitalo, 2011). The current study developed a new construct – marker indicator -- to the PLS model, which is neither an individual item nor a complete scale. To estimate common method bias in the data, this research used the mean correlation between the marker item and the study items. The mean correlation was 0.024, which is less than a rule of thumb of 0.05, thus suggesting the common method bias is not a concern in the data set.



Full sample, *N*=191

FIGURE 4-2: PLS RESULTS OF MODEL 1

***p<0.001; ** p<0.01; *P<0.05. Path coefficient (t-statistics)



Full sample, *N*=191

FIGURE 4-3: PLS RESULTS OF MODEL 2

***p<0.001; ** p<0.01; *P<0.05. Path coefficient (t-statistics)

V. DISCUSSION & CONCLUSION

DISCUSSION

This research represents the first empirical study of mobile social capital and its impact on IT artifacts usage and benefits from usage by exploring user-IT artifact interaction in mobile technology environments. The main research question addressed is "Do IT artifacts provide users benefits via mobile social capital?" Through the integration of the social response theory with social network theories such as social ties and social capital theory, this research results in a model of technology implementation and its benefits where aspects of mobile social capital affect IT Artifacts usage and outcomes from the usage.

In model 1, five dimensions of mobile social capital predicted mobile social networks of practice usage. Table 5-1: PREDICTING OUTCOMES: RESULTS OF MODEL TESTING provides a summary of the hypotheses and their support across both models. The data analysis shows that mobile social capital has a significant effect on mobile social networks usage. These results support for Adler and Kwon (2002)'s social capital theory in offline social networks of practice context. Hypothesis 2 was supported, as ability of communicating with networks was a positive and significant predictor of mobile social networking. That is, if users have more cognitive ability to understand norms, culture, and language about networks, then they are more likely to interact with networks and others through mobile social networks of practice.

PLS results for motivation indicate that Hypothesis 3 also was supported. As

hypothesized, users with more bounded solitary through shared destiny and instrumental motivation are more likely to interact with networks. Hypothesis 4 was also supported and indicated that commitment is an important predictor of usage of mobile social networks of practice. That is, users with more perceived obligation to maintain relationships with the networks are more likely to interact with networks. While hypotheses 2, 3, and 4 were supported, Hypotheses 1 and 5 were not supported. This will be discussed in the limitations section.

In model 1, usage of mobile social networks of practice predicted benefits from mobile social networking. The data analysis indicates that mobile social networking usage has a significant effect on benefits, thus supporting Hypotheses H6A, H6B, H6C, H6D, H6E, and H6F. Users who interact more with mobile social networks of practice report getting more value from these networks. In the context of IT artifacts implementation, users with more interaction with networks report they are more likely to get support from networks and more friends to interact with, to help others in networks, to get more information from networks, and to save time and money. In addition, users who participate in mobile social networking report they are able to obtain self-relief and build their status.

In model 2, the moderating effect of professional fit between usage of mobile social networks of practice and outcomes was predicted. Out of six benefits, status (H7B) and social outcomes (H7F) are supported. This finding is indeed important in terms of understanding professionals' mobile social networking and its benefits. Mobile social networking provides professionals a chance to build their 'brand' by making themselves respected and liked. In addition, professionals tend to have more opportunity to extend their relationships with other professionals.

These findings respond to a need for more empirical studies in order to examine and extend a new variable – mobile social capital. Wasko and Faraj (2005) proposed a model to explain why people share their knowledge in electronic networks through social capital theory. However, no research has examined benefits from interaction and knowledge sharing in mobile social networks of practice. Therefore, this dissertation exploits and extends our understanding of the impact of mobile social capital on mobile social networking and benefits from networking by empirically exploring a model of IT artifacts' implementation and value.

Table 5-1: PREDICTING OUTCOMES: RESULTS OF MODEL TESTING

	Model1	Model2
H1: Accessibility → MNP Usage	0.08 (0.60)	-0.08 (0.61)
H2: Ability → MNP Usage	**0.22 (1.70)***	**0.22 (1.70)***
H3: Motivation →MNP Usage	**0.26 (1.89)***	**0.26 (1.89)***
H4: Commitment →MNP Usage	**0.30 (2.00)***	**0.30 (2.20)***
H5: Trust →MNP Usage	0.10 (0.75)	-0.11 (0.77)
H6A: MNP Usage →Self-reactive outcomes	**0.60 (8.69)*****	**0.51 (3.04)***
H6B: MNP Usage →Status outcomes	**0.61 (8.10)*****	**0.80 (2.22)****
H6C: MNP Usage →Monetary outcomes	**0.44 (6.32)*****	-0.06 (0.22)
H6D: MNP Usage →Activity outcomes	**0.35 (3.92)*****	0.39 (1.40)
H6E: MNP Usage →Novel outcomes	**0.58 (7.90)*****	**0.40 (2.30)****
H6F: MNP Usage →Social outcomes	**0.46 (5.24)*****	**1.01 (1.85)*****
Control variable: Personal innovativeness → MNP Usage	-0.17 (1.20)	-0.17 (1.20)
Control variable: Social influence→ MNP Usage	0.35 (3.44)***	0.35 (3.74)***
H7A: MNP Usage * Professional Fit -> Self-reactive Outcomes		-0.54 (1.17)
H7B: MNP Usage * Professional Fit -> Status Outcomes		**0.55 (1.72)***
H7C: MNP Usage * Professional Fit -> Monetary outcomes		0.11 (0.30)
H7D: MNP Usage * Professional Fit -> Activity outcomes		-0.44 (1.05)
H7E: MNP Usage * Professional Fit -> Novel Outcomes		-0.28 (1.20)
H7F: MNP Usage * Professional Fit -> Social Outcomes		**0.77 (1.90)***

Notes:

1. Model 2 includes Professional fit as a moderator of the relationship between MNP usage and outcomes.
2. ***p<0.001; ** p<0.01; *P<0.05.
3. Path coefficients (t-statistics)
4. Shaded areas are not applicable.

CONTRIBUTION

The contribution of this work is two-fold. First, it initiates discussion about the possibility of the impact of mobile social networking on technology implementation through mobile social capital embedded in user-IT artifact interactions. That is, as much as the literature has established the importance of social capital embedded in interpersonal relationships, I believe it is equally useful and important to recognize mobile social capital as something built through interactions with an IT artifact and which affects technology implementation. Indeed, the current study has argued that technology implementation associated with mobile technology will eventually be better understood when it can be placed in the context where IT artifacts are perceived as social actors that interact with users and hold mobile social capital.

Second, this study promotes professional fit as the moderator of the relationships between mobile social networking site usage and its benefits to explain IT artifacts usage. There has long been a lack of moderators between IT implementation and benefits from usage. By examining and incorporating the fit between users' career paths and IT support to measure how IT improves and builds users' professional careers, this paper suggests that such indicators will provide very meaningful insights into how the fit between users' needs and IT support leads to benefits from IT implementation. I therefore suggest that antecedents of IT implementation in this paper can contribute to IS research by understanding.

THEORETICAL IMPLICATIONS

One of the most welcome developments in Information Systems scholarship has been the growing interest in individuals' adoption and implementation of technology in a diversity of

contexts. Recent IS research suggests that although current technology acceptance theories are useful, incorporating other critical factors is necessary to improve their explanatory power (Hsieh, Rai, & Keil, 2008). This study extends previous models to explain the role of mobile social capital embedded in the user-IT artifact interaction in technology implementation. Specifically, while social influence in TAM has been limited to an interpersonal perspective, the current study sheds light on understanding the role of the influence of IT artifacts as a new type of social influence in technology adoption. In addition, TPB can be extended through the addition of mobile social capital, which captures the attitudinal consequences of mobile social networking.

Beyond adding a new variable to adoption models, this research brings a new context to extend the generalizability of technology implementation studies. As objects of relationships and the characteristics of networks of practice are altered due to changes induced by mobile technology, social capital and its impact should be examined. To do so, the current study defines mobile social capital and investigates its unique impact on technology implementation by demonstrating how innovation induces change in usage contexts and how context affects innovation adoption.

MANAGERIAL IMPLICATIONS

To managers, new markets created by innovation is a major source of concern, and organizations continue to experience major failures in the adoption of cutting-edge handheld devices. My analysis highlights how managers can understand information technology artifacts and recognize them as social actors who influence users' attitudes. One of the most interesting

phenomena induced by mobile technology is mobile social networking where actors create virtual space to develop and share knowledge with strangers.

My main argument in this research has been that mobile social capital embedded in IT artifacts is influential in the development of new intellectual capital and impacts attitudes. This argument can be applied to the organizational setting such that organizations can use social networking for creating and sharing knowledge and improving the effectiveness of IT in organizations as well as work performance. For organizations, building mobile social capital requires not only establishing more social ties through collaborative technology, such as shared knowledge repositories and chat rooms, but also through nurturing motivation, commitment, and trust.

LIMITATIONS & FUTURE RESEARCH

Several limitations should be considered when interpreting the results of this study. First, the data were collected from a social networking site, which may restrict the applicability of the results to other populations. However, users of the site are social networkers, and the site is targeted toward professionals and their relationships. The sample collection is a good match with the study's main target population, that is, to examine the outcomes of social networking for business purposes.

A second limitation of this dissertation is the possible presence of social desirability bias when self-reporting "Mobile Networks of Practice Usage." Even though the system usage or information technology usage construct has played a central role in information systems research since 1970s, the usage construct over time has been operationalized by a diverse set of

unsystematized measures (Burton-Jones & Straub, 2006). A systematic approach for reconceptualizing the IT artifact usage construct to overcome the lack of theory and lack of validation in prior usage construct studies would be helpful in the future. For example, the self-reported survey method to measure usage construct in the current study may have systematic errors. Even though it is difficult to get actual usage data, this problem would be reduced (or eliminated) by using actual usage data.

Finally, as mentioned in Chapter III, in networks literature, trust can be both an antecedent of social capital (Coleman, 1988) and a dimension of social capital (Nahapiet & Ghoshal, 1998). This research looked only at the "dimension of social capital" in order to understand trust. If trust is actually operating as an antecedent of social capital, once people build their trust toward networks, then trust as a social capital dimension is not as important as other factors to maintain their interaction with networks (Coleman, 1988). This encourages researchers to explore antecedents of mobile social capital by examining trust with other potential factors.

CONCLUSION

This study developed and validated a model of IT artifacts implementation and value. Drawing upon the social capital and social cognitive theory, the current study proposed theoretical support for factors affecting IT artifacts implementation and outcomes of received from IT artifacts implementation. The study was motivated by the premise that people tend to interact with IT artifacts based on social response theory (Moon, 2000). As hypothesized, the study found that users are willing to interact with networks when they are able to understand

norms, culture, and language in networks, when they are motivated by bounded solidarity with networks, and when they feel obligations to maintain their relationships.

These results shed new light on IT artifacts implementation and value by exploring user-IT artifacts interaction, and should prove useful for both theory development and managerial practice. This study should help to understand that the factors that contribute to mobile social networking cannot be explained only by theories such as TAM, innovation diffusion theory, or task-technology fit, but that they are also anchored in benefits from mobile networks of practice.

This study also introduces a new variable – mobile social capital, which has not been previously examined as an antecedent of IT artifact implementation. Although the variable appears in some well-established theoretical models such as social capital theory, there has been a need to empirically test the implications of these theoretical models in the context of mobile social networks and their impact on mobile social networking and its benefits.

In addition, this study represents a systematic approach to understanding and predicting outcomes of mobile social networking using social cognitive theory. The development of a diverse set of IT artifacts outcomes is in response to several IS researchers (DeLone & McLean, 1992) and IT managers who encouraged building cumulative knowledge in IS success areas. In doing so, this study aims to encourage IS researchers to view outcomes from IT artifacts implementation with a variety of perspectives in order to more fully understand IT artifacts implementation and usage.

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LIST OF APPENDICES

APPENDIX A: MEASUREMENT

Constructs	Measurement
Accessibility	I'm able to access LinkedIn anywhere with your mobile device.
	I'm able to access LinkedIn anytime with your mobile device.
	I'm able to access the content of LinkedIn anywhere with your mobile device.
	I'm able to access the content of LinkedIn anytime with your mobile device.
Ability	I'm able to create content including text, pictures, etc. in LinkedIn.
	I'm able to post content in LinkedIn.
	I'm able to understand the content posted in LinkedIn.
	I'm able to respond to content posted in LinkedIn.
Motivation	I feel that I'm a good participant in LinkedIn.
	It's part of my purpose for participating in LinkedIn to answer questions from other users in LinkedIn.
	LinkedIn rewards me with knowledge and emotional enjoyment.
	I enjoy helping others by providing information in LinkedIn.
	I enjoy expressing myself in LinkedIn.
Commitment	I feel an ongoing sense of obligation to continue to participate in LinkedIn.
	I feel an ongoing sense of obligation to respond to content posted in LinkedIn.
	I feel an ongoing responsibility to participate in LinkedIn to continue my LinkedIn relationships.
Trust	The information provided on LinkedIn is reliable.
	The information provided on LinkedIn is predictable and acceptable.
	LinkedIn is credible.

	LinkedIn looks out for my welfare.
Social influence	People who I find influential would think that I should use LinkedIn.
	People who I find important would think that I should use LinkedIn.
	In general, the organization I belong to has supported the use of LinkedIn.
Personal innovativeness	If I heard about a new information technology, I would look for ways to experiment with it.
	Among my peers, I am usually the first to try out new information technologies.
	In general, I am hesitant to try out new information technologies.
	I like to experiment with new information technologies.
Professional fit	Participating in LinkedIn increases the options available for me to find more challenging career opportunities.
	Participating in LinkedIn increases the opportunity for me to change jobs.
	Participating in LinkedIn increases the opportunity for more variety in my career.
	Participating in LinkedIn increases the opportunity for me to be exposed to more meaningful work.
	Participating in LinkedIn increases the opportunity to gain preferred career assignments.
	Participating in LinkedIn increases the opportunity to gain job security.
MNP usage	How often do you participate in LinkedIn through your mobile device? (Never: Once a month: 1-3 days a week: 4-6 days week: everyday)
	How many minutes a day, on average, do you spend on LinkedIn through your

	mobile device? (Less than 1 minutes, 1-5 mins, 6-10 mins, 11-15 mins, more than 16mins)
	How many minutes a week, on average, do you spend on LinkedIn through your mobile device? (Less than 10 mins: 11-20 mins, 21-30 mins, 31-40, more than 41 mins)
	How many discussion topics do you generate on LinkedIn on average per day through your mobile device? (None: 1-2: 3-4: 5-6: More than 7)
	How many comments do you post on LinkedIn on average per day through your mobile device? (None: 1-2: 3-4: 5-6: More than 7)
Social outcomes	To get support from others
	To find something to talk about
	To feel like I belong to a group
	To maintain a relationship I value
	To find others who respect my views
	To find people like me
	To provide help to others
Novel outcomes	To get immediate knowledge of the latest news
	To find a wealth of information
	To find new ways to communicate interactively using LinkedIn
	To obtain information that I can't find elsewhere
Activity	To cheer myself up

outcomes	To play a game I like
	To feel entertained
	To hear music I like
Monetary outcomes	To find bargains on products and services
	To save time shopping
	To get free information that would otherwise cost me money
	To get products for free
Status outcomes	To find others who respect my views
	To find people like me
	To improve my future prospects in life
	To get up to date with new technology
	To provide help to others
Self-reactive outcomes	To relieve boredom
	To find a way to pass the time
	To feel less lonely
	To forget my problems
	To feel relaxed

APPENDIX B: DIMENSIONS OF MOBILE SOCIAL CAPITAL

Construct	Dimensions	
Accessibility	ACC1	Accessing to mobile networking anytime
	ACC2	Accessing to mobile networking anywhere
	ACC3	Accessing to contents provided by MNoP anytime
	ACC4	Accessing to contents provided by MNoP anywhere
Ability	ABT1	Ability to create contents
	ABT2	Ability to post contents on MNoP
	ABT3	Ability to understand contents
	ABT4	Ability to respond to contents
Motivation	MOT1	Bounded solidarity
	MOT2	Shared goal
	MOT3	Rewards
	MOT4	Help
	MOT5	Self-interest
Commitment	COM1	Obligations in participating in MNoP
	COM2	Obligations in participating in providing contents
	COM3	Responsibility
Trust	TRS1	Reliability of contents provided by MNoP
	TRS2	Predictability of contents provided by MNoP
	TRS3	Credibility of MNoP
	TRS4	Benevolence of MNoP

APPENDIX C: MOBILE SOCIAL CAPITAL CONSTRUCTS: DEFINITIONS AND OPERATIONALIZATION

Construct	Definition (conceptualization)	Operationalization	Source
Structural MSC	Structural mobile social capital refers to how the structure of mobile networks of practice generates access to specific resources.	The extent to which actors are able to access mobile networks of practice.	Nahpiet and Ghoshal (1998); Adler and Kwon (2002); Lee (2009).
Cognitive MSC	Cognitive mobile social capital refers to the cognitive capability to understand and apply the knowledge about mobile networks of practice.	The extent of an actor's capability to participate in activities such as creating, posting and reading messages in mobile networks of practice.	Nahpiet and Ghoshal (1998); Adler and Kwon (2002); Wasko & Faraj (2005).
Relational MSC	Relational mobile social capital refers to the affective nature of the relationships between	Motivation refers to the extent to which actors are willing to participate in activities	Adler and Kwon (2002)

	actors and mobile networks of practice.	within mobile networks of practice	
		Commitment refers to the extent to which actors feel an obligation to engage in future action, and arises from frequent interaction.	Nahpiet and Ghoshal (1998); Lee 2009)
		Trust is defined as the extent actors believe that mobile networks of practice provide predictable and reliable results.	Garbarino and Lee (2003); Garbarino and Johnson (1999)

APPENDIX D: CORRELATIONS BETWEEN MEASURES AND LATENT VARIABLES

	ACC	ABL	MTV	CMT	TRS	MNU	SRO	STO	MNO	ATO	NVO	SCO	SCI	PIN	PFT
ACC1	0.96	0.59	0.45	0.31	0.42	0.29	0.38	0.30	0.15	0.45	0.41	0.42	0.33	0.52	0.27
ACC2	0.96	0.69	0.46	0.36	0.54	0.26	0.44	0.31	0.26	0.53	0.42	0.41	0.35	0.59	0.31
ACC3	0.70	0.58	0.52	0.41	0.53	0.28	0.39	0.31	0.23	0.47	0.43	0.42	0.35	0.53	0.27
ABL1	0.69	0.93	0.61	0.40	0.51	0.41	0.45	0.38	0.14	0.42	0.40	0.46	0.37	0.54	0.32
ABL2	0.47	0.96	0.51	0.25	0.44	0.36	0.35	0.29	0.16	0.39	0.38	0.43	0.37	0.53	0.21
ABL3	0.67	0.96	0.54	0.20	0.41	0.38	0.42	0.33	0.19	0.41	0.43	0.45	0.40	0.52	0.29
ABL4	0.66	0.96	0.58	0.23	0.41	0.33	0.42	0.30	0.13	0.33	0.38	0.45	0.43	0.56	0.23
MTV1	0.36	0.48	0.84	0.50	0.42	0.50	0.51	0.48	0.15	0.40	0.40	0.64	0.37	0.43	0.34
MTV2	0.50	0.55	0.85	0.51	0.55	0.41	0.53	0.47	0.26	0.47	0.51	0.54	0.29	0.50	0.38
MTV3	0.43	0.52	0.87	0.56	0.64	0.45	0.61	0.61	0.39	0.52	0.63	0.64	0.49	0.60	0.55
MTV4	0.49	0.50	0.88	0.60	0.61	0.42	0.42	0.60	0.35	0.45	0.62	0.61	0.47	0.56	0.54

MTV5	0.38	0.49	0.87	0.64	0.51	0.49	0.37	0.57	0.32	0.41	0.52	0.52	0.45	0.53	0.46
CMT1	0.32	0.23	0.59	0.96	0.67	0.53	0.49	0.59	0.34	0.50	0.56	0.61	0.58	0.59	0.51
CMT2	0.41	0.33	0.67	0.95	0.67	0.47	0.44	0.64	0.33	0.53	0.55	0.61	0.55	0.62	0.49
TRS1	0.52	0.43	0.56	0.59	0.89	0.34	0.49	0.53	0.39	0.55	0.55	0.50	0.52	0.65	0.47
TRS2	0.45	0.46	0.65	0.65	0.90	0.39	0.56	0.58	0.38	0.56	0.54	0.53	0.53	0.59	0.50
TRS3	0.53	0.42	0.51	0.61	0.87	0.35	0.57	0.53	0.41	0.49	0.54	0.55	0.54	0.66	0.44
TRS4	0.26	0.28	0.42	0.52	0.75	0.35	0.33	0.42	0.39	0.44	0.50	0.33	0.46	0.40	0.46
MNU1	0.41	0.45	0.61	0.49	0.34	0.65	0.42	0.55	0.27	0.43	0.52	0.57	0.46	0.42	0.40
MNU2	0.11	0.21	0.29	0.36	0.34	0.82	0.40	0.42	0.29	0.39	0.49	0.48	0.42	0.30	0.55
MNU3	0.30	0.40	0.45	0.29	0.30	0.82	0.30	0.38	0.23	0.27	0.47	0.43	0.43	0.28	0.50
MNU4	0.02	0.06	0.20	0.39	0.30	0.64	0.27	0.38	0.31	0.28	0.36	0.29	0.26	0.18	0.41
MNU5	0.15	0.29	0.38	0.40	0.28	0.84	0.32	0.41	0.25	0.25	0.41	0.39	0.42	0.27	0.44
SRO1	0.41	0.44	0.54	0.39	0.45	0.41	0.83	0.68	0.52	0.60	0.61	0.56	0.49	0.53	0.56
SRO2	0.39	0.40	0.42	0.34	0.36	0.37	0.83	0.54	0.41	0.53	0.50	0.45	0.41	0.45	0.42
SRO3	0.42	0.42	0.56	0.48	0.57	0.40	0.87	0.59	0.41	0.68	0.49	0.60	0.51	0.54	0.46
SRO4	0.29	0.28	0.47	0.43	0.55	0.37	0.80	0.59	0.42	0.60	0.51	0.49	0.42	0.47	0.47

SRO5	0.21	0.25	0.36	0.38	0.45	0.38	0.83	0.60	0.49	0.56	0.55	0.52	0.45	0.44	0.46
STO1	0.29	0.27	0.63	0.61	0.55	0.51	0.66	0.88	0.63	0.65	0.58	0.62	0.50	0.62	0.61
STO2	0.35	0.33	0.50	0.46	0.50	0.45	0.66	0.85	0.53	0.70	0.69	0.51	0.53	0.53	0.58
STO3	0.30	0.33	0.49	0.52	0.58	0.56	0.68	0.89	0.60	0.63	0.67	0.55	0.61	0.53	0.58
STO4	0.28	0.35	0.61	0.59	0.51	0.51	0.59	0.87	0.52	0.51	0.68	0.63	0.59	0.62	0.67
STO5	0.17	0.19	0.54	0.61	0.50	0.47	0.57	0.88	0.44	0.46	0.59	0.61	0.60	0.55	0.59
MNO1	0.28	0.21	0.35	0.36	0.45	0.36	0.55	0.64	0.92	0.65	0.49	0.34	0.44	0.42	0.54
MNO2	0.16	0.12	0.29	0.30	0.41	0.38	0.52	0.56	0.95	0.56	0.68	0.25	0.49	0.27	0.57
MNO3	0.14	0.11	0.27	0.26	0.38	0.30	0.45	0.54	0.93	0.55	0.64	0.28	0.42	0.24	0.48
MNO4	0.24	0.17	0.35	0.40	0.46	0.20	0.44	0.54	0.84	0.49	0.56	0.29	0.43	0.34	0.42
ATO1	0.50	0.40	0.52	0.48	0.56	0.46	0.57	0.63	0.44	0.89	0.63	0.60	0.45	0.51	0.58
ATO2	0.45	0.41	0.48	0.50	0.47	0.29	0.54	0.52	0.53	0.80	0.44	0.47	0.41	0.50	0.35
ATO3	0.23	0.16	0.24	0.33	0.42	0.29	0.44	0.48	0.62	0.75	0.49	0.23	0.28	0.30	0.47
NVO1	0.45	0.48	0.61	0.54	0.53	0.56	0.54	0.65	0.49	0.51	0.88	0.63	0.65	0.63	0.68
NVO2	0.35	0.27	0.51	0.53	0.56	0.57	0.63	0.46	0.57	0.65	0.93	0.56	0.56	0.55	0.48
NVO3	0.40	0.38	0.59	0.56	0.65	0.55	0.63	0.36	0.68	0.62	0.90	0.60	0.61	0.61	0.70

NVO4	0.36	0.37	0.50	0.45	0.50	0.50	0.49	0.61	0.70	0.56	0.86	0.49	0.47	0.46	0.66
SCO1	0.36	0.27	0.63	0.58	0.47	0.46	0.43	0.58	0.34	0.41	0.62	0.77	0.37	0.50	0.50
SCO2	0.36	0.40	0.57	0.56	0.46	0.52	0.48	0.54	0.21	0.43	0.50	0.88	0.49	0.51	0.46
SCO3	0.27	0.37	0.47	0.45	0.41	0.53	0.56	0.49	0.21	0.52	0.44	0.82	0.44	0.39	0.37
SCO4	0.44	0.52	0.58	0.47	0.51	0.39	0.60	0.58	0.28	0.46	0.55	0.78	0.51	0.54	0.42
SCI1	0.30	0.36	0.40	0.58	0.57	0.44	0.51	0.58	0.45	0.45	0.58	0.46	0.93	0.60	0.51
SCI2	0.28	0.35	0.44	0.52	0.50	0.51	0.51	0.64	0.55	0.49	0.63	0.51	0.93	0.53	0.61
SCI3	0.40	0.43	0.49	0.54	0.59	0.54	0.52	0.59	0.36	0.39	0.58	0.55	0.92	0.63	0.51
PIN1	0.48	0.60	0.50	0.48	0.55	0.30	0.54	0.49	0.27	0.46	0.50	0.47	0.55	0.85	0.40
PIN2	0.51	0.44	0.56	0.63	0.61	0.42	0.48	0.62	0.32	0.48	0.60	0.57	0.57	0.90	0.51
PIN3	0.51	0.48	0.53	0.54	0.62	0.32	0.56	0.59	0.32	0.51	0.56	0.50	0.56	0.89	0.50
PFT1	0.39	0.35	0.58	0.50	0.49	0.59	0.51	0.65	0.47	0.56	0.70	0.52	0.57	0.56	0.92
PFT2	0.22	0.19	0.46	0.53	0.54	0.55	0.55	0.65	0.53	0.55	0.58	0.49	0.60	0.55	0.94
PFT3	0.21	0.17	0.43	0.47	0.48	0.53	0.53	0.63	0.53	0.53	0.48	0.45	0.52	0.48	0.92
PFT4	0.20	0.23	0.46	0.43	0.49	0.56	0.54	0.64	0.56	0.56	0.51	0.46	0.48	0.47	0.93
PFT5	0.32	0.33	0.49	0.48	0.54	0.58	0.51	0.64	0.52	0.51	0.69	0.53	0.52	0.43	0.91

Notes:

1. ACC: Accessibility; ABL: Ability; CMT: Commitment; MTV: Motivation; TRS: Trust; MNU: MNP usage; SRO: Self-reactive outcomes; STO: Status outcomes; MNO: Monetary outcomes; ATO: Activity outcomes; NVO: Novel outcomes; SCO: Social outcomes; PFT: Professional fit; PIN: Personal innovativeness; SCI: Social influence

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1.2 RESEARCH AND TEACHING INTERESTS

- **Management of IS**: Adoption and the impact of implementation on individuals and organizations
- **Social networks**: The impact of the user-IT artifacts interaction on individuals and organizations
- **Innovation management**: Mobile technology including m-SFA, m-Learning, and "personal information systems"
- **Online & technology purchase (adoption) behavior**: Net generation, online satisfaction, consumer knowledge

Quantitative Methods: SPSS and Structural equation modeling including LISREL, AMOS and PLS

- **Lab experiment**: Mobile technology adoption and implementation (Systems made in Visual Studio 2010)

2. RESEARCH, SCHOLARLY AND CREATIVE ACTIVITIES

2.1 ARTICLES IN REFEREES JOURNALS

1. Kim, D., & Lee, S. (2007). A study on the adoption factors and performance effects of mobile sales force automation systems. *Korean Management Science Review*, 24,127-145.
2. Kim, D., & Whang, J. (2005). An empirical study on the critical factors of the successful m-Learning implementation. *Journal of Information Technology Applications & Management*, 12. 57-80.

2.2 MANUSCRIPTS UNDER REVIEW

3. Kim, D., & Ammeter, A. P. Predicting personal information system adoption with an integrated diffusion model, *Information & Management* (under revision for resubmission: INFMAN-D-11-003**)
4. Kim. D., & Ammeter, A. P. Examining Shifts in Online Purchasing Behavior: Decoding the 'Net Generation, *International Journal of Electronic Commerce* (under 1st round review)

2.3 MANUSCRIPTS IN PREPARATION

1. Kang, H., Kim, D., & Warhol, T. "The impact of Cyber Group Work on ESL Learner of Writing Skills" (under final review)
2. Kim, D., Conlon, S, & Balan, S. "Cognitive response of smart phones and satisfaction: Computer aided content analysis of eWOM" (Data analysis: 80% manuscript)
3. Conlon, S., Kim, D., & Balan, S. "Integrating CAINES and KWIC with human-scored content analysis: Smart phone evaluation" (Data analysis: 80% manuscript)
4. Kim, D. "Under-subjective knowledge, compatibility, and the impact on adoption and implementation of technology" (Developing methodology: 70% manuscript)
5. Kim, D., & Whang, J. "Impact of user's cognitive response on innovation adoption and implementation" (Developing methodology: 60% manuscript)
6. Kim, D., & Lee, S. "A Cross-cultural study on adoption of wireless handheld device: Risk theory and TOE framework" (Working on model: 30% manuscript)

2.4 ACADEMIC PRESENTATIONS & PROCEEDINGS

7. Kim, & Ammeter, A. P. Analyzing User-It Artifact Interaction And Technology Implementation Using Mobile Social Capital. To be presented at the annual meeting of the Academy of Management – Boston, August, 2010.
8. Kim, D., & Lee, S. A Cross-cultural study on adoption of wireless handheld device: Risk theory and TOE framework. Presentation at the annual meeting of the ICIS– Shanghai, December, 2011.
9. Kim, D., & Ammeter, A. P. Analyzing user-IT artifact interaction and technology implementation using mobile social capital. Presentation at the annual meeting of the DSI – Boston, November, 2011.
10. Kim, D., & Ammeter, A. P. Under-subjective knowledge, compatibility, and the impact on adoption and implementation of technology. Presentation at the annual meeting of the AMCIS – Detroit, MI, August, 2011.
11. Kim, D., & Ammeter, A. P. The impact of the user-IT artifacts interaction on the technology adoption: Mobile social networking and mobile social capital. Presentation at the annual meeting of the Informs – Austin, TX, November, 2010.
12. Kim, D., & Ammeter, A. P. Predicting personal information system adoption with an integrated diffusion model. Presentation at the annual meeting of the Academy of Management – TIM Division, Montreal, Canada, August, 2010.
13. Kim, D., & Whang, J. Impact of user's cognitive response on innovation adoption and implementation. Presentation at the International Conference on Information Technology Applications and Management, Seoul, Korea, October, 2009.
14. Kim, D. Adoption of personal information system: innovation diffusion theory and task-technology fit. Presentation at the Allied Academy International Conference- Information and Management Sciences, Las Vegas, NV,October, 2009.
15. Kim, D.,& Ammeter, A. P. Examining Shifts in Online Purchasing Behavior: Decoding the 'Net Generation. Presentation at the Allied Academy International Conference Information and Management Sciences, Tunica, TN, April, 2008.

2.5 GRANTS RECEIVED

1. Research grant, office of the Associate Dean of School of Business, UM, Spring 2012
2. Research grant, Office of the Associate Dean of School of Business, UM, Fall 2011.
3. Research grant, Keumhong Industry, Korea, 2010, 2011, & 2012.
4. Research grant, Office of the Associate Dean of School of Business, UM, Spring 2011.
5. Research grant, MIS Value Research Center, YU, Korea, Fall 2009.
6. Travel grant, Department of MIS, UM, Spring 2010, Fall & Spring 2009, Fall & Spring 2008, Fall & Spring 2007.
7. Travel grant, Graduate Office, Spring 2010, Fall & Spring 2009, Fall & Spring 2008, Fall & Spring 2007.

2.6 AWARDS AND HONORS

A. Awards

1. **Best Paper of 2005** *Journal of Information Technology Applications & Management, 2005*.
2. **Academic Excellence** Master of Science Business Administration, College of Business, University of Illinois at Urbana Champaign, 2005-2006.
3. **Graduate Assistantship** School of Business Administration, University of Mississippi, 2006-2012.
4. **Graduate Assistantship** School of Business, Yonsei University, 2003-2005.
5. **Dean's list and full-scholarship** Yonsei University, *2000*.
6. **Dean's list and full-scholarship** Yonsei University, 1999.
7. **ARCOM-Army Commendation Medal**, US Army and Korean Augmentation To the United States Army (KATUSA), 1999.

B. Honors

8. **The president of University of Mississippi Korean Student Association**, 2009-Present
9. **Chairman of Mobile Forum**, Yonsei University, 2004.
10. **The President of Student Council,** Youngil High School, 1999.

2.7 PROFESSIONAL ACTIVITIES

PROFESSIONAL AFFILIATIONS

1. Academy of Management
2. Southern Management Association
3. Association for Information Systems

ACADEMIC REVIEWER ACTIVITIES

1. **Reviewer** for the Diffusion of Information Technology Track, of the 2011 17th America Conference on Information Systems, Detroit, Michigan.
2. **Reviewer** for the Organizational Communication and Information Systems Track, of the 2011 Academy of Management Conference, San Antonio, Texas.
3. **Reviewer** for the Organizational Communication and Information Systems Track, of the 2010 Academy of Management Conference, Montréal, Canada.

3. TEACHING

3.1 COURSES TAUGHT

MIS 309 Principles of MIS: University of Mississippi August 2007 – 2009 (7 sections)
MGT 2002 PC Application Practices I, Yonsei University, Spring 2004
MGT 2002 PC Application Practices II, Yonsei University, Fall 2004
MIS 1001 Introduction of MIS: Yonsei University, March 2003- June 2005 (5 sections)

3.2 CURRICULUM DEVELOPMENT

2007 Extension of *Principles of MIS* to include Spreadsheet and Web programming, University of Mississippi.
2004 PC Application Practice I & II, Yonsei University, Korea.
2003 Extension of *Introduction of MIS* to include office suites practice, Yonsei University.

4. PROFESSIONAL EXPERIENCE

1. *Assistant Professor*, Department of Computer Information Systems, School of Business, Delta State University
2. *Instructor of MIS & Research Assistant* **University of Mississippi,** University, MS, August 2007 – 2012
3. *Researcher* **MIS value research center,** Wonju, Korea, March 2003 – May 2005
   Main duty: Research career orientation, job satisfaction, and organizational commitment.
4. *Instructor of MIS &* Research Assistant **Yonsei University,** Seoul, Korea, March 2003 – December 2004
5. *Owner* **DIY furniture,** Seoul, Korea, 1999-2001
   Main duty: Development and management of a furniture online business.
6. *Sergeant* **US Army,** 18Th Medical Company, Seoul, Korea, February 1997 – April 1999
   Main Duty: Network Administration.

5. TECHNICAL SKILLS

1. **Enterprise Systems**: SAP ERP, SAP CRM
2. **Language**: Visual Basic 6.0, Visual Basic. Net, Java, .NET Framework, C#, C^{++}
3. **Database**: MS Access, Oracle SQL
4. **Scripting:** HTML, XML, CSS, ASP, JavaScript
5. **Operating Systems:** Windows 95/98/2000/XP/Vista/2007
6. **Statistical Packages:** SPSS, AMOS, LISREL, and PLS.
7. **Others:** MS Office, MS Project
8. **Network administration**: Ethernet, TCP/IP