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Privacy Paradox or Bargained-for-Exchange:

Capturing the Relationships among Privacy Concerns, Privacy Management, Self-Disclosure, and Social Capital

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PRIVACY PARADOX OR BARGAINED-FOR-EXCHANGE: CAPTURING THE RELATIONSHIPS AMONG PRIVACY CONCERNS, PRIVACY MANAGEMENT, SELF-DISCLOSURE, AND SOCIAL CAPITAL

by

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Dedication

To my family

Acknowledgements

"The Lord has done great things for us, and we are filled with joy."

My doctoral journey ends at the season of thanksgiving, and my heart overflows, like the psalmist's, with gratitude and joy. There were difficulties, tears, fatigues, and troubles, but blessings, laughter, lessons, joy, and abundant love. I have been blessed to have so many people who have accompanied and helped me along the way.

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Privacy Paradox or Bargained-for-Exchange: Capturing the Relationships among Privacy Concerns, Privacy Management, Self-Disclosure, and Social Capital

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Supervisor: Thomas J. Johnson

The dissertation seeks to bridge the gap between privacy and social capital on SNS use by bringing the essential elements of social networking, privacy concerns, privacy management, self-disclosure, and social capital together to examine their complex relationships and the daily challenges every SNS user faces. The major purposes of this dissertation were to revisit the privacy paradox phenomenon, update the current relationships among privacy concerns, self-disclosure, and social capital on Facebook, integrate these relationships into a quantitative model, and explore the role of privacy management in these relationships.

The goal was realized by using Amazon.com's Mechanical Turk to test a theoretical model that used survey data from 522 respondents. The findings from the dissertation show the impact of the structural factor—Facebook social network intensity and diversity—and the impact of individuals' self-disclosure on Facebook on their perceived bridging and bonding social capital. This dissertation employed various measurements of key variables to update the current status of the privacy paradox phenomenon—the disconnection between privacy concerns and self-disclosure on social media—and found the break of the traditional privacy paradox

and the existence of the social privacy paradox. Findings also show that private information about personal information, thoughts, and ideas shared on Facebook become assets in using Facebook and accumulating social capital. Meanwhile, higher privacy concerns reduce the level of self-disclosure on Facebook. Therefore, privacy concerns become a barrier in Facebook use and in accumulating social capital within these networks. This dissertation further examined the mediating role of privacy management to solve the dilemma. Findings confirmed that privacy management is important in redirecting the relationships among privacy concerns, self-disclosure, and social capital. People who have higher privacy concerns tend to disclose fewer personal thoughts and ideas on Facebook and miss the opportunity to accumulate social capital. However, when they employ more privacy management strategies, they are more willing to self-disclose and thus accumulate more social capital on Facebook networks. Lastly, the proposed integrated model examined through SEM analysis confirms the delicate relationships among the social networking characteristics, privacy concerns, privacy management, self-disclosure, and social capital.

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Chapter 1: Introduction

Most digital technologies are a double-edged sword, bringing both promising possibilities for connection and communication beyond the limitations of geographic boundaries and, meanwhile, increasing the risk of invasion of privacy. Social media are no exception. Like many other technologies, social media provide an instant and convenient platform for social connection, communication, and resources. They also inherit the risk of easily exposing individuals' private information and the danger of privacy intrusion.

The risk of privacy invasion is higher and the consequences far wider in the era of social media than ever before. A vast amount of valuable personal and social information is available and recorded digitally in social media. These media have brought not only individuals' personal life (e.g., personal information, personal thoughts, location) but also their social circle (e.g., social interactions, composite of social networks) online and before the eyes of those in their connected social networks. Thus, social media serve as a great resource and a database in which to dig for information. On the positive side, people can understand a person more easily and possibly more deeply, which benefits a relationship. On the negative side, this resource can be used to destroy or do harm to a person. The risk of privacy invasion should not be underestimated and the accompanying privacy concerns may change interpersonal relationships and communication.

Social networking sites (SNSs) such as Facebook, Twitter, LinkedIn, and Instagram allow users to present themselves, maintain existing social ties, and establish new social connections (Ellison, Steinfield, & Lampe, 2007). The features of SNSs allow people to access others' personal information easily, raising concerns over privacy. Many scholars have emphasized the risks of using SNSs, such as

stalking, cyber-bulling, and identity theft (Gross & Acquisti, 2005; Livingston & Baker, 2010; Stutzman, 2006). However, these privacy concerns do not hinder the growing number of SNS users and their self-disclosure on SNSs. Scholars have called this phenomenon the "privacy paradox"—the disconnection between privacy concerns and self-disclosure on social media (Acquisti et al., 2006; Barnes, 2006; Debatin et al., 2009). Seventy-four percent of online adults in the U.S. have used SNSs (Pew, 2014) and more than 40% uses multiple SNSs (Duggan & Smith, 2013). SNSs have become a social structure in which users accumulate social capital to produce desirable benefits. Social capital represents the social resources available to people through their social interactions based on trust, norms, and reciprocity (Coleman, 1988; Lin, 2001; Putnam, 2000).

Though SNS users are growing in number and SNSs have become significant tools and arenas in today's social life, individuals' privacy concerns are also growing in relation to the new media environment. A Pew study shows that, in 2013, half of all Internet users in the U.S. worried about their personal information being available online, up from 33% who expressed concern in 2009. More than 85% of Internet users have taken steps to protect their privacy by removing or masking their digital footprints (e.g., cookies, Internet Protocol) (Rainie, Kiesler, Kang, & Madden, 2013). Therefore, this study focuses on two major questions: First, what is the role of privacy concerns in individuals' SNS use? Is privacy a barrier for individuals in making connections or is privacy an asset for individuals to trade for social capital through self-disclosure? Second, what is the role of privacy management in connecting the concepts of privacy concern, self-disclosure, and social capital on SNSs?

REVISITING THE PRIVACY PARADOX

Earlier studies focusing on the pitfalls of SNSs have expressed concern about privacy intrusions regarding personal data from the sites and third-party access

(Acquisti et al., 2006; Barnes, 2006; Debatin et al., 2009). Those studies focused on the "privacy paradox" in which people do not apply their privacy concerns to their SNS use behavior. That is, people who have privacy concerns continue to disclose their personal information on SNSs. This gap between privacy concerns and self-disclosure has often been attributed to a lack of risk and problem awareness, the lack of skills to use privacy settings, and the lack of awareness that SNSs are public places (Acquisti et al., 2006; boyd & Hargittai, 2010; Debatin et al., 2009; Tufekci, 2008; Yao et al., 2007; Youn & Hall, 2008). For these scholars, the way to protect individuals from privacy intrusion is to decrease their SNS usage and their self-disclosure on the sites. On the other hand, other scholars have argued that it is not people's lack of awareness but rather their purpose in using SNSs, the varied definitions of privacy researchers use, and SNSs' interface design that create the privacy paradox (Livingston, 2008). Livingston (2008) argued that people are aware that SNSs are public places but they continue to disclose information about themselves on SNSs to sustain intimacy. Second, the psychological concept of privacy emphasizes "who knows what about you," and individuals' privacy concerns about unwanted audiences such as parents and employers are often higher than the privacy threats of data mining and cookies. Third, SNSs' interface design creates the binary and simple classification of "friends." Every social connection in one's social network is simplified as one category of "friends." This interface design makes it difficult to customize users' self-disclosure to only a certain group of people without worrying about consumption from unwanted or unrelated "friends" and fosters a new type of interpersonal communication and self-disclosure on SNSs. Compared to other SNSs, Facebook offers a stronger control over privacy. Facebook users can change their privacy setting to just friends, block people, untag themselves on posts and photos, etc. However, due to the nature of social networking and the design of linked

networks on Facebook, these settings are still very permeable (Acquisti & Cross, 2006). People can easily share things and post private information about a certain user to their own networks, thus spreading the information to unwanted others. In addition, even though one Facebook user can block an unwanted person, the unwanted person can still acquire personal information about the user indirectly through adding this user's friends and reading their conversation and interactions on Facebook. It may be easy to change one's own settings but it is difficult to control the Facebook settings and actions of one's networked friends.

Therefore, the current study examined the impact of privacy concerns and individuals' Facebook social networks on their self-disclosure and their perceived social capital outcomes, while seeking to contribute to a more accurate understanding of the role of privacy in individuals' SNS use, whether it is a barrier to or an asset in accumulating social capital. This study also examined the strategies individuals employ to maintain both social capital and their privacy in the current social media environment.

THE NEW ROLE OF PRIVACY MANAGEMENT

The second main focus of this study is the mediating role of privacy management between privacy concerns and self-disclosure on SNSs. General Internet users do not give up using the Internet even though they have increasing privacy concerns. Their reasons may include that the Internet has become an inseparable tool for use in connecting to the world and managing daily life and that the Internet offers a vast amount of resources and benefits that are difficult to give up. This study argues that SNS users continue to use SNSs because of the social resources they gain from SNSs, but they will adapt other strategies to lower the risk of privacy invasion and to continue to maintain social relationships through self-disclosure on SNSs. This study defines the use of these strategies as "privacy management" and argues that it is

important and urgent to discover the role of privacy management in social media use and its impact on self-disclosure on SNSs.

Answering this major question seems urgent and significant because it lays the foundation for developing theories of self-disclosure and privacy in the social media environment. To explain the delicate relationship among privacy concerns, self-disclosure, and social capital, this study introduces one significant element—"privacy management"—to the theoretical framework and emphasizes its role in explaining the dilemma between privacy concerns and self-disclosure on SNSs. Privacy management refers to "how people manage private information, both theirs and others' who have granted access to their information" (Child et al., 2011; Petronio, 2002). This includes the acts or skills of controlling and making decisions about one's private information. For example, Facebook users can manage their privacy by changing their profile to friend-only, deleting wall posts, and un-tagging photos. Previous studies focused on the threats of self-disclosure on social media, and their solution for the privacy paradox was to enhance individuals' privacy skills and decrease the level of interactivity and self-disclosure on SNSs (Acquisti et al., 2006; Barnes, 2006; Debatin et al., 2009). This pessimistic approach provides little help for individuals who are eager to make and maintain social connections through SNSs. Based on the findings related to the "privacy paradox" and the statistical numbers from Pew reports, this study argues that instead of relinquishing the benefits of using SNSs, most individuals take a more optimistic approach to the management of their privacy.

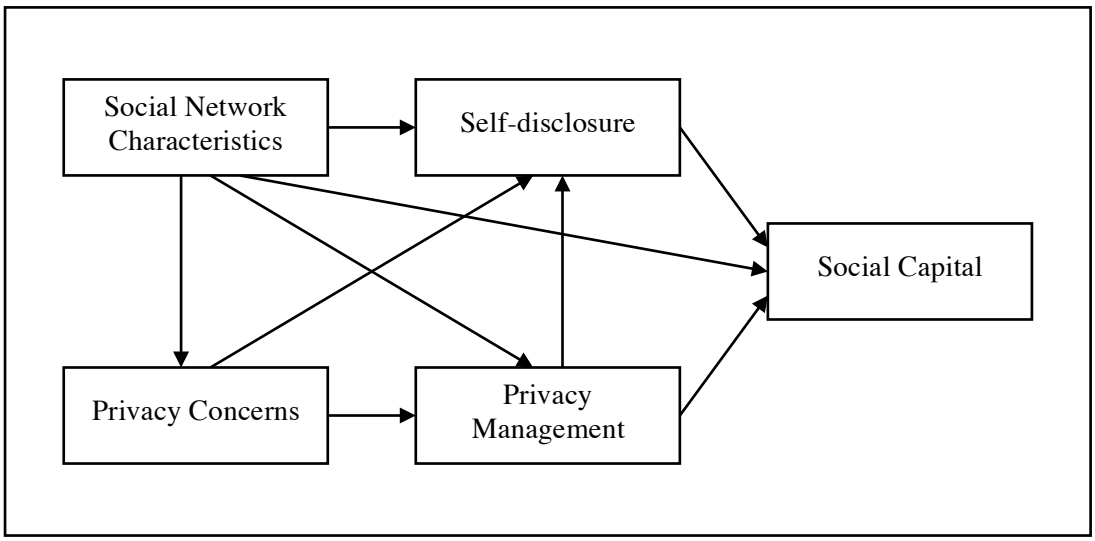
Recent studies have begun to examine the relationship between privacy concerns and self-disclosure from this optimistic perspective of "privacy management" (Child, Haridakis, & Petronio, 2012; Stutzman & Kramer-Duffield, 2010), but they either lack a clear connection to social capital or simplify individuals' privacy management. Therefore, the second major question of this study is: What is

the role of privacy management in connecting the concepts of privacy concerns, self-disclosure, and social capital on SNSs? Facebook exemplifies this trade-off between privacy and self-disclosure to gain social capital, as well as the privacy management process itself, because of the privacy settings it provides. Facebook users can access various privacy settings to manage their interpersonal relationships and level of self-disclosure. At the same time, Facebook has been notorious for privacy difficulties. For that reason, this study focuses on the most popular SNS—Facebook—to analyze its impact on individuals' social relationships and the challenges this brings to their social interactions.

PURPOSE OF THE STUDY

To answer these two major questions and elaborate on the mediating effects of privacy management and self-disclosure on the link between privacy concerns and social capital, the current study proposed a path model, as shown in Figure 1, to illustrate the relationship among privacy concerns, social network characteristics, self-disclosure, privacy management, and social capital.

Figure 1.1. The Theoretical Framework



First, this study examined how privacy concerns affect privacy management and self-disclosure; then the study explored whether there are indirect effects of privacy concerns on social capital through privacy management and self-disclosure. Second, this researcher suspected that there are direct effects of social network characteristics (network size, network intensity, and network diversity) on privacy management and self-disclosure and indirect effects of social network characteristics on social capital through privacy management and self-disclosure. Therefore, the current study investigated the interaction effect between social network characteristics and privacy concerns and their impact on self-disclosure and privacy management (see Figure 1). This study conducted an online survey through Qualtrics and recruited participants for one week in June 2014 on Amazon.com's Mechanical Turk, a crowd-sourcing system that allows requesters to post Human Intelligence Tasks (HITs) to a large number of people who complete tasks for monetary payment.

Based on previous research and the integrated model illustrated in the current study, three possible sets of causal relationships were explored. The first involved how the two independent variables—privacy concerns (PC) and social network characteristics (SNC)—affect self-disclosure (SD). Although rare evidence has proven a direct impact of privacy concerns on users' self-disclosure (i.e., PC→SD), most scholars still assume that people who have higher privacy concerns will decrease their self-disclosure on Facebook (Debatin et al., 2009; Ellison et al., 2011b; Taddicken, 2014; Tufekci, 2008). Social network characteristics also affect individuals' self-disclosure (i.e., SNC→SD). For example, individuals' social network size on Facebook is positively related to self-disclosure (Young & Quan-Haase, 2009). Thus, the current study also examined the effect of social network characteristics on self-disclosure in terms of size, intensity, and diversity.

Second, this model explored how the two independent variables, privacy concerns and social network characteristics, affect privacy management (PM). As noted previously, the current study aimed to explore these relationships (i.e., PC→PM; SNC→PM) because privacy management is a relatively new concept in studying SNSs and there is increasing use of privacy settings on Facebook (Madden, 2012; Madden et al., 2013; Stutzman et al., 2010). Individuals who have higher privacy concerns are more likely to personalize their privacy to manage and protect it (Stutzman et al., 2011). In addition, this study arguef that social network characteristics also affect privacy management. With the increasing numbers and diverse backgrounds of friends, and the higher intensity of SNS use, individuals are becoming more likely to manage their private information and adjust their privacy settings.

Third, this model explored how social network characteristics, privacy management, and self-disclosure affected social capital (SK). Social network characteristics are the structural factors that affect individuals' social capital (i.e., SNC→SK). For example, network intensity is a significant predictor of social capital (Ellison et al., 2007; Valenzuela, Park, & Lee, 2009), and the number of friends is positively related to social capital (Burke et al., 2010; Ellison et al., 2010, 2011b). Privacy management is related to social capital (i.e., PM→SK). Ellison et al. (2011b) found that Facebook users who employed privacy enhancing behaviors reported higher perceived social capital. Self-disclosure also affects social capital (i.e., SD→SK). The more information individuals disclose to others, the more social capital they have (Burke, Kraut, & Marlow, 2011; Steinfield et al., 2008).

SIGNIFICANCE OF THE STUDY

This study aimed to bridge the important fields of online social network research, social capital, and privacy, which usually represent the pros and cons of the

social relationships built and maintained online. To grasp the structural impact on individuals' interactions and connections, the changing concept of the social network (from the old concept in the private domain to the new concept in the blurred public and private domains), and the challenges individuals face in putting old wine (social network) into a new wineskin (SNSs), this study applied social capital theory, privacy theory, and self-disclosure theory to examine the tensions found within the social networks emerging in the new media environment.

This study first used social capital theory to illustrate people's motivations to use and become highly involved in social networking sites, especially Facebook, and the resources people gain through their online social networks. Second, this study reviewed the concept of privacy from a psychological perspective, which emphasizes individuals' control over determining for "themselves when, how, and to what extent information about them is communicated to others" (Westin, 1967), and considering privacy's dialectic nature (Altman, 1975). This psychological perspective of privacy best fits the online social network, and it lays the foundation for privacy management. The current study explored how people handle the tension of presenting themselves to exchange information, win trust, or gain social capital in a new social network mixed with public and private domains, where they are likely to have higher privacy concerns when disclosing personal information and presenting themselves online. Third, this study examined the role of self-disclosure in establishing interpersonal relationships and its association with trust and reciprocity, the main components of social capital theory, as well as the privacy factors affecting self-disclosure. The current study touched on the questions raised in the new structure—the online social network created by Facebook (e.g., the structural factors that influence self-disclosure). In other words, this study examined the impact of social network characteristics, such as who constitutes one's social network on Facebook and the

frequency of social interactions on Facebook, on self-disclosure. What strategies do people employ in self-disclosure under the impact of privacy concerns and the quest for social capital?

Numerous studies have been conducted on social capital and Facebook, privacy issues on Facebook, and how people disclose themselves on Facebook, but no study has connected these essential elements. The main contributions of the current study include the following:

(1) The study bridges the gap between privacy and social capital on SNS use by bringing the essential elements of social networking, privacy concerns, privacy management, self-disclosure, and social capital together to examine their complex relationships and the daily challenges every SNS user faces.

(2) Since Facebook has become the most popular SNS in the U.S. and is no longer used only by college students, this study expands the data to U.S. online adults beyond the relatively small samples constituted by undergraduate students at one particular U.S. university, which most Facebook studies have used. To collect more diverse and representative data on Facebook users beyond college student samples, this study used Amazon.com's Mechanical Turk, which also eliminates the concern over lack of Internet literacy in people's privacy control ability because MTurk participants are likely to have higher Internet literacy and skill (Berinsky, Huber, & Lenz, 2012). Though data collected through MTurk are not random, it is still beneficial to researchers to explore new relationships and test a new model.

(3) Studies trying to link the relationships among social capital, privacy, and self-disclosure usually are strong in their theoretical framework but weak in measuring one of the components. For example, Ellison et al. (2011) used only two items to measure disclosure, and Tufecki (2008) used one item to measure privacy concerns. This study uses a more comprehensive model to examine the relationships

among the social network, privacy concerns, self-disclosure, and social capital to develop a more complete measurement that is closer to actual Facebook settings and individuals' privacy strategies.

(4) This study emphasizes the role of privacy management in mediating privacy concerns and social capital. The significance of the concept of privacy management is increasing and helps to establish the theoretical linkage between privacy and self-disclosure, as well as that of privacy concerns and social capital in the social media environment. Some qualitative studies have conducted in-depth interviews or focus groups to show the significant role of privacy management (e.g., Young & Quan-Haase, 2013) in the dilemma among privacy concerns, self-disclosures, and social relationships. Therefore, this study proposes a more comprehensive model, trying to crystallize the delicate relationships among these essential elements in a quantitative approach.

(5) The study focuses on a more dynamic relationship and structural impact. Social capital is not only a result of Facebook use but also an influencing factor. Social capital is both the network and the effects of the network (Putnam, 2000) and most studies have focused on the beneficial outcome of social capital (Williams, 2006; Ellison et al., 2007). People who have already tested the benefits of social capital will continue to use Facebook and adjust their personal relationship management on Facebook. Therefore, in addition to examining the beneficial outcome of social capital, this study will also examine the structural impact of the social network, including network intensity, network diversity, and network size, on individuals' self-disclosure and its relationship to privacy.

(6) Last but not least, findings of this study contribute to theoretical developments in individuals' daily challenges in building up social norms to maintain social relationships and to protect personal privacy when using social media. It also

contributes to helping policy makers and social media companies understand their consumers. In the era of social media, individuals' social capital generates companies' capital. Emphasizing the mediating role of privacy management, companies may develop new business models and enhance their privacy settings to retain users' self-disclosure on their SNSs. Individuals can become more aware of the privacy risks on SNSs and have more options in managing their privacy and social relationships on such networks. Policy makers will understand the importance of privacy and know how to manage it and protect citizens through developing new regulations. For example, policy makers can provide privacy management options, stricter ways to protect personal information, or restrictions of the use of personal data because users have stronger trust or they've created a strong need to use SNSs but fail to provide relevant ways to avoid possible danger.

OVERVIEW

The introduction chapter has delineated the theoretical framework and key concepts. In the chapters to follow, this dissertation will develop the arguments introduced here and investigate the effects of privacy concerns and social network characteristics on Facebook users' self-disclosure, privacy management, and perceived social capital. In so doing, this study endeavors to contribute to an understanding of changes brought by social media, in particular individuals' social networking behaviors and strategies to avoid privacy invasion and the need of acquiring social capital through closely connected social networks on social networking sites.

In Chapter 2, this dissertation reviews available theoretical thought and empirical evidence relating to the privacy paradox, the disconnection between privacy concerns and self-disclosure on social media, and perceived social capital on Facebook. This dissertation traces each key concept from social capital and privacy,

to self-disclosure and the impact of social media on the study of these concepts. The study then introduces the role of privacy management in crystalizing these intertwined relationships and proposes the following research questions and hypotheses.

Chapter 3 introduces the methods used in the dissertation to test the research questions and hypotheses posited in Chapter 2. This dissertation relies on data collected through Amazon.com's MTurk. The online survey was conducted from June 11, 2014 to June 17, 2014. Chapter 3 details the data collection process and provides discussions about the operationalization of key concepts, such as privacy concerns, social capital, social network characteristics, self-disclosure, and privacy management. It also provides a section about the data analysis procedure.

In Chapter 4, this dissertation first provides descriptive analyses of key variables to update the general picture of user behaviors on Facebook. Second, it presents regression models to address the big picture of the relationships among key variables. Third, this dissertation focuses on the mediating roles of privacy management and self-disclosure on the relationship between privacy concerns and social capital. Finally, it examines the proposed integrated SEM model about relationships among the social networking characteristics, privacy concerns, privacy management, self-disclosure, and social capital.

This dissertation concludes in Chapter 5 with a summary and discussion, focusing on: 1) individuals' perceived social capital on Facebook through self-disclosure, 2) an update of the privacy paradox, 3) the mediating role of privacy management in reducing privacy concerns, encouraging self-disclosure, and fostering social capital accumulation, and 4) an examination of the integrated model. Further, the implications of the findings are evaluated in relation to the SNSs' function in society. In addition, limitations of the study designs and analyses and possible future studies are presented.

Chapter 2: Literature Review

PRIVACY ISSUES ASSOCIATED WITH FACEBOOK

Privacy has remained the biggest concern and criticism for Facebook. From Facebook founder Mark Zuckerburg's statement that the age of privacy is over (Kirkpatrick, 2010) and that privacy is no longer a "social norm" in 2010 to the secret massive experiment on users' emotional state without their consent in 2014 (Kramer et al., 2014), Facebook has been notorious for violating users' privacy. This has raised several controversial issues over the last decade. Ironically, Facebook has also remained the most popular social networking site (SNS), with the highest level of user engagement and diverse demographic groups (Duggan et al., 2013), and the one that provides the most privacy options for its users. The popularity of Facebook reflects a fundamental desire for social connections. Facebook breaks the limits of geographic boundaries and creates a new way of connecting, fostering the rise of online social networks built on blurred public and private spheres and turning information and ties into important capital. Revealed or hidden personal information and social capital within connected social networks have become resources for other connected people through which to generate social capital.

Zuckerburg's claim in 2010 captured the changing concept of privacy and the boundary of both using and revealing personal information in a semi-public sphere; however, he didn't capture how people will adapt their ways of handling their personal information within their online social network for the long run until four years later. In 2014, Zuckerburg made another claim that all new Facebook users' privacy defaults would no longer be set publicly, hoping this "dramatic" change would encourage its users to release more personal information and opinions online (Goel, 2014). This reflects another turning point of the concept of privacy and social networking, and it's a crucial time for examining the role of privacy management in

the relationships among privacy concerns, self-disclosure, and social capital on social networking sites, which is the main focus of this study. Therefore, this study reviews the literature to capture how social media affect the concepts of social network, social capital, and privacy and how the interactions of these changing concepts challenge individuals' self-disclosure and privacy management. This chapter first reviews the relationship between SNSs, especially Facebook, and social capital. How do social media affect individual's social connection and, further, the way to generate and maintain social capital? Second, it probes the relationship between SNSs and privacy. How do social media affect personal privacy? Is privacy an asset or a barrier in using SNSs? Third, this study reviews the role of self-disclosure in connecting privacy and social capital on SNSs and introduces the role of privacy management to the theoretical framework of the study.

SOCIAL CAPITAL AND SOCIAL NETWORKING SITES

Overview of Social Capital

The root of the intellectual concept of social capital can be traced back to the convergence of major economic and sociological ideas (see Woolcock, 1998). With the efforts of scholars such as Bourdieu and Coleman in the late 1970s and early 1980s, social capital theory has emerged and become a heated topic in sociology. Though scholars have tried to define social capital, no final definition has emerged because the concept encompasses many features of various social structures (Portes, 1998; Lin, 1999). Bourdieu (1986, p. 249) defined social capital as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition." That is, group membership "provides each of its members with the backing of the collectively-owned capital, a 'credential', which entitles them to credit,

in the various senses of the word" (Bourdieu, 1986). In Coleman's (1988, p. 98) definition, social capital acts as "a variety of entities with two elements in common: They all consist of some aspect of social structures, and they facilitate certain action of actors—whether persons or corporate actors—within the structure." Focusing on the individual level and the notion that social capital is an "investment in social relations with expected returns," Lin (1999) synthesized major social capital concepts and defined social capital as an "investment in social relations by individuals through which they gain access to embedded resources to enhance expected returns of instrumental or expressive actions" (p. 39). Therefore, "investment in social capital," "access to and mobilization of social capital," and "returns of social capital" constitute the processes in Lin's social capital theory model, and the embedded resources in his concept include information, influence, social credentials, and reinforcement (Lin, 1999, p. 39).

Unlike Lin, who emphasized the individual level of social capital, Putnam (1995, 2000) focused on the aggregated level of social capital and its impact on people's civic and political engagement. Due to its straightforward categorization of social capital and its implications for the aggregated level, Putnam's idea of bridging and bonding social capital is widely used in current social capital studies (e.g., Williams, 2006; Ellison et al., 2007). Bridging social capital occurs when people from diverse backgrounds and different social networks connect. Bridging social capital broadens one's social horizons and opens up opportunities for new resources, but it provides little emotional support. On the other hand, bonding social capital provides stronger emotional support because it is often generated from closer and stronger personal connections with homogenous backgrounds (Putnam, 2000; Williams, 2006). The types of relationships in the network yield varied social capital. People in weak-tie relationships are often from different backgrounds and tend to bring innovative

information and opportunity (Granovetter, 1973), resulting in more bridging social capital, while the strong-tie relationship tends to offer emotional and substantive support, resulting in more bonding social capital. In addition to the well-known concepts of bridging and bonding social capital, Putnam's definition of social capital emphasizes social trust and reciprocity. Putnam (2000, p. 19) argued that "social capital refers to connections among individuals—social networks and the norms of reciprocity and trustworthiness that arise from them." According to Putnam (2000), generalized reciprocity is the Golden Rule of social networks that involve mutual obligations, which refers to a confident expectation that in the future the receiver or someone else will return the favor to the giver. Social trust is a belief in the honesty of others, a good faith in people, and is the key ingredient in generalized reciprocity because it affects mutual cooperation. Putnam (2000, p. 20) argued that "trustworthiness lubricates social life. Frequent interaction among a diverse set of people tends to produce a norm of generalized reciprocity." Bourdieu (1986, p. 251) also touched on the reciprocal nature of social capital in which "the reproduction of social capital presupposes an unceasing effort of sociability, a continuous series of exchanges in which recognition is endlessly affirmed and reaffirmed."

As mentioned previously, new forms of social networking and relationships have emerged in the new media environment. With these changes in social networking, social capital—resources gained within the network—can also change. Though possessing different views on social capital in the new media era, both Lin (1999) and Putnam (2000) mentioned the impact of the Internet on social capital theory. While many people see the Internet as a panacea to end the decline of civic engagement and social capital, Putnam viewed social capital as a prerequisite for, not a consequence of, effective computer-mediated communication and argued that this new type of communication will only complement, not replace, face-to-face

communication. Wellman, Boase, and Chen's (2002) study also proved this relationship. Though Putnam (2000) agreed that the potential benefits of computer-mediated communication for civic engagement and social connectedness are impressive due to features of the online flow of information, such as more easily gaining intellectual capital, the involvement of peripheral participants, and more egalitarian and heterogeneous participants, he expressed concerns about the digital divide, cyber-balkanization, depersonalization, and the lack of social cues in online information and discussion. On the other hand, Lin (1999) saw the Internet era as bringing a revolutionary rise in social capital where social capital will soon supersede personal capital in significance and effect. Social networks are not just a list of "contacts," but they have value. Therefore, this study defines social capital as values embedded in social networks, that is, the instrumental and expressive resources and support that people can acquire and accumulate from their networked social relationships based on the trust and reciprocity they or others have invested and nurtured in these relationships.

Benefits of SNS Use

Studies on SNSs have often focused on the outcome aspect of social capital, that is, "benefits individuals derive from their social relationships and interactions: resources such as emotional support, exposure to diverse ideas, and access to non-redundant information" (Ellison, Steinfield, & Lampe, 2010, p. 124). Different media and media content serve various needs (Blumler & Katz, 1974). Growing evidence has suggested that people use Facebook mainly for social needs, such as communication among networked members, and are motivated by reliability and credibility (Kaye & Johnson, 2014). These users receive new ideas, useful information, social support, and other resources from their social network (boyd et al., 2007; Ellison, Steinfield, & Lampe, 2007). These accumulated resources are the

social capital resulting from Facebook use. Many studies have examined individuals' motives for using social media and the needs they attempt to satisfy. Raacke et al. (2008) found that people use SNSs mainly to keep in touch with friends and to make friends. Other studies showed that people use SNSs to track networked friends and for social surveillance (Joinson, 2008; Lampe et al., 2007). The social needs of connection and communication with friends on SNSs are also displayed when people seek political information on SNSs. SNS users enjoy the excitement of an election race and contact with like-minded people (Kaye, 2011). Kaye and Johnson (2007) also found that the motives and needs for using blogs are different from using SNSs. People use SNSs for social reasons while they use blogs for seeking alternative information that the distrusted mainstream media source do not provide (Johnson & Kaye, 2006, 2009; Kaye & Johnson, 2006).

Social networking sites such as Facebook provide a simple way to connect with existing social relationships, build up social connections, receive new information through friends' networks, and disclose one's own information to all within the network beyond geographic and social distance limitations. In an era in which information and ties constitute important capital (Wellman, 2002), SNSs have become social structures through which to seek, accumulate, or maintain social capital. In addition, the wide range of identifying information (i.e., mutual friends and shared interests) may encourage users to activate and transform "latent ties"[1] into "weak ties" (e.g., those who are listed as friends but who are no better than acquaintances). This is associated with bridging social capital (Ellison et al., 2010) as well as drawing closer and transforming weaker ties into the strong ties associated with bonding social capital through increased interactions on SNSs. Therefore, many

[1] This is what Haythornthwaite (2005) defined as connections that are "technically possible but not yet activated socially." For example, there are people in Facebook groups and pages with shared interests but no friendship ties.

studies have reported that social capital, both bridging and bonding, becomes the most prominent positive outcome of SNS use (Burke et al., 2010; Ellison et al., 2007, 2011; Steinfield et al., 2008, 2009). Using a more structural measurement, Hampton et al. (2011) also identified the special role of SNS use among general ICTS and argued that SNS use directly and indirectly increases network diversity and the accompanying social capital.

Investment in social relationships is essential to social capital (Chen, 2013; Lin, 2001) and a strong social network must be built on trust and reciprocity (Putnam, 2000). Self-disclosed information posted on a personal profile or shared through personal interaction on Facebook is a sign of trust to friends, and social interaction such as leaving messages or clicking "like" on friends' walls is a reciprocity process and a sign of investment in the relationship. To garner more social capital (others' information, trust, and support) in their Facebook network, people must exchange capital with their own resources through self-disclosure (personal information) and social interaction (leaving messages or clicking "like"). The process of investing social capital by sharing personal information in a (semi-)public forum leads to a struggle between privacy concerns and social capital accumulation, a challenge that every Facebook user encounters because personal information can be shared with every member of the online social network at the same time, regardless of how close or distant the members. Though users can regulate who sees their information through privacy settings, most users choose to keep their profile open to their social network without advanced filters or restrictions. For example, a survey in 2013 reported that most young people (81%) do not use the advanced privacy settings and say that all people in their networks receive the same information (Madden, 2013). In addition, people within the network can easily search for all shared information from the past without even contacting the person who shared, which means members of the offline

network must expend more effort and time to reach the information hub for updated information. Therefore, how to balance privacy concerns and social capital gained through self-disclosure within the social network is the key point of investigation in this study.

Social Capital as Social Network and Outcomes

Online social capital has been the focus of recent studies and scholars have developed scales to measure social capital online and offline based on Putnam's definition. Putnam (2000) defined social capital as both the social network and the outcome of the network, the associated norms, and reciprocity. However, most studies have focused on the outcome aspect of social capital, that is, the effect of the network. For example, Williams (2006) extended Putnam's argument, focusing on the outcomes, and distinguished between bridging and bonding social capital generated from online and offline social networks. His measurement included emotional support, access to information, and affective bonds and has been used in multiple studies of online social capital (e.g., Ellison, Steinfield, & Lampe, 2007; Chu & Choi, 2010). Williams (2006) developed Internet Social Capital Scales based on Putnam's argument about bridging and bonding social capital and existing questions from previous scales. Putnam implied some criteria to theorize about bridging social capital and bonding social capital. Bridging social capital is often derived from weak-tie networks. This type of social capital is better for finding connections with external assets (e.g., seeking jobs or political allies) and information diffusion. The criteria for bridging social capital include: "1) an outward looking perspective, 2) contact with a broader range of people, 3) a view of oneself as part of a broader group, and 4) diffuse reciprocity with a broader community (p. 600)." Bonding social capital is often derived from strong-tie networks and is better for finding emotional support and accessing to scarce or limited resources. The criteria for building bonding social

capital include: "1) emotional support, 2) access to scarce or limited resources, 3) ability to mobilize solidarity, and 4) out-group antagonism (p. 601)." The final scale items for bridging social capital are, for example, "Interacting with people online/offline makes me interested in things that happen outside of my town" and "Interacting with people online/offline makes me want to try new things." The final scale items for bonding social capital are, for example, "There are several people online/offline I trust to help solve my problems" and "If I needed an emergency loan of $500, I know someone online/offline I can turn to."

Applying Williams' scales to Facebook, Ellison et al. (2007) found that certain types of Facebook use are positively related to the maintenance and creation of social capital, and college students use Facebook to maintain their existing offline relationships. Chu et al. (2010) compared bridging and bonding social capital under different cultural backgrounds and found that Chinese SNS users gained both higher bridging and higher bonding social capital than their American counterparts.

Though Williams' measurement has been widely adopted in recent years, it has faced the increasing challenge of failing to capture the structural concept of social capital (Appel et al., 2014). Social capital is not only the outcome but is also rooted in the network structure. Due to the varied definitions, level of analysis, and research interests in social capital, researchers have used different methods to test the structural aspect of social capital. For example, Campbell, Marsden, and Hurlbert (1986) used the name-generator technique to examine the associations between network resources and individuals' socioeconomic status. Name generators are often used to discover the core ties of one's discussion network. Respondents provide the names and follow-up detailed information about people with whom they often discuss important matters (Wellman, 1979). For example, Marsden (1987) asked: "From time to time, most people discuss important matters with other people. Looking back over the past six

months – who are the people with whom you discussed matters that are important to you? ” Lin and Dumin (1986) developed the position-generator technique to measure the positions with identified valued resources. Lin et al. (1986) argued that people in different social locations provide different types of information and resources and this variation can be measured by individuals' occupations. If a person can access more people who come from different social locations in his/her social network, the greater resources and information he/she can possess. Therefore, researchers using position generators often provide respondents a list of occupations selected ranging from low to high prestige to measure the diversity of their social network. Instead of using the number of positions that individuals have in their network, van der Gaag and Snijders (2005) developed resource generators to measure the actual resources (social capital) individuals could gain in their social network. Resource generators are about different resources (e.g., education, politics, finance) one can access in his/her everyday life. For example, respondents are asked if they know anyone who can speak a foreign language, who knows a lot about computers, or can help them to move home. Among these three techniques, name generators often examine individuals' small close ties while position generators and resource generators examine individuals' network diversity. In addition, Appel et al. (2014) argued that although the resource generators are widely used and focus on more specific resources than the relatively abstract nature of position generators, there is not a standard resource generator. Therefore, the current study adopted position generators to measure individuals' social network diversity to capture the structural aspect of social network.

The current study looks at the aggregated level and the emphasis is on the structural impact. The reason is that the emerging online social network is no longer purely personal and private. The online personal social network has created a sphere where the boundary between private and public is blurring. Private information is

shared with the public within and outside an individual's network. The new type of social network generates a new way of gaining social capital. Social capital is acquired not only through one-to-one contact but also via one-to-all/most contact, and this is the main reason why privacy has been a big concern in online social networks. Therefore, this study will use both bridging and bonding functions to measure social capital at the aggregate level.

Social relationships/networks built and maintained via a social networking site differ from those in the overall Internet sphere. The former is a self-centered or ego-centered network in which the ego knows who constitutes his/her social network (boyd et al., 2007), while the latter is more interest-based or issue-based, the individual is not the center of the network, and people may not know with whom they interact or who will see the messages they share. The awareness of others is a key to shaping individual identity and performance and this difference in social relationships between social media and the overall Internet sphere matters, especially as it affects individuals' willingness to disclose personal information. People may be more willing to post on their Facebook profiles than to share their opinions on other online forums (for discussion of opinion and social ties, see Williams, 2006, p. 598). Therefore, it is essential to examine the perceived social capital (outcome) individuals receive from their Facebook use especially through self-disclosure. It is also important to examine the structural impact of different types of social networks on individuals' self-disclosure; that is, why individuals are more willing to disclose their personal information on Facebook in terms of the role of their Facebook social networks.

Following Putnam's concept of social capital suggesting that it is both the network and the effects of the network, this study examines social capital from both the network perspective and the outcome perspective. In other words, this study focuses on the structural impact of social networks and the so-called benefit outcome

of social networks. For the former, the study uses "social network characteristics" (i.e., network intensity, network diversity, and network size) to examine the structural impact of social networks on individuals' self-disclosure. For the latter, the study focuses on Williams' (2006) scale to measure the bridging and bonding social capital an individual garners by using Facebook. This study defines network intensity as closeness with the online social network, which can be measured by both the frequency and the quality of contacts. Network diversity refers to diverse social connections and the embedded social capital; this study uses the more structural position-generator scale to measure the diverse relationship and impact of individuals' Facebook social network. Bourdieu (1986, p. 250) mentioned the importance of social network size in that "the volume of the social capital possessed by a given agent thus depends on the size of the network of connections he can effectively mobilize and on the volume of the capital (economic, cultural or symbolic) possessed in his own right by each of those to whom he is connected." Therefore, in the current study, network size is the third factor used to examine characteristics of individuals' Facebook social network.

PRIVACY AND SOCIAL NETWORKING SITES

The Concept of Privacy

Privacy is an elusive and elastic concept (Allen, 1988; Margulis, 2011) and this concept appears in the literature of varied disciplines, such as psychology, law, sociology, philosophy, and political science (Altman, 1976). According to Altman (1976), there are two groups of definitions of privacy. One emphasizes "the seclusion, withdrawal, and avoidance of interaction with others," while the other implies that "privacy involves control, opening and closing self to others, and freedom of choice" (p. 7-8). The core value of privacy is related to an individual's "rights," from the legal

perspective of "the right to be alone" (Warren & Brandeis, 1890) and the right to make decisions to the psychological perspective of "the right to decide what information about himself should be communicated to others and under what conditions" (Westin, 1967). As a constitutional/legal concept, privacy emphasizes an individual's freedom to make decisions and to act appropriately in public or private without interference from government (Allen, 1988; Etzioni, 1999). As a psychological concept, privacy emphasizes the control over, regulation of, limitations on, or exemption from scrutiny, surveillance, or unwanted access (Allen, 1988; Margulis, 1977, 2003). Margulis (1977) argued that the psychological approach subsumes other definitions and, among them, Westin's (1967) and Altman's (1975) theories of privacy are the best articulated and supported theories that also capture the dynamic relationships in the current media environment (Margulis, 2011). Westin (1967) focused on the states (solitude, intimacy, anonymity, and reserve) and functions of privacy (personal autonomy, emotional release, self-evaluation, and limited and protected communication). In Altman's (1976, p. 8) definition, privacy is the "selective control of access to the self or to one's group." His theory of privacy focuses on several features, such as the unit of analysis, from individuals to groups, the dialectic and the non-monotonic nature of privacy, and privacy as a boundary regulation and bidirectional process (i.e., desired and achieved privacy). In short, Altman emphasized the "process of regulating levels of social interaction" (Margulis, 2003, p. 245). The core of Altman's privacy theory is social interaction, and he focused on the dynamic and dialectic process of privacy regulation—that is, "a tension between opening and closing a personal boundary to others (Margulis, 2011, p. 12)." Margulis (2011) argued that Altman's and Westin's theories of privacy have many commonalities. For instance, both illustrated the limited-access approach (i.e., "how individuals control or regulate access to themselves (p. 15)"), both focused on a

continuing dynamic of changing conditions and regulating privacy to achieve a desired level of privacy, and both agreed that privacy contributes to self-evaluation, self-identity and individuality. These commonalities explain why using Altman's and Westin's privacy theories to examine privacy and interpersonal relationships in the social media environment is essential. Social relationships on SNSs, especially Facebook, are dynamic and are continuously changing their internal and external conditions, and people have to continue to adjust their privacy regulations based on the inputs or responses of others within the network to reach a desired level of privacy.

Privacy is important because it is the basis of both a democratic society and the development of individuality. It supports psychological functions, stable interpersonal relationships, and personal development (Margulis, 2003). Privacy is essential to healthy democracies because privacy provides opportunities for political expression, criticism, and choice, opportunities for freedom from inappropriate political intervention, and opportunities for association in private (Westin, 1967). For an individual's psychological functioning, privacy provides opportunity for self-assessment and experimentation (Westin, 1967), offers space to relax and escape from the pressure of daily life (Margulis, 2003), and supports social interaction that affects one's self-definition (Altman, 1975). Therefore, failure to obtain or maintain privacy is a threat to an individual's civic/legal/social rights and psychological functioning. According to Margulis (2003, p. 247), privacy violations occur "when recipients disclose to others the private information intentionally shared with them or which they obtained through an invasion of privacy," that is, "having one's 'private' information or one's self in 'the wrong hands.'" Many factors affect the consequences of privacy violations and invasions, especially the content of the information (Margulis, 1979; Johnson, 1974).

Technology and Privacy

Though privacy is not a new topic in many disciplines, it has recaptured scholars' and policy makers' attention and become a major concern because of the increasing ability of information technologies to collect, share, and use personal information (Chellappa & Sin, 2005; Kirsh, Phillips, & McIntyre, 1996; Metzger, 2004; Palen & Dourish, 2003; Regan, 2002; Smith, Milburg, & Burke, 1996; Woo, 2006). Focusing on information privacy in modern society, Westin (2003) examined the social and political development of privacy from 1945 to 2002 and distinguished a contemporary privacy baseline (1945-1960) and three eras, 1961-1979, 1980-1989, and 1990-2002, based on steadily growing privacy concerns and societal responses across citizen-government, employee-employer, and consumer-business relationships. In his analysis, new technology applications played a significant role in the development of privacy concerns and changing relationships, especially in the third era (Westin, 2003). Westin (2003) argued that the privacy debates in this period were framed by at least five technology developments. First is the rise and widespread use of the Internet, through which millions exchange personal information and search for a variety of information. Such use involves a daily routine with high self-disclosure. Second are wireless communication devices such as cell phones that enable instant and convenient communication. Third are promising technology-privacy interfaces, such as unlocking the genetic code, in developing medical and health care systems. Fourth is the advanced data-mining software based on large data warehousing applications and government pubic record systems, compelling businesses to move to customized marketing with in-depth individual profiles. Fifth is the worry about misuse of the strong encryption program for illegal activities by drug dealers or terrorists. Technological developments facilitate a networked society with convenient and instant communication, faster information exchange, and the promise of better

goods and services; however, it also generates privacy alarms and creates potential threats to personal information. Personal data are gathered by tracking software such as cookies (Culnan & Bies, 2003; Woo, 2006) and by companies that capture individuals' transaction information (Singleton, 1998). In addition to the risks associated with personal information collection, the interactive and networked characteristics of the online environment also encourage people to disclose their personal information and to give up control over their information to obtain other benefits.

Privacy Issues on SNSs

The bourgeoning of social networking sites and the incredible number of users in the past decade have moved the tension between privacy and technology adoption to a peak. Though the boundary between private and public domains is gradually blurring with the development of technologies, social networking sites set the pace of the move from private to public and force individuals to choose between giving up total control over personal information or giving up this special social network and its benefits. In addition to the challenge of revealing personal information to join the online network and build up relationships, employing self-presentation strategies to connect with people and groups within the social network is more difficult because SNSs collapse the context of multiple audiences of different social relationships into a single context (Marwick & boyd, 2011). Therefore, greater concern over privacy invasion arises when disclosing personal information and communicating with others in the network not only on the structural level (e.g., sites, cookies, ads), but also on the personal level (e.g., information accessed by unwanted people, such as co-workers, parents, weaker ties) because the spirit of information privacy lies in "the claim of individuals, groups, or institutions to determine themselves when, how, and to what extent information about them is to communicated to others" (Westin, 1967,

p. 7). People choosing to use SNSs, willingly or unwillingly, immediately face the challenge of maintaining their existing and new relationships in a (semi-)public network. Facebook exemplifies this tension and calculation between giving up privacy/social benefits and gaining social benefits/privacy.

Privacy Concerns and Facebook

The studies on privacy concerns and Facebook have focused on two levels of privacy concerns. One is the structural level and the other is the personal level. Debatin et al. (2009) used the Facebook iceberg model to describe these two levels. They called the former level the invisible level, which involves data mining and marketing, and the latter level the visible level, which involves user communications. Other scholars have distinguished these two privacy concerns to institutional and social privacy concerns (Raynes-Goldie, 2010; Young & Quaa-Haase, 2013). Earlier studies emphasized privacy invasion at the structural/institutional/invisible level, such as data mining and collecting data from cookies and third parties, phishing, stalking, and identity theft, among others. They argued that users risk the pitfalls of Facebook and other SNSs because of their lack of skill or Internet literacy, their ignorance of the nature of the site, and their unawareness of the threats of exposing themselves in a (semi-)public arena with fragile and penetrable boundaries (Acquisti & Gross, 2006; Barnes, 2006; Jagatic et al., 2007; Jones & Soltren, 2005). These were common reasons to explain the "privacy paradox," the disconnection between privacy concerns and privacy behavior. However, others have argued that the gratification and benefits of using Facebook, such as social capital, identity construction, intimate relationships, and entertainment, outweigh privacy concerns (Christofides et al., 2009; Debatin et al., 2009; Livingston, 2008). In addition to these benefits, the psychological perspective on privacy explains how individuals view the privacy they possess and how their concept of privacy invasion differs. What scholars define as threats (i.e.,

sites, third parties, strangers, outsiders) is not necessarily what bothers most users until that kind of structural/invisible privacy invasion occurs (Debatin et al., 2009), and people are more concerned about privacy invasion from people within their visible network, such as parents and employers (Child & Petronio, 2011).

The current study argues that structural privacy concerns existed when the Internet was invented, and such concerns are similar across all platforms. Even individuals' private information stored in their secured personal computers can be invaded (e.g., celebrities' private photos and videos). However, social networking sites move from one-to-one or small-scale interpersonal communication to a one-to-all meso-level or mass communication in a networked (semi-)public arena, raising more visible privacy concerns than any earlier technologies. SNSs' interface design creates the binary and simple classification of "friends"; every social connection in one's social network is simplified as one category of "friends." This interface design makes it difficult for users to customize self-disclosure to only a certain group of people without worrying about consumption from unwanted or unrelated "friends" and fosters a new type of interpersonal communication and self-disclosure on SNSs. People have to adapt to the new type of communication and connection and to manage the accompanying challenges with the changing boundary of privacy (Young & Quaa-Haase, 2013). People's concerns about privacy can decrease their interactivity with other users and the site, limiting their information exchange and experimentation with the applications (Dinev & Hart, 2004). Higher privacy concerns also lead to fewer disclosures on Facebook (Stutzman et al., 2011). Though the experience of privacy intrusion influences people's privacy concerns and their behavior surrounding changes to privacy settings and their way of communication, they seldom give up the site, but instead opt to change their approach so as to protect their privacy and guard private information (Child et al., 2011).

SELF-DISCLOSURE, PRIVACY, AND SOCIAL CAPITAL ON SOCIAL NETWORKING SITES

The Concept of Self-Disclosure

Self-disclosure is "a process of making the self known to other persons" (Jourard & Lasakow, 1958, p. 91) or "any message about the self that a person communicates to another" (Wheeless & Grotz, 1976, p. 338). It is a process of sharing one's information with another for intentional communication. Self-disclosure is important for the mental health of an individual (Jourard, 1971) and for establishing interpersonal relationships (Altman & Taylor, 1987). It reduces uncertainty and stress, rewards greater intimacy, and garners support and understanding from others when the user is in need. At the same time, costs and risks exist in self-disclosure. The consequences of self-disclosure may fail to meet expectations or become a burden for a relationship. Self-disclosure is also closely associated with the concept of self-presentation, which is defined as "any behavior intended to create, modify, or maintain an impression of ourselves in the minds of others" (Brown, 2007, p. 161). The process of self-presentation is dynamic and essential in constructing social relationships and forming an individual identity. Goffman (1959) used the term "performance" to describe individuals' attempt to manage their social impression in daily face-to-face interactions. He argued that people use various strategies such as setting (i.e., the location in which the interaction takes place), appearance (i.e., the dress and props to reveal an individual's temporary social status or role), and manner (i.e., the way an individual plays roles such as dominant, aggressive, receptive) to interact with different "audiences."

Altman and Taylor (1987) emphasized the central role of self-disclosure in the formation, maintenance, and dissolution of close relationships, arguing that a gradual

and reciprocal process of self-disclosure affects the development of a relationship, like a penetration process begins on the outer layer of an onion and proceeds to its core. This process involves two dimensions of self-disclosure, breadth and depth. The breadth dimension of self-disclosure refers to disclosing superficial and low-risk information that is often exchanged in the early stage. The depth of self-disclosure concerns disclosure of more private information, including strong feelings, beliefs, and concerns, that is often exchanged in the later stages of a relationship, and this information is considered higher risk and more private to an individual. This is a dialectic and reciprocal process of building a relationship through self-disclosure. Using the meta-analytic approach, Collins and Miller (1994) found three self-disclosure and liking effects: (1) People like those who engage in intimate disclosure more than those who disclose at lower levels, (2) people are inclined to disclose more to those they initially like, and (3) more intimate disclosure leads people to like the recipient of the disclosure more. These studies reaffirmed that higher levels of self-disclosure lead to a more intimate interpersonal relationship and these studies can be applied to SNSs. People on Facebook and other SNSs establish their relationships and build trust and liking through various forms of self-disclosure, and deeper or more interactive relationships bring them satisfaction and lead to further self-disclosure.

Privacy and Self-Disclosure on Facebook

Privacy and self-disclosure are theoretically linked concepts (Altman, 1975; Derlega & Chaikin, 1977; Petronio, 2002; Westin, 1967). Privacy for individuals means "to determine themselves when, how, and to what extent information about them is to be communicated to others" (Westin, 1967, p. 7), while self-disclosure involves "any message about the self that a person communicates to another" (Wheeless & Grotz, 1976, p. 338). Here, personal information links the concepts of privacy and self-disclosure. On one hand, transmission of personal information is

essential to shape social ties and draw closer to others, whether it is one's background information or one's feelings, thoughts, and ideas. On the other hand, privacy regulates the boundary of personal information with respect to others and protects individuals' thoughts and attitudes from external influence (Altman, 1975; Taddicken, 2014). The relationship between privacy and self-disclosure is a dynamic and dialectic negotiation process carried on until a desired degree of privacy is reached (Altman, 1975).

Facebook, like most SNSs, is designed for self-disclosure or for interacting with people through self-disclosure. Personal information is not only required to register with the site (e.g., real name and e-mail address), but also necessary to establish a network on Facebook. Trust established in relationships is the basis of self-disclosure (Cozby, 1973; Jourard, 1971) and self-disclosure furthers intimacy and closeness in these relationships. When self-disclosure in a relationship is high, people have higher feelings of trust and solidarity (Wheeless, 1976, 1978; Wheeless & Grotz, 1976), and this relationship is more intimate and rewarding (Jourard, 1971). A recognizable personal profile that includes name, basic background information, profile photo, and even a list of connected friends determines whether one's friend request will be accepted or not. Common activities on Facebook, such as updating personal status, posting on a friend's wall, and tagging photos, also engage and encourage users to interact with their network by disclosing personal information and thoughts. Implicit and visual information, including wall posts and pictures, are also regarded as a way to disclose users' personal information and at the same time claim their identity on Facebook (Zhao, Grasmuck, & Martin, 2008)." In addition, most connections on Facebook are among users' existing social ties and the basic trust in these existing ties facilitates further self-disclosure. However, more than managing interpersonal relationships through self-disclosure, Facebook (e.g., News Feed) and

the social nature of SNSs are designed for disclosing self in a (semi-)public network. boyd (2011) argued that it is challenging to "contend with groups of people who reflect different social contexts and have different expectations as to what is appropriate (p. 50)" on social media and defined this collapsed contexts as "the lack of spatial, social, and temporal boundaries makes it difficult to maintain distinct social contexts (p. 49)". SNSs collapse the context of multiple heterogeneous audiences of different social relationships (i.e., family, friends, colleagues) into a single context (i.e., Facebook "friends"), challenging users to employ different self-presentation strategies to connect with people and groups within the social network (Marwick & boyd, 2011). Although several privacy options have been added over the years, the privacy settings and promise are weak by design, and the "collapse context[2]" makes it harder to reveal information only to a wanted group without worrying about unwanted privacy intrusion (Hogan, 2010; Vitak, 2012).

Greater concern over privacy invasion (e.g., information accessed by both unwanted people and the site) arises when disclosing personal information and communicating with others in the social network. Stutzman et al. (2011) found that high levels of privacy concerns led to fewer disclosures. However, disclosing personal information is essential in establishing social connections and in gaining social capital. Therefore, major questions of this study are: What is the role of privacy concern in individuals' SNS use? Is privacy a barrier for individuals in making connections or is privacy an asset for individuals to trade for social capital through self-disclosure?

Self-Disclosure on SNSs

[2] boyd defined "collapse context" as "the lack of spatial, social, and temporal boundaries makes it difficult to maintain distinct social contexts (2011, p. 49)"

Discussion in this section focuses on what motivates self-disclosure on SNSs and the impact of self-disclosure on SNSs. Though referring to general SNSs, studies have mainly focused on Facebook. First, to explain why people disclose information about themselves on SNSs, researchers have suggested it is for reasons of social capital, identity construction, and narcissism—"a personality trait reflecting a grandiose and inflated self-concept (Buffardi & Campbell, 2008, p. 1304)"—among others. Social capital is one main reason that explains self-disclosure on Facebook. Many studies have demonstrated the link between self-disclosure and the establishment of relationships; it is a reciprocal process that involves trust and liking. People gain social support and maintain mental health by disclosing self to others. Evidence also proves that the more one releases and provides personal information on Facebook, the easier it is to initiate interaction (Ellison et al., 2010); individuals' trust and willingness to share increase (Dwyer et al., 2007) and the perception of credibility grows (Mazer et al., 2009). Though people may carefully present their image based on what they want others to see (for discussion, see Caers et al., 2013), studies have found that the phenomenon of narcissism is not the main reason for self-disclosure on Facebook and most people use Facebook as a tool to communicate with others rather than to self-aggrandize or inflate self (McKinney, Kelly, & Duran, 2012). Mckinney et al. (2012) compared Facebook users to Twitter users and found that narcissism is significantly related to Twitter users. People who are more narcissistic tend to use Twitter to send more tweets about themselves. In addition, narcissism is related to the number of friends on Facebook; however, it is unrelated to using Facebook to post about oneself, which is consistent with the findings of Bergman et al. (2011) and Buffardi et al. (2008). It might be that people use various social networking sites for different purposes (e.g., uses and gratifications), and another reason could be the disclosure norms on Facebook (e.g., the norm of reciprocity). The generalized norms

of reciprocity in social networks are a general sense of "givingness", that is, giving to others without expecting directly or immediately return. Therefore, disclosure that fits for the norm of reciprocity, a sense of giving or helping other instead of pure narcissism, would be best to connect to and communicate with people in Facebook social networks. For most SNS users, Facebook is more for connecting to and communicating with family and friends, while other SNSs serve other purposes (e.g., a LinkedIn profile serves as a professional image aiming for career connections). Therefore, the content one discloses on these SNSs varies as the purpose for using different SNSs and the connections within these SNSs vary.

Studies on self-disclosure and identity construction trace back to the early stage of the Internet era. Previous studies have examined the impact of the Internet on identity construction in an anonymous environment such as multi-user dungeons (MUDs) and bulletin boards (Rheingold, 1993; Surratt, 1998; Turkle, 1995). However, recent studies have reported that the "nonymity" of SNSs such as Facebook influences online self-presentation and identity construction because it amplifies the impact of anchored relationships—the offline-based online relationships (Zhao et al., 2008). People can throw away the mask they wear in a fully "nonymous" offline world and act differently in a fully anonymous online setting because of the lack of accountability. The relationships anchored in the "nonymous" network on Facebook, however, still carry accountability for each individual. Therefore, self-disclosure and identity construction on Facebook do not deviate from established social norms in everyday life. This bonding explains why people in this type of online setting tend to express "hoped-for possible selves" (Yurchisin et al., 2005) instead of narcissism-type or grandiose selves. Connected friends on Facebook often have existing social relationships, basic knowledge about one another, and are usually mutual friends. These existing social relationships and connected networks are forces that help users

stay within a boundary and not deviate from the established social norms. For most users, Facebook is for social connection and interaction and these relationships are based on trust and reciprocity, as previous discussed. Narcissism is different from the attitude toward openness about sharing information about oneself (Mckinney et al. 2012). The openness to share oneself is common on Facebook, while the narcissistic-type of self-disclosure may not be helpful in establishing trust and reciprocity. This may also explain why narcissism is related to using Twitter to tweets about oneself, but is unrelated to the number of Twitter followers or using Twitter to follow others (Mckinney et al. 2012).

Second, it is not only the extent of one's disclosed personal information and thoughts that affects social capital accumulation, but also the content of self-disclosure. Having an in-person conversation is different from broadcasting one's opinion on Facebook. A recent report from Pew Research Center (2014) discovered the "spiral of silence" phenomenon on Facebook. Most Facebook users hesitate to speak their minds on a political issue if they feel their opinions are not supported online (Hampton et al., 2014). This finding resonates with the argument of this study that the impact of Facebook's anchored-relational, massive, and nonymous network on individuals' self-disclosure may in turn affect (nourish or harm) the existing social relationships and accompanying social capital. To maintain social capital, people may avoid controversial conversation or any opinion that goes against those of people in their networks, such as a political opinion.

Though many studies have examined the relationship between privacy and self-disclosure on Facebook, their measurements of self-disclosure have differed, resulting in different findings and explanations. Despite a solid theoretical argument, Ellison et al. (2011) used a weak two-item scale ("When I'm having a bad day, I post about it on Facebook" and "When I receive a good grade in class, I post about it on

Facebook") to assess people's disclosure habits and failed to find a link among self-disclosure, privacy settings, social capital, and friending behaviors. Tufekci (2008) focused on the types of profile information users choose to disclose, such as favorite music, favorite book, favorite movie, political views, romantic status, sexual orientation, religion, phone number, classes, and address. Stutzman et al. (2011) asked similar yes/no questions to reveal identity-based information (real name, birth date, high school, and profile picture) and contact information (campus address, cell phone number, instant messaging screen name, and email address). Taddicken's (2014) study used a measurement of self-disclosure that included not only factual personal information (name, birth date, profession) with open or restricted access, but also sensitive information (thoughts and feelings) with open or restricted access. Taddicken (2014) also found that privacy concerns do not directly affect self-disclosure. These measurements of self-disclosure are related to information one provides on Facebook and researchers have looked for a relationship between privacy concerns and this type of self-disclosure. This study examined both explicit identity-based self-disclosure and implicit narrative self-disclosure about personal thoughts and feelings.

Privacy Management on SNSs

After four years of claiming that privacy is dead, Mark Zuckerburg announced in mid-2014 that the privacy default setting of Facebook would switch from open to public to open to friends only (Goel, 2014). Facebook hopes this change with other added privacy options will encourage users to disclose more on Facebook to maintain interaction and connection; this would further benefit Facebook's own profit and role among SNSs. This new Facebook policy does not eliminate, but may increase instead, more invisible privacy concerns; however, it may work to encourage users to disclose more and continue to use Facebook. As discussed earlier, privacy is a psychological

state and people feel they can control their visible social privacy concerns through these privacy management actions. It is difficult for consumers to control and manage the invisible uses of their private/personal information, but this approach can be helpful in reducing users' social privacy concerns by helping them to manage their social relationships and deal with their daily challenges.

More and more studies have examined how people handle the tension between the benefits of Facebook use and their concerns about privacy intrusion, focusing on individuals' changing privacy behaviors (i.e., Stutzman et al., 2010) and how they manage their privacy by pruning or regulating their SNS relationships (Child et al., 2009; Child et al., 2012; Madden, 2012). Many changes have occurred in the past decade. Recent studies have shown that most users have changed their privacy default, set their profiles to friends-only (Madden, 2012; Stutzman et al., 2010), and developed a higher ability to manage the settings (Madden et al., 2012; Young et al., 2013). For example, more than half of SNS users have changed their privacy setting to private (friends-only) regardless of age (Madden, 2012), and another survey conducted by the Pew Center also proved that 60% of teen Facebook users keep their profiles private and report high levels of confidence in managing their privacy settings (Madden et al., 2012).

The longer people use Facebook, the more experience they have in handling the complex relationships, and the more privacy options added, the more tools for managing disclosed information. According to social learning theory, individuals continue to observe and learn through reciprocity among cognitive, behavioral, and environmental influences (Bandura, 1977). Individuals have experienced some consequences (benefits and risks) of the changing structure and of using Facebook. Bandura (2001) also emphasized that people both influence and are influenced by environments. On one hand, people may realize that they disclose themselves in a

(semi-)public domain and there is no guarantee of keeping personal information private once it is posted online, and this may increase each individual's privacy awareness. Facebook has also added several options in its privacy settings, which not only make its users feel they have greater control over their information and relationships on Facebook, but also remind users of their concerns about privacy. Furthermore, people's Internet literacy and privacy skills may be more advanced than 10 years ago, especially with more users in the Internet generation. These are good signs of increasing privacy awareness, privacy skills, and privacy practices. On the other hand, Christofides et al. (2012) argued that people might value privacy less when they experience more social benefits from disclosing information on Facebook and this in turn may shape the rules of Facebook usage. In addition, using Facebook server log data, Burke, Marlow, and Lento (2009) found that new users tend to disclose more information when they see their friends disclose. These arguments and findings emphasize the impact of individuals' networks and the benefits of self-disclosure, rather than privacy itself. Furthermore, Brandimarte, Acquisti, and Loewenstein's (2012) experiment demonstrated a "control paradox"; when individuals' perceived control over the release of and access to private information increases, their willingness to disclose sensitive information increases. This cycle of willingness to disclose more personal information when perceiving more control may not always serve the goal of enhancing privacy protection and may lead users to become more vulnerable.

The long-term argument of the privacy paradox is about the complicated relationship between privacy concerns and privacy practices, especially in relation to the fact that the self-disclosure does not correspond to the privacy concerns (Acquisti & Gross, 2006; boyd & Hargittai, 2010; Debatin et al., 2009; Tufekci, 2008; Yao et al., 2007; Youn & Hall, 2008). In contrast to expectations of early studies, people do

not withdraw from Facebook or other SNSs because of their privacy concerns or when they face an invasion of privacy. Within the limited affordance of the technology and the platform, people learn to manage their personal information and social relationships and to maximize the benefits that the SNS provides. The number of users has increased and more privacy options have been added, and people have developed privacy strategies for interacting with their online network. People will find a way to adjust and manage their private information in the context of Facebook since they use the site anyway for reasons such as social capital, peer pressure, or daily routines. Based on Altman's (1975) dialectical concept of privacy, Petronio (2002) used the boundary metaphor and emphasized that people establish and continue to adjust the rules when managing private information both personally and in conjunction with others (Child et al., 2009). Thus, privacy management refers to "how people manage private information, both theirs and others' who have granted access to their information" (Child et al., 2011, p. 23; Petronio, 2002).

Therefore, this study examines two aspects of privacy: privacy concerns and privacy management. First, this study examines the impact of privacy concerns on self-disclosure behavior on Facebook. These privacy concerns include institutional privacy concerns and social privacy concerns. Institutional privacy concerns are related to potential threats from the invisible system/structure, such as identity theft, information leakage, hackers, blackmail, and cyber stalking. Social privacy concerns focus on psychological invasions of privacy from people within the network and possible leakage of private information out of the network, which involves visible personal interactions such as unwanted tags and invisible invasions such as possible employers checking one's Facebook site. Most studies on the privacy paradox have focused mainly on institutional privacy concerns. Studies that focused on the significant role of social privacy concerns on Facebook use have tended to use

qualitative approaches such as in-depth interviews or focus groups (e.g., Young & Quan-Haase, 2013). The current study aims to address whether respondents are concerned about privacy intrusion from connected people within their Facebook networks and to test the relationships among privacy concerns, self-disclosure, and social capital by a quantitative approach, examining whether these elements can be integrated into a quantitative model. Following this, the current study integrates privacy management into the theoretical model, examining whether privacy management plays a significant role in reducing Facebook users' privacy concerns and encouraging them to disclose more on Facebook. As mentioned, studies focused on privacy management either have one option such as changing default to "friends-only" (e.g., Ellison et al., 2013; Stutzman et al., 2011) or used qualitative approaches (e.g., Young & Quan-Haase, 2013). The current study examines the role of privacy management in a quantitative approach, testing whether the findings from the qualitative studies can also be duplicated and used in a quantitative model. Here privacy management includes privacy-enhancing behavior such as deleting people from one's own network, removing tagged names, blocking people, etc.

RESEARCH QUESTIONS AND HYPOTHESES

As previous noted, the current study aims to answer two major questions: (1) What is the role of privacy concerns in individuals' SNS use? Does the "privacy paradox" phenomenon still exist as time goes by? Is privacy a barrier for individuals in making connections or is privacy an asset that individuals can use to trade for social capital through self-disclosure? (2) What is the role of privacy management in connecting the concepts of privacy concern, self-disclosure, and social capital on SNSs? To answer these questions, this study examines and elaborates on the relationships among privacy concerns, social network characteristics, self-disclosure,

privacy management, and social capital and proposes the research questions and hypotheses presented below.

This study argues that the privacy paradox remains in relation to Facebook use because privacy has become an asset for SNS users to trade for social capital. Trust established in relationships is the basis for self-disclosure (Cozby, 1973) and self-disclosure furthers intimacy and closeness in these social relationships. The main reason people use Facebook is to sustain intimacy (Livingston, 2008) and this relationship is strengthened through self-disclosure. Studies have shown the impact of self-disclosure on social capital. The more information individuals disclose to others, the more social capital they have (Burke et al., 2011; Steinfield et al., 2008). Privacy concerns are not a barrier for most individuals in making social connections on SNSs. Moreover, SNS users apply privacy settings to manage their personal information. Tufecki (2008) discovered that once students decide to use Facebook, they manage their concerns about unwanted audiences by adjusting the visibility of their Facebook profile, but not regulating their level of disclosure. Some studies have reported that individuals who have higher privacy concerns are more likely to personalize their privacy settings to manage and protect their privacy (Stutzman et al., 2011). Ellison et al. (2011) also suggested that Facebook users who employed privacy-enhancing behaviors reported higher perceived social capital. Facebook users accumulate useful resources (e.g., new ideas, useful information, social support) derived from their social network (boyd et al., 2007; Ellison, Steinfield, & Lampe, 2007). What constitutes their social network determines the resources they can gain and affects their behaviors, including self-disclosure and privacy management. For example, network intensity is a significant predictor of social capital (Ellison et al., 2007; Valnezuela, Park, & Lee, 2009), and the number of friends is positively related to

social capital (Burke, Marlow, & Lento, 2010; Ellison et al., 2011). Thus, this study proposes the following hypotheses:

H1. Social capital (bridging and bonding) increases with the amount of self-disclosure.

H2. Social capital (bridging and bonding) increases with more privacy management.

H3. Social network characteristics (i.e., social network size, social network intensity, and social network diversity) are positively associated with social capital.

H3a. The greater the number of Facebook friends, the greater the perceived social capital.

H3b. The more intense the use of Facebook, the greater the perceived social capital.

H3c. People who have a more diverse Facebook network have greater perceived social capital.

With the increasing number and diversity in friends' backgrounds and the higher intensity of SNS use, the more likely it is for individuals to manage their private information and adjust their privacy settings. Therefore, this study examines this structural factor of social network characteristics in terms of social network size, social network intensity, and social network diversity and investigates the following research questions and hypotheses:

H4. Those who have more privacy concerns engage in more privacy management.

H5. Social network characteristics are positively associated with privacy management.

H5a. People who have a larger number of Facebook friends engage in more privacy management.

H5b. People who use Facebook more intensely engage in more privacy management.

H5c. People who have a more diverse Facebook network engage in more privacy management.

RQ1. What is the relationship between social network characteristics (i.e., social network size, intensity, diversity) and privacy concerns?

Theoretically, it is assumed that people who have higher privacy concerns will decrease their self-disclosure on Facebook. Few studies have affirmed this negative association (Stutzman et al., 2011). However, many empirical studies have found a disconnection between privacy concerns and self-disclosure on SNSs and no direct impact of privacy concerns on self-disclosure (Debatin et al., 2009; Ellison et al., 2011; Taddicken, 2014; Tufekci, 2008). This study also investigates "privacy paradox" by examining the relationship between privacy concerns and self-disclosure. Hence, this study investigates the following research question:

RQ2: What is the relationship between privacy concerns and self-disclosure on Facebook?

In addition, the current study explores the mediator roles in which privacy management and self-disclosure may play a part in the impact of privacy concerns on social capital and in the impact of social network characteristics on social capital. Thus, this study proposes the following research questions:

RQ3a. Do privacy concerns indirectly affect social capital through serial mediators of privacy management and self-disclosure?

RQ3b. Do privacy concerns indirectly affect social capital through privacy management?

RQ4a. Do social network characteristics indirectly affect social capital through serial mediators of privacy management and self-disclosure?

RQ4b. Do social network characteristics indirectly affect social capital through privacy management?

RQ4c. Do social network characteristics indirectly affect social capital through self-disclosure?

Chapter 3: Method

PARTICIPANTS AND DATA COLLECTION

An online survey was conducted to test the Facebook social network, the impact of participants' privacy concerns and privacy management on self-disclosure, and social capital. Facebook users who live in the U.S. and are older than 18 years were recruited through Amazon.com's Mechanical Turk (MTurk). MTurk is an online web-based crowd-sourcing platform that allows requesters to recruit and pay subjects to complete tasks. MTurk is less expensive in terms of both the cost of recruitment and the time required to implement studies. Extant research has demonstrated that the data obtained are high quality and that participants recruited through MTurk are more representative of the U.S. population and more diverse than the convenience samples collected through traditional methods (Berinsky, Huber, & Lenz, 2012; Mason & Suri, 2011). Even though MTurk participants tend to be younger and more liberal, their demographics and opinions on public issues are representative of data collected from high-quality national Internet surveys (Berinsky, Huber, & Lenz, 2012). Since political factors do not affect variables in previous or current studies in this field and this study aims to understand participants' online privacy concerns, privacy behaviors, and self-disclosure, MTurk is a feasible platform for the online survey. In addition, previous studies on privacy, self-disclosure, and social capital have mostly used convenience college student samples collected from one university with relatively smaller numbers of participants; MTurk provides an opportunity to collect more diverse and representative data and to test a new model.

Previous studies on MTurk have shown that the participants were younger than the national sample (Berinsky, Huber, & Lenz, 2012). Thus, for a more accurate representation of the U.S. population in terms of age, the current study based this online sample on the 2012 U.S. Census age variables (32% for 18-34; 35% for 35-54; 33% for 55 or older).

The online survey was posted on MTurk on June 11, 2014, and was closed on June 17, 2014. The study provided a 75-cent monetary incentive for completing each survey, which is higher than the average MTurk incentive (Berinsky et al., 2012). A total of 544 subjects accessed the online survey through Qualtrics, a survey software system, and 522 subjects completed the survey without encountering technical problems. The completion rate is 96%.

MEASURES

The two independent variables (privacy concerns and social network characteristics) and the three dependent variables (privacy management, self-disclosure, and social capital) were assessed using the measurements discussed below.

Independent Variables

Privacy Concerns

Institutional Privacy Concerns. Bellman et al.'s (2004) scale of information privacy concerns was adapted and used to determine individuals' privacy concerns about the Facebook site. The adapted scale contained 4 items. Items included 1) "I am concerned that Facebook is collecting too much personal information about me," 2) "Facebook and other companies should take more steps to make sure that hackers cannot access the personal information in their computers," 3) "Facebook should

devote more time and effort to verifying the accuracy of the personal information in their databases," and 4) "Facebook should never sell the personal information they have collected to other Web sites." This study measured each item on a 7-point Likert scale, from strongly disagree =1 to strongly agree = 7. Higher scores indicate more privacy concerns for a number of Facebook site security topics. The four items were combined and averaged to represent a measure of Facebook site privacy concerns (α = .62, the average of the composite score = 5.62, *SD* = .99). The Cronbach's α is relatively low and it could not be improved even removed any of the measures. This study still included it for the subsequent analysis because the institutional privacy concerns measure was effective in a previous study (Bellman et al., 2004).

Privacy Invasion Concerns. In addition to the invisible institutional privacy concerns, respondents were also asked to indicate their level of concern about unexpected invisible privacy invasions on Facebook, such as identity theft, information leakage, hackers, blackmail, and cyber stalking (Stutzman et al., 2010). The question was "Please tell me how concerned you are about the privacy invasions such as identity theft, information leakage, hacker, blackmail, or cyber stalking on Facebook." This item was measured on a 7-point scale, from not concerned at all = 1 to extremely concerned = 7 (*M* = 6.02, *SD* = 2.18).

Social Privacy Concerns. In addition to the invisible privacy concerns of Facebook use, social privacy concerns are the focus of the current study. Previous quantitative studies have not measured individuals' social privacy concern; therefore, current study developed several items to measure respondents' privacy concerns toward their social relationships based on individuals' daily practices on Facebook. Respondents

were asked seven questions to measure their personal social privacy concerns regarding Facebook. These items especially addressed the unwanted audience and unwanted use of participants' Facebook information. The items included: 1) "When you post photos on your Facebook profile, are you concerned that people will download your photos?" 2) "When you update your status, are you concerned that people will misunderstand or distort your words?" 3) "Are you concerned that your friends will tag you in their photos or mention you in their walls without your permission?" 4) "Are you concerned that your posts will be seen by people you don't wish to see it?" 5) "Are you concerned that your information will be seen even after you have changed the privacy settings?" 6) "Are you concerned about how much information advertisers can learn about your Facebook behavior?" and 7) "Are you concerned about how your Facebook activity might affect your future academic or employment opportunities?" This study measured each item on a 7-point Likert scale, from not concerned at all = 1 to extremely concerned = 7. This study created a composite score for further analysis (α = .88). Higher scores indicate more privacy concerns for unwanted audience and unwanted use (the average of the composite score = 4.25, *SD* = 1.47).

Social Network Characteristics

Social Network Size. Network size was measured by asking respondents 'Approximately how many total "friends" do you have in your Facebook network' (*M* = 270.92, *SD* = 460.19). In addition to the number of total friends, the number of friends with whom they actually interact on Facebook was also asked (Ellison et al., 2010). The question was "Approximately how many friends do you actually interact

with on Facebook" (M = 48.89, SD = 205.66). This study intended to create a composite score for social network size, but those two items had a low reliability (α = .55), and therefore, this study conducted subsequent analyses with both items, respectively, rather than a composite score index.

Social Network Intensity. Respondents were asked the frequency of their Facebook use. The items included: "How long have you been using Facebook?" "How often have you checked your Facebook account?" and "The average amount of time you spent on Facebook each use." The average length of their Facebook use is 5 years (M = 60.20 months, SD = 24.66). The median of how often participants check their Facebook account is daily, and the average is between daily and more than three times per day (Median = 4, M = 4.10, SD = 1.31). The median of the average amount of time participants spent on Facebook each use is 15 minutes, and the average is between up to 5 minutes and 15 minutes (Median = 2, M = 2.32, SD = 1.14). This study intended to create a composite score for social network intensity, but those two items had a very low reliability (α = .12), and therefore, this study conducted subsequent analyses with both items, respectively, rather than a composite score index.

Social Network Diversity. Chen's (2013) position-generators measurement was adapted and used to measure individual's Facebook social network diversity. Sixteen items for position were provided (e.g., nurse, lawyer, accountant) and respondents were asked to indicate the jobs people on their Facebook social network may now have. The question was "I am going to ask some general questions about jobs some people on your Facebook network may now have. These people include your

relatives, friends and acquaintances (acquaintances are people who know each other by face and name). If there are several people you know who have that kind of job, please tell me the one that occurs to you first. Do you know someone who is a ____ on Facebook? (Yes/No)." The list of occupations included nurse, farmer, lawyer, middle school teacher, babysitter/housemaid, janitor, personal manager, hairdresser, accountant, production manager, operator in a factory, computer programmer, taxi driver, professor, police officer, Chief Executive Officer of a larger company. The social network diversity index was calculated by aggregating the item responses (Yes :1; No: 0) for each individual (α = .79) (M = 5.51, SD = 3.49).

Dependent Variables

Privacy Management. Respondents were asked 10 questions about their interpersonal privacy management behaviors on Facebook (Madden, 2012; Stutzman et al., 2010; Child et al., 2009). The 10 items included: 1) "Delete people from your network or friends' list," 2) "Remove your name from photos that have been tagged to identify you," 3) "Delete comments that others have made on your profile or account," 4) "Delete or edit something that you posted in the past," 5) "Post updates, comments, photos or videos that you later regret sharing," 6) "Set up your profile or account so that it automatically includes your location on your posts," 7) "Post fake information like a fake name, age or location to help protect your privacy," 8) " Share inside jokes or coded messages that only some of your friends would understand," 9) "Block people," and 10) "Delete or deactivate a profile or account." These responses were dichotomized as yes or no. Answers were aggregated in terms of the responses (yes) to these 10 items (α = .75) (M = 4.73, SD = 2.59).

Self-Disclosure

Identity-based Self-Disclosure. Respondents were asked what 15 types of information they display on their Facebook profiles, including their factual personal information (i.e., name, birth date, user photo), personal information (i.e., relationship status, current status of what you are doing, political views, religious views), contact information (i.e., phone number, personal address, e-mail address, the city or town where you live in), personal interests (i.e., your interests such as movie, music, or books you like), education information (i.e., school name), and work information (i.e., job/company). The responses to the 15 items were dichotomized as yes or no. The responses (yes) were aggregated to measure the level of identity-based self-disclosure (α = .79) (M = 7.62, SD = 3.24).

Narrative Self-Disclosure About Thoughts and Ideas. In addition to identity-based personal information, respondents were asked how often they share sensitive information about their thoughts and ideas on Facebook, including feelings, personal experiences, and concerns and fears (Child et al., 2009; Taddicken, 2014). The items included: 1) "When I face challenges in my life, I feel comfortable talking about them on my Facebook," 2) "I like my Facebook entries to be long and detailed," 3) "I like to discuss work concerns on my Facebook," 4) "I often tell intimate, personal things on my Facebook without hesitation," 5) "I share information with people whom I don't know in my day-to-day life," and 6) "I update my Facebook frequently." This study measured these 6 items on a 7-point Likert scale, from never = 1 to very frequently = 7. This study created a composite score for narrative self-disclosure (α = .90). Higher scores indicate higher levels of self-disclosure of one's thoughts and

ideas (the average of the composite score = 2.24, *SD* = 1.24).

Perceived Social Capital

Williams' (2006) index of online bridging (outward-looking contact with a broad range of people, a view of oneself as part of a broader group, and diffuse reciprocity with a broader community) and bonding social capital (emotional support, access to scarce or limited resources, and ability to mobilize solidarity) were adapted to the Facebook environment.

Bonding Social Capital. Respondents were presented with 5 items, including 1) "There are several people on Facebook I trust to help solve my problems," 2) "There is someone on Facebook I can turn to for advice about making very important decisions," 3) "The people I interact with on Facebook would put their reputation on the line for me," 4) "The people I interact with on Facebook would be good job references for me," and 5) "The people I interact with on Facebook would share their last dollar with me." These items were scored using a 5-point agreement Likert scale, in which 1 indicated strongly disagree and 5 strongly agree (α = .87, the average of the composite score = 3.21, *SD* = 1.02).

Bridging Social Capital. Respondents were presented with 5 items, including 1) "Interacting with people on Facebook makes me interested in things that happen outside of my town," 2) "Interacting with people on Facebook makes me want to try new things," 3) "Interacting with people on Facebook makes me interested in what people unlike me are thinking," 4) "Interacting with people on Facebook makes me feel connected to the bigger picture," and 5) "Interacting with people on Facebook gives me new people to talk to." These items were scored using a 5-point agreement

Likert scale, in which 1 indicated strongly disagree and 5 strongly agree (α = .87, the average of the composite score = 3.36, *SD* = .96).

Although Pearson's r correlation showed that bonding social capital and bridging social capital were positively, moderately correlated (r = .38, p < .001), the Confirmatory Factor Analysis (*CFA*) for the ten items of social capital validated the two factor model (bonding social capital and bridging social capital), rather than a single factor model. The single factor model did not fit with the data. Please see Table 3.1. In addition, the principle component analysis with varimax rotation showed a clear two-factor pattern.

Table 3.1

Goodness-of-Fit Indexes for Social Capital CFA analysis

	df	X^2	*RMSEA (90% C.I.)*	*SRMR*	*CFI*	*TLI*
Single Factor Model	35	1031.51***	.221 ~ .246	.152	.609	.498
Two Factors Model	34	191.18***	.081 ~ .107	.046	.938	.918

Note: *** p < .001; *df* = degrees of freedom; X^2 = chi-square test coefficient; *RMSEA* = root means square error of approximation; *SRMR* = standardized root mean square residual; *CFI* = Bentler comparative fit index.

Table 3.2

Factor Loadings for Bonding Social Capital Items and Bridging Social Capital

	1	2
Bonding social capital 1	.738	.275
Bonding social capital 2	.761	.248
Bonding social capital 3	.855	.073
Bonding social capital 4	.786	.124
Bonding social capital 5	.814	.085
Bridging social capital 1	.203	.765
Bridging social capital 2	.146	.804
Bridging social capital 3	.163	.823
Bridging social capital 4	.132	.862
Bridging social capital 5	.113	.717

Note: Principle component analysis with varimax rotation.

1: Bonding social capital; 2: Bridging social capital

Control Variables

Demographics. A variety of demographic variables was included for control purposes. Respondents were asked about their gender (Male = 38.8%, Female = 61.2%), age (*M* = 42.01, *SD* = 14.57), and race/ethnicity (White = 79.2%). In addition, they were asked the highest level of formal education attended, which ranged from 1, indicating "less than high school," to 8, indicating "doctoral degree" (*M* = 3.95, *SD* = 1.48, *Mdn* = college degree). Income was measured with 10 categories, with 1 indicating "less than $10,000," and 10 indicating "$130,000 or above" (*M* = 5.19, *SD* = 2.46, *Mdn* =

$40,000 to under $50,000). (See Table 4.1 for the comparison of the demographic profile between the current study and other comparable survey).

DATA ANALYSIS

As noted previously, social network characteristics determines the social capital Facebook users can gain and affects their self-disclosure and privacy management. In addition, this study argues that the privacy paradox remains in relation to Facebook use because privacy has become an asset for Facebook users to trade for social capital. Therefore, the proposed research questions and hypotheses have drawn a clear connection to social capital. In addition to frequencies, in order to address the proposed research questions and hypotheses, this study conducted regression analysis, mediation analysis, and an integrated structural equation modeling analysis (*SEM*). The regression analysis explored the relationships among social capital, self-disclosure, privacy management, privacy concerns, and social network characteristics (H1 through H5, and RQ1). The mediation analysis examined the mediating effects of privacy management and self-disclosure, between privacy concerns and social capital (RQ3 and RQ3b) and between social network characteristics and social capital (RQ3c, RQ4a, and RQ4b). The integrated model analysis included both a measurement model and an integrated path model to support this study's argument that, through privacy management, elevated privacy concerns will predict increased self-disclosure and social capital, suggesting an alternative interpretation of the privacy paradox.

Regression Analysis Models

Path analysis techniques were used to test the current study's five hypotheses and answer the first research question. To test H1, H2, and H3, bonding social capital and bridging social capital are the final two dependent variables. Self-disclosure and

privacy management are the focal predictors of social capital, followed by privacy concerns, social network characteristics, and finally demographic measures. To investigate H4, H5, and RQ1, privacy management is the final dependent variable.

To obtain the path coefficients, four multiple regression analyses were conducted. The first regression analysis used bonding social capital and bridging social capital as dependent variables, with the following four blocks of independent variables entered in this order: block 1: self-disclosure and privacy management; block 2: privacy concerns; block 3: social network characteristics variables (network size, network intensity, and network diversity); block 4: demographics (gender, age, education, and income).

The second regression analysis used privacy management as a dependent variable, with the following four blocks of independent variables entered in this order: block 1: privacy concerns; block 2: social network characteristics variables; block 3: demographic variables.

The third regression analysis had privacy concerns as the dependent variable. The following two blocks of independent variables were entered in this order: block 1: social network characteristic variables; block 2: demographic variables. The fourth regression analysis used social network characteristics variables as dependent variables, regressed on demographic variables. Detailed regression estimates of the direct effects of independent variables on the final dependent variables are in Table 4.11 through Table 4.14.

Mediation Analysis

The bias-corrected boostrapping method with M*plus* software was used to answer RQ3 and RQ4. The mediation analysis investigated two sets of indirect effects from privacy concerns to social capital and from social network characteristics to

social capital. For the first set, the serial mediators of privacy management and self-disclosure (RQ3a) and the single mediator of privacy management (RQ3b) were tested, separately. For the second set, the serial mediators of privacy management and self-disclosure (RQ4a), the single mediator of privacy management (RQ4b), and the single mediator of self-disclosure (RQ4c) were tested, separately.

SEM Analysis

Lastly, the integrated model with all the hypothesized relationships included was analyzed for each of the issues to provide an overall understanding of the relationships among social network characteristics, privacy concerns, privacy management, self-disclosure, and social capital. This study included the measurement model and structural model to test whether the proposed model fit with the collected data well. This study used five items of bonding social capital, five items of bridging social capital, six items of narrative self-disclosure (one item was removed later due to the fact that it was cross-loaded with social capital), one item of privacy management, seven items of social privacy concerns, and three single items of social network characteristics (number of Facebook friends, frequency of using Facebook, and network diversity) to test whether the data support the integrated model.

Chapter 4: Results

DESCRIPTIVE ANALYSIS

Table 4.1 describes the general demographics of the participants, and a comparison with previous Pew Internet and American Life Project Post-Election survey. MTurk participants were more educated. After conducting Chi-square tests, there was no difference between the current MTurk sample and PEW Internet research survey sample in terms of gender, ethnicity, and household income, but there was a difference between those two samples in terms of age (X^2 (4)= 26.79, $p < .001$) and education level (X^2 (3)= 35.79, $p < .001$). This study will interpret the results with caution of those differences.

Table 4.1

Demographic Profile of Study and Other Comparable Survey

	MTurk Participants (N=522) %	Pew Internet & American Life Project Post-Election Survey Nov. 2010 (Unweighted) %
Age		
18-24	14.1	9.7
25-34	20.4	11.7
35-44	22.3	12.7
45-64	37.5	39.0
65 or more	5.7	26.9
Gender		
Male	38.8	43.6
Female	61.2	56.4
Race/Ethnicity		
White	79.2	72.2
Hispanic/Latino	5.7	9.7
Black or African American	8.7	10.6
Asian/Pacific Islander	3.6	1.7
Native American	1.0	1.4
Education		
High School or less	9.7	37.8
Some college	35.4	27.6
College degree	33.9	22.7
Graduate degree	21.0	11.8
Household Income		
Less than $49,999	56.8	56.2
$50,000 to $99,999	31.9	27.3
$100,000 or more	11.3	16.5

Privacy Concerns

Participants encountered several privacy problems when using Facebook: They have been contacted online by someone they did not know in a way that made them feel scared or uncomfortable (28%), they experienced unwanted advances, stalking, or harassment (25.1%), they were the victims of damaging gossip or rumors (17.2%), and they shared sensitive information online that later caused a problem for them or others in their family (13.2%). These figures are a minority of the population, but a significant minority because online harassment has become a more and more serious issue and they represent those who experienced various forms of online privacy invasions on Facebook. A recent Pew survey (2014) about online harassment shows that about 40% of all Internet users in the U.S. have experienced online harassment and 18% of them experienced more severe forms of harassment. With respect to privacy concerns about the Facebook site itself (Institutional Privacy Concerns), participants demanded that Facebook should take more steps to make sure that hackers could not access the personal information in their computers (91.5%) and that Facebook should never sell the personal information they have collected to other websites (90.1%). They also said that Facebook collects too much personal information (74.1%). These numbers express overwhelming majorities and show that most people have privacy concerns about the Facebook site. This is similar to the results of another Pew survey in 2013. It shows that more than half of all Internet users in the U.S. worried about their personal information being available online, and more than 85% of them have taken steps to protect their privacy by removing or masking their digital footprints such as cookies and Internet Protocol (Rainie, Kiesler, Kang, & Madden, 2013).

As for privacy concerns about the unexpected consequences of Facebook posts (Social Privacy Concerns), participants typically have had three major concerns: how

much information advertisers can learn about their Facebook behavior (71.4%), whether their information will still be seen even after the privacy settings have been changed (59.7%), and whether the posts will be seen by people they do not wish to has access (50.8%). In addition, sixty-six percent of participants worried about privacy invasions on Facebook, such as identity theft, information leakage, hackers, blackmail, or cyber stalking. See Table 4.2 through Table 4.4.

Although more than half of the participants (55.4%) responded that they have privacy concerns about Facebook, less than half of the participants (44%) had read Facebook's privacy policy. However, this does not suggest that most participants willingly surrendered their privacy controls. About seven out of ten people (66.9%) said that the privacy controls on Facebook were not difficult. Most participants (60.4%) did keep their profiles private (friends-only), and only 13.5% of the participants set their profiles to public. Moreover, 42.9% of those who made their profiles private limited what certain friends can and cannot see.

Table 4.2

Frequency of Privacy Concerns about Facebook Site

	Privacy concerns about Facebook site	Disagree (%)	Neutral (%)	Agree (%)
1	Facebook and other companies should take more steps to make sure that hackers cannot access the personal information in their computers	2.1	6.4	91.5
2	Facebook should never sell the personal information they have collected to other Web sites	3.5	6.4	90.1
3	I'm concerned that Facebook is collecting too much personal information about me	14.5	11.4	74.1
4	Facebook should devote more time and effort to verifying the accuracy of the personal information in their databases	22.5	20.7	56.8

Table 4.3

Frequency of Privacy Concerns about the Unexpected Consequences of Facebook Posts

	Privacy concerns about Facebook posts	Disagree (%)	Neutral (%)	Agree (%)
1	Are you concerned about how much information advertisers can learn about your Facebook behavior?	15.3	13.3	71.4
2	Are you concerned that your information will be seen even after you have changed the privacy settings?	26.2	14.1	59.7
3	Are you concerned that your posts will be seen by people you don't wish to see it?	35.2	14.0	50.8
4	Are you concerned about how your Facebook activity might affect your future academic or employment opportunities?	41.2	15.1	43.7
5	Are you concerned that your friends will tag you in their photos or mention you in their walls without your permission?	42.9	15.6	41.5
6	When you post photos on your Facebook profile, are you concerned that people will download your photos?	42.9	18.6	38.5
7	When you update your status, are you concerned that people will misunderstand or distort your words?	46.4	16.7	36.9

Table 4.4

Frequency of Concerns about Privacy Invasions

	Concerns about privacy invasions on Facebook	Disagree (%)	Neutral (%)	Agree (%)
1	Such as identity theft, information leakage, hacker, blackmail, or cyber stalking on Facebook	17.1	16.5	66.4

Social Network Characteristics (Size, Intensity, Diversity)

Based on the survey, participants were familiar with Facebook and often used Facebook. The average years of Facebook use was about 5 years. With respect to social network size, more than half of the participants had at least 150 Facebook friends, and the average number of Facebook friends that they interacted with was 49. As for social network intensity, most participants (70.5%) checked their Facebook account at least one time a day, and three quarters of them (75.5%) spent at least 15 minutes per visit. In terms of network diversity, the average number of known Facebook friends out of the 16 occupations is between 5 to 6 (M = 5.51, SD = 3.49), and the range is from 0 to 16. Among those occupations, more than half of the

participants have Facebook friends whose occupations are nurses (70.9%), computer programmers (52.2%), or hairdressers (52.2%). Less than twenty percent of participants have Facebook friends whose occupations are production managers, janitors, CEOs, or taxi drivers. Among those known Facebook friends, participants feel close to those who are computer programmers (48.3%), accountants (41.7%), nurses (38.7%), or professors (37.5%); they do not feel close to taxi drivers (16.8%). See Table 4.5.

Table 4.5

Frequency of Network Diversity

	Participants' network diversity (Do they know someone is a ___?)	YES (%)	Not close to So-so (%)	Close to Very close
1	Nurse	70.9	61.3	38.7
2	Computer programmer	52.2	51.7	48.3
3	Hairdresser	52.2	70.4	29.6
4	Middle school teacher	45.1	71.3	28.7
5	Lawyer	44.6	73.6	26.4
6	Professor	40.4	62.5	37.5
7	Accountant	39.6	58.3	41.7
8	Police officer	34.9	69.8	30.2
9	Babysitter/housemaid	33.9	65.3	34.7
10	Farmer	30.4	72.7	27.3
11	Operator in a factory	26.1	67.0	33.0
12	Personnel manager	23.9	70.9	29.1
13	Production manager	18.1	75.0	25.0
14	Janitor	17.4	70.3	29.7
15	Chief Executive Officer (CEO)	14.0	74.1	25.9
16	Taxi driver	10.1	83.2	16.8

Privacy Management

Participants did employ several important privacy management measures: delete people from their friends' list (72.9%), delete or edit their own previous posts (67.9%), block people (62.5%), delete comments that others have made on their

profile or account (56.8%), and remove their names from photos that have been tagged to identify them (55.1%). See Table 4.6.

Table 4.6

Frequency of Participants' Privacy Management Behaviors

	Privacy management behaviors	(%)
1	Delete people from your network or friends' list	72.9
2	Delete or edit something that you posted in the past	67.9
3	Block people	62.5
4	Delete comments that others have made on your profile or account	56.8
5	Remove your name from photos that have been tagged to identify you	55.1
6	Share inside jokes or coded messages that only some of your friends would understand	43.8
7	Post updates, comments, photos or videos that you later regret sharing	39.4
8	Delete or deactivate a profile or account	32.1
9	Post fake information like a fake name, age or location to help protect your privacy	23.0
10	Set up your profile or account so that it automatically includes your location on your posts	21.1

Self-Disclosure

With respect to identity-based self-disclosure, typically, participants showed their name (92%), user photo (84%), where they live (74%), interests (73%), relationship status (68%), school name (68%), birth date (60%), and job/company (50%); however, they were reluctant to provide their phone number (11%) and personal address (6%). See Table 4.7. Although participants were willing to share their basic profile information, they had more concerns about sharing their thoughts or detailed intimate information on Facebook. On the contrary, in terms of narrative self-disclosure, people tended not to share information with people they do not know (79.4%), they hesitated to tell intimate, personal things (85.9%), they avoided

discussing work concerns (84.5%), and they avoided long and detailed Facebook entries (82.2%). See Table 4.8.

Table 4.7

Frequency of the Items Displayed in Participants' Facebook Profiles

	Profile items	Displayed (%)
1	Name	92.1
2	User Photos	84.1
3	The city or town where you live	73.8
4	Your Interests, such as movies, music or books you like	73.0
5	School Name	68.1
6	Relationship Status	67.9
7	Birth Date	59.9
8	Job/Company	50.3
9	Current Status of what you are doing	43.7
10	Religious Views	38.4
11	Political Views	37.0
12	Videos of you	28.7
13	E-mail Address	27.4
14	Phone Number	11.5
15	Personal Address	6.5

Table 4.8

Frequency of How Participants Share Their Thoughts and Ideas on Facebook

	Do participants share their thoughts and ideas on Facebook?	Not True (%)	Somewhat True (%)	True (%)
1	I update my Facebook frequently	64.1	14.8	21.1
2	When I face challenges in my life, I feel comfortable talking about them on my Facebook	68.1	17.2	14.7
3	I share information with people whom I don't know in my day-to-day life	79.4	9.0	11.6
4	I often tell intimate, personal things on my Facebook without hesitation	85.9	5.9	8.3
5	I like to discuss work concerns on my Facebook	84.5	7.2	8.2
6	I like my Facebook entries to be long and detailed	82.2	9.8	8.0

Note. 1-3: Not true. 4: Somewhat True. 5-7: True

Perceived Bonding Social Capital

Participants did consider Facebook as a source of bonding social capital. More than half of the participants found that Facebook friends could be good job references (57.7%) and that they could turn to Facebook friends for advice about making very important decisions (55.2%). Many participants also believe that there are several people on Facebook they can trust to help solve their problems. See Table 4.9.

Perceived Bridging Social Capital

Participants also agreed that Facebook makes them feel more connected and that it can increase bridging social capital. More than half of the participants found that Facebook makes them interested in things that happen outside of their town (66.3%), interested in what people unlike them are thinking (55.8%), makes them feel connected to the bigger picture (52.9%), and makes them want to try new things (52.5%). See Table 4.10.

Table 4.9

Frequency of Bonding Social Capital

	Bonding social capital	Disagree (%)	Neutral (%)	Agree (%)
1	The people I interact with on Facebook would be good job references for me	18.5	23.9	57.7
2	There is someone on Facebook I can turn to for advice about making very important decisions	25.7	19.0	55.2
3	There are several people on Facebook I trust to help solve my problems	28.6	25.4	45.9
4	The people I interact with on Facebook would put their reputation on the line for me	32.1	28.7	38.2
5	The people I interact with on Facebook would share their last dollar with me	36.6	27.8	35.6

Table 4.10

Frequency of Bridging Social Capital

	Bridging social capital	Disagree (%)	Neutral (%)	Agree (%)
1	Interacting with people on Facebook makes me interested in things that happen outside of my town	16.5	17.3	66.3
2	Interacting with people on Facebook makes me interested in what people unlike me are thinking	20.4	23.8	55.8
3	Interacting with people on Facebook makes me feel connected to the bigger picture	23.1	23.9	52.9
4	Interacting with people on Facebook makes me want to try new things	19.8	27.6	52.5
5	Interacting with people on Facebook gives me new people to talk to	33.4	23.2	43.4

Based on the survey, the typical Facebook activities included: give "likes" (86.6%), write comments to others (80.6%), view distinct photos (80.4%), click on friends' feed stories (77.3%), view friends' profiles (76.1%), write messages to others (74.8%), post on their own wall (67.6%), and write posts on friend's wall (67%). Participants also belonged to a variety of other social networking site accounts: YouTube (65.2%), Twitter (50.4%), Pinterest (41.8%), Linked In (40%), Google Plus (39.9%), and Instagram (29.4%).

REGRESSION ANALYSIS

Direct Effects of Self-Disclosure on Social Capital

H1 asserted that both bridging and bonding social capital would increase when the amount of self-disclosure increased. The regression model investigated this relationship. According to Table 4.11, identity-based self-disclosure has a positive and direct effect only on bridging social capital ($\beta = .18$, $p < .001$), and narrative self-disclosure has a positive and direct effect on both bonding social capital ($\beta = .17$, $p < .01$) and bridging social capital ($\beta = .16$, $p < .01$). Therefore, Hypothesis 1 is supported in terms of narrative self-disclosure for both social capital types, and

Hypothesis 1 is partially supported in terms of identity-based self-disclosure for bridging social capital.

Direct Effects of Privacy Management on Social Capital

H2 asserted that more privacy management could predict the increase of both bonding social capital and bridging social capital. Table 4.11 shows privacy management does not have a direct effect on bonding social capital (β = .04, p = n.s.) and bridging social capital (β = -.05, p = n.s.). Therefore, Hypothesis 2 is not supported in terms of direct effects.

Effects of Social Network Characteristics on Social Capital

H3 predicted that social network characteristics (network size, network intensity, and network diversity) have positively effect on social capital. H3a predicted that the number of Facebook friends and the number of Facebook friends who actually interacted with each other (network size) have positive and direct effect on both bonding social capital and bridging social capital. According to Table 4.11, network size was neither related to bonding social capital nor related to bridging social capital. Therefore, network size did not predict social capital according to the regression analysis. Therefore, H3a is not supported.

H3b, the frequency of using Facebook predicted both bonding social capital (β = .12, $p < .05$) and bridging social capital (β = .28, $p < .001$), and H3c, those who have a more diverse Facebook network reports greater bonding social capital (β = .23, $p < .001$) and bridging social capital (β = .12, $p < .001$), are both supported. However, the average time spent on Facebook per visit is not related to social capital.

Table 4.11

Predicting Bonding Social Capital and Bridging Social Capital with Privacy Concerns

	Social Capital			
	Bonding		Bridging	
Predictors	β	R^2	β	R^2
Self-disclosure				
Identity-based Self-disclosure	.02		.18***	
Narrative Self-Disclosure	.17**		.16**	
Privacy Management	.04		-.05	
Adjusted R^2		.06***		.13***
Privacy Concerns				
Institutional Privacy Concerns	.12*		.07	
Social Privacy Concerns	-.13*		-.03	
Incremental R^2		.02*		.01
Social Network Characteristics				
Network Size				
Number of friends	-.04		.01	
Number of friends interact with	.06		.04	
Network Intensity				
How often of using Facebook	.12*		.28***	
Time spent per visit	.01		.03	
Network Diversity	.23***		.12***	
Incremental R^2		.07***		.11***
Demographic variables				
Gender	.00		.11*	
Age	-.07		.05	
Education	.03		.01	
Income	.11*		.01	
Incremental R^2		.02		.01
Total adjusted R^2		.14***		.23***
N	411		417	

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

Direct Effects of Privacy Concerns on Privacy Management

H4 predicts that the more privacy concerns participants have, the more privacy management strategies they will adopt when using Facebook. According to Table 4.12, social privacy concerns have a direct and positive effect on privacy management ($\beta = .29$, $p < .001$), but institutional privacy concerns do not have any influence on

privacy management (β = -.05, p = n. s.). Therefore, Hypothesis 2 was partially supported in terms of social privacy concerns.

Direct Effects of Social Network Characteristics on Privacy Management

H5 predicts that social network characteristics are positively associated with privacy management. See Table 4.12. H5a, which states that both those who have a greater number of Facebook friends (β = .03, p = n. s.) and those who have a greater number of Facebook friends they actually interact with (β = .02, p = n. s.) would engage in more privacy management, is not supported. H5b, which asserts that those who use Facebook more frequently (β = .08, p = n. s.) and those who spend more time on Facebook per visit (β = .00, p = n. s.) will engage in more privacy management, is not supported. H5c, which asserts that those who have a more diverse Facebook network will engage in more privacy management (β = .08, p = n. s.), is not supported either. Therefore, Hypothesis 5 is not supported.

Table 4.12

Predicting Privacy Management

	Privacy Management	
Predictors	β	R^2
Privacy Concerns		
Institutional Privacy Concerns	-.05	
Social Privacy Concerns	.29***	
Adjusted R^2		.07***
Social Network Characteristics		
Network Size		
Number of friends	.03	
Number of friends interact with	.02	
Network Intensity		
How often of using Facebook	.08	
Time spent per visit	.00	
Network Diversity	.08	
Incremental R^2		.03*
Demographic variables		
Gender	.00	
Age	-.20***	
Education	-.08	
Income	.01	
Incremental R^2		.05***
Total adjusted R^2		.12***
N	428	

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

Direct Effects of Social Network Characteristics on Privacy Concerns

RQ1 explored the relationship between social network characteristics and privacy concerns. According to Table 4.13 with respect to social network intensity, the frequency of using Facebook has a direct and negative effect on social privacy concerns (β = -.15, $p < .01$), but has no influence on institutional privacy concerns (β = .00, p = n. s.). The average time spent on Facebook per visit has a direct and positive effect on both institutional privacy concerns (β = .17, $p < .01$) and social privacy concerns (β = .11, $p < .05$). As for social network diversity, it has a direct and positive effect on institutional privacy concerns (β = .12, $p < .05$), but has no

influence on social privacy concerns (β = -.08, p = n. s.). As for social network size, however, both the number of Facebook friends (for institutional privacy concern: β = -.05, p = n. s.; for social privacy concerns: β = -.02, p = n. s.) and the number of Facebook friends they actually interact with (for institutional privacy concern: β = -.04, p = n. s.; for social privacy concerns: β = -.04, p = n. s.) have no influences on privacy concerns.

Table 4.13

Predicting Privacy Concerns

	Privacy Concerns			
	Institutional		Social	
Predictors	β	R^2	β	R^2
Social Network Characteristics				
Network Size				
Number of friends	-.05		-.02	
Number of friends interact with	-.04		-.04	
Network Intensity				
How often of using Facebook	.00		-.15**	
Time spent per visit	.17**		.11*	
Network Diversity	.12*		-.08	
Incremental R^2		.04**		.03**
Demographic variables				
Gender	.05		.11*	
Age	-.08		-.15**	
Education	-.04		.10	
Income	.01		-.06	
Incremental R^2		.01		.04**
Total adjusted R^2		.03***		.05***
N	449		443	

Note. * p < .05, ** p < .01, *** p <.001.

Direct Effects of Demographic Factors on Social Network Characteristics

According to Table 4.14, males tend to have more Facebook friends (β = -.12, p < .01) and visit Facebook less frequently (β = .14, p < .01) than females. Younger people tend to have more Facebook friends (β = -.11, p < .05) and visit Facebook

more frequently (β = -.17, p < .001), but spend less time on Facebook per visit (β = .18, p < .001). Also, the less the annual household income, the more time they spend on Facebook per visit (β = -.10, p < .05).

Table 4.14

Predicting Social Network Characteristics

Predictors	Social Network Characteristics									
	Network Size				Network Intensity				Diversity	
	Friends count		Interacted		Frequency		Duration			
	β	R^2	β	R^2	β	R^2	β	R^2	β	R^2
Demographic										
Gender	-.12**		-.03		.14**		.06		.04	
Age	-.11*		.02		-.17***		.18***		-.09	
Education	.03		-.05		-.04		-.07		.08	
Income	.05		.06		.01		-.10*		.06	
Adjusted R^2		.02**		.00		.04***		.04***		.02
N	487		484		492		492		469	

Note. * p < .05, ** p < .01, *** p <.001.

THE RELATIONSHIP BETWEEN PRIVACY CONCERNS AND SELF-DISCLOSURE

RQ2 aimed to examine whether the privacy paradox exists in this study. Although it is reasonable to expect that those who show more concerns about privacy issues on Facebook tend to disclose less personal information, little evidence has been found to support that claim. After conducting Pearson's r correlation analysis, controlling for demographic variables and uses of Facebook, the results showed that institutional privacy concerns were negatively correlated with self-disclosure for both identity-based information (r = -.21, p < .001) and narrative self-disclosure about thoughts and ideas (r = -.15, p < .01). In other words, those who tend to be concerned about how Facebook handles their personal information and whether Facebook

protects privacy information from hacking will try to disclose less personal profile information and less personal thoughts and ideas.

This study also investigated whether participants would be concerned about the unexpected consequences of their Facebook activities and posts, rather than be concerned about the Facebook site itself. Social privacy concerns were negatively correlated with identity-based personal information self-disclosure (r = -.24, p < .001), but not correlated with narrative self-closure about thoughts and ideas (r = .07, p = .15). The results suggested that while social privacy concerns did make participants less willing to disclose basic factual and profile information, it did not make them hesitate to share or discuss their own thoughts and ideas on Facebook. The same pattern was observed with participants concerned about illegal privacy invasion. Participants' concerns about privacy invasion were negatively correlated with identity-based self-disclosure (r = -.18, p < .001), but not correlated with narrative self-closure (r = .04, p = .37). The possible explanations will be discussed later.

THE INDIRECT EFFECT OF PRIVACY CONCERNS ON SOCIAL CAPITAL THROUGH PRIVACY MANAGEMENT AND NARRATIVE SELF-DISCLOSURE

From previous analyses, it was observed that privacy concern was associated with privacy management and self-disclosure, and privacy management did predict narrative self-disclosure (β = .10, p < .05), and more narrative self-disclosure can predict the increase of social capital. This study then conducted mediation analyses to explore whether privacy concerns indirectly affect social capital through serial mediators of privacy management and narrative self-disclosure. Because social capital was categorized as two different types, bonding and bridging social capital, this study tested the mediation effects on both types of social capital. Also, because this study surveyed two types of privacy concerns regarding participants' Facebook use

(concerns about Facebook site itself and concerns about their activities on Facebook), this study also conducted mediation analyses by using the two types of privacy concerns, separately.

To test the mediation effect of privacy management and narrative self-disclosure between privacy concerns and social capital, the serial-mediator mediation analysis conducted using ordinary least squares path analysis was used to test whether privacy concerns indirectly influenced social capital through participants' privacy management and self-disclosure. Here are five main findings.

First, as Figure 4.1a shows, institutional privacy concerns (concerns about the Facebook site itself) did indirectly influence bonding social capital through participants' privacy management and narrative self-disclosure (.0009, .0107), and the mediating effect was positive. This finding confirmed that, through serial mediators of privacy management and narrative self-disclosure, more privacy concern about the Facebook site was associated with an increase of bonding social capital.

Second, as Figure 4.1b shows, institutional privacy concerns (concerns about the Facebook site itself) did indirectly influence bridging social capital through participants' privacy management and narrative self-disclosure (.0010, .0129), and the mediating effect was also positive. Again, this finding confirmed that, through serial mediators of privacy management and narrative self-disclosure, more privacy concerns about the Facebook site were correlated with an increase of bridging social capital.

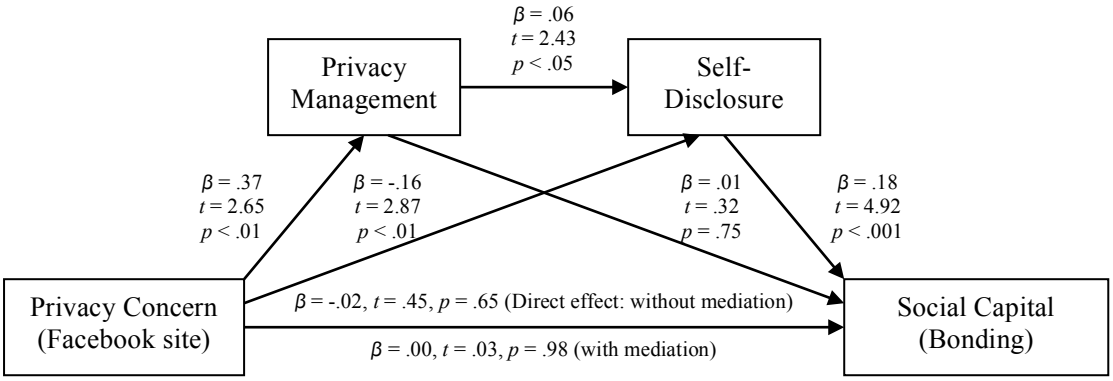
Third, as Figure 4.2a shows, social privacy concerns (concerns about their own Facebook activities) indirectly influenced bonding social capital through participants' privacy management and narrative self-disclosure (.0003, .0103), and the mediating effect was positive. This finding confirmed that, through serial mediators of

privacy management and narrative self-disclosure, more privacy concerns about Facebook activities were also correlated with an increase of bonding social capital.

Fourth, as Figure 4.2b shows, social privacy concerns (participants have concerns about their own Facebook posts) indirectly influenced bridging social capital through participants' privacy management and narrative self-disclosure (.0014, .0138), and the mediating effect was positive. Therefore, this finding confirmed that, through serial mediators of privacy management and narrative self-disclosure, more privacy concerns about Facebook activities were correlated with an increase of bridging social capital.

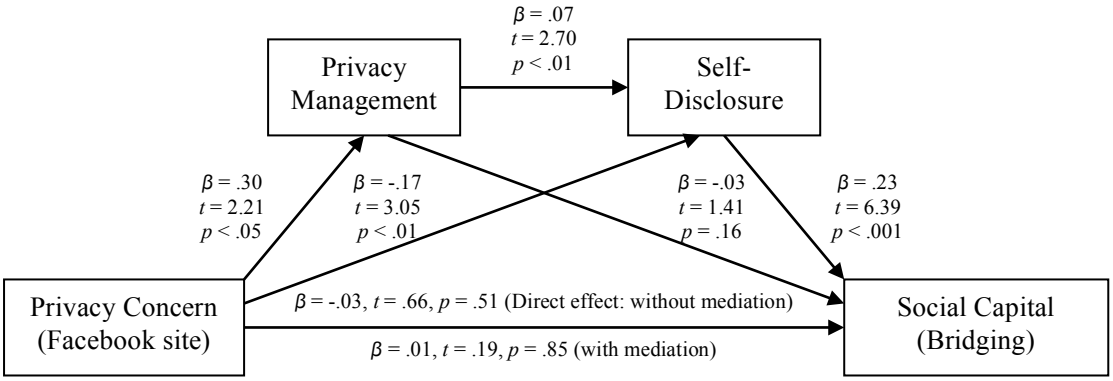
Fifth, the mediation analyses also found that there were simple mediation effects through single mediator narrative self-disclosure; however, the mediating effects of narrative self-disclosure between privacy concern about the Facebook site itself and social capital were negative (bonding social capital: -.0572, -.0102; bridging social capital: -.0683, -.0157). In other words, the effects of narrative self-disclosure were contrary to the effects of serial mediators of privacy management and narrative self-disclosure, and the mediating effects of narrative self-disclosure itself merely led to a decrease of social capital when participants have more privacy concerns about the Facebook site.

Figure 4.1a: The Indirect Effects of Privacy Concern on Social Capital (Bonding) through Privacy Management and Narrative Self-Disclosure



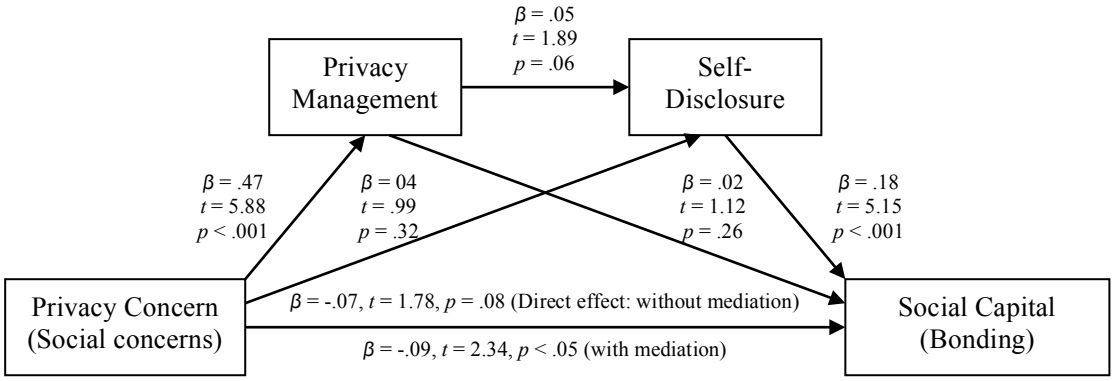
Note: The bootstrapped 95% bias corrected *CI*s using 10,000 bootstrap samples:
a. Privacy Management as a single mediator (PC→PM→SC-Bonding): (-.0118, .0198)
b. Privacy Management and Self-Disclosure as two serial mediators (PC→PM→SD→SC-Bonding): (.0009, .0107)
c. Self-Disclosure as a single mediator (PC→SD→SC-Bonding): (-.0572, -.0102)
The control variables include gender, age, education, and income. $N = 461$.

Figure 4.1b: The Indirect Effects of Privacy Concern (Site) on Social Capital (Bridging) through Privacy Management and Narrative Self-Disclosure



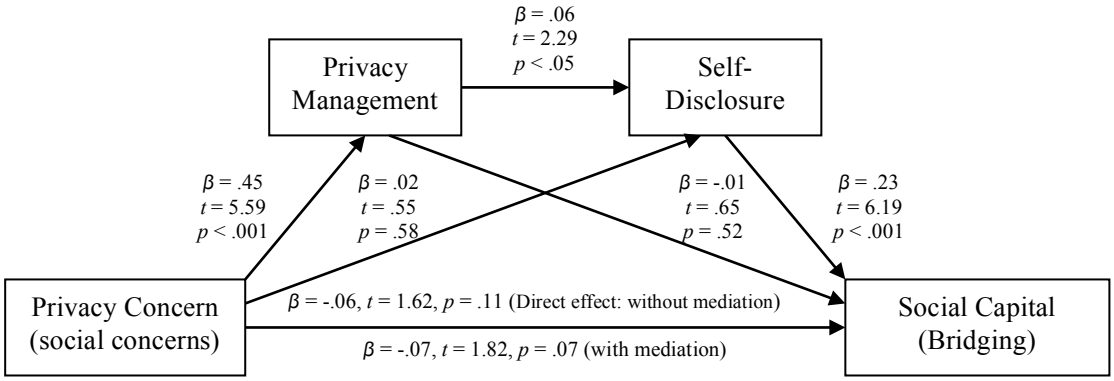
Note: The bootstrapped 95% bias corrected *CI*s using 10,000 bootstrap samples:
a. Privacy Management as a single mediator (PC→PM→SC-Bridging): (-.0262, .0013)
b. Privacy Management and Self-Disclosure as two serial mediators (PC→PM→SD→SC-Bridging): (.0010, .0129)
c. Self-Disclosure as a single mediator (PC→SD→SC- Bridging): (-.0683, -.0157)
The control variables include gender, age, education, and income. $N = 468$.

Figure 4.2a: The Indirect Effects of Privacy Concern (Social) on Social Capital (Bonding) through Privacy Management and Narrative Self-Disclosure



Note: The bootstrapped 95% bias corrected *CI*s using 10,000 bootstrap samples:
a. Privacy Management as a single mediator (PC→PM→SC-Bonding): (-.0071, .0321)
b. Privacy Management and Self-Disclosure as two serial mediators (PC→PM→SD→SC-Bonding): (.0003, .0103)
c. Self-Disclosure as a single mediator (PC→SD→SC- Bonding): (-.0067, .0250)
The control variables include gender, age, education, and income. $N = 458$.

Figure 4.2b: The Indirect Effects of Privacy Concern (social) on Social Capital (Bridging) through Privacy Management and Narrative Self-Disclosure



Note: The bootstrapped 95% bias corrected *CI*s using 10,000 bootstrap samples:
a. Privacy Management as a single mediator (PC→PM→SC-Bridging): (-.0232, .0107)
b. Privacy Management and Self-Disclosure as two serial mediators (PC→PM→SD→SC-Bridging): (.0014, .0138)
c. Self-Disclosure as a single mediator (PC→SD→SC- Bridging): (-.0128, .0261)
The control variables include gender, age, education, and income. $N = 466$.

INDIRECT EFFECTS OF PRIVACY CONCERNS ON SOCIAL CAPITAL THROUGH PRIVACY MANAGEMENT

Do privacy concerns indirectly affect social capital through privacy management? To test the mediation effect of privacy management between privacy concerns and social capital, the simple mediation analysis conducted using ordinary least squares path analysis was used testing whether privacy concerns indirectly influenced social capital through participants' privacy management. As Table 4.15 showed, the four 95% confidence intervals of mediation effects by privacy management between privacy concerns (both concerns about Facebook site and users' activities on Facebook) and social capital (both bonding and bridging social capital) included zero, and therefore, no mediation effects of privacy management were detected.

Table 4.15

Mediation Effects of Privacy Management Between Privacy Concerns and Social Capital

IV: Privacy Concerns	Mediator:	DV: Social Capital	Indirect effects			
			Effect	*SE*	95% *CI*s	*N*
Facebook Site	PM	Bonding	.0065	.0077	(-.0050, .0266)	466
		Bridging	-.0025	.0060	(-.0183, .0072)	473
Social Concerns	PM	Bonding	.0153	.0100	(-.0028, .0370)	462
		Bridging	.0011	.0086	(-.0153, .0186)	470

Note. IV: Independent variable; Facebook Site: Privacy concern about Facebook site; Social Concerns: Participants' privacy concern about their Facebook posts; PM: Privacy management; DV: Dependent variable. The 95% bias-corrected bootstrap confidence interval for the mediation effect of privacy management was based on 10,000 bootstrap samples. The control variables include gender, age, education, and income.

INDIRECT EFFECTS OF SOCIAL NETWORK CHARACTERISTICS ON SOCIAL CAPITAL THROUGH PRIVACY MANAGEMENT AND NARRATIVE SELF-DISCLOSURE

RQ4a explored whether social network characteristics indirectly affect social capital through serial mediators of privacy management and self-disclosure. To test the mediation effect of privacy management between social network characteristics (network intensity: frequency of using Facebook and the average amount of time spent on Facebook per visit; network size: number of Facebook friends and number of Facebook friends that participants actually interact with; network diversity: diversity of Facebook friends' occupation) and social capital, the serial-mediators mediation analysis conducted using ordinary least squares path analysis was used testing whether social network characteristics indirectly influenced social capital through participants' privacy management and narrative self-disclosure. As Table 4.16 showed, the 95% confidence interval of mediation effect by privacy management and self-disclosure between social network characteristics and social capital included zero; therefore, no serial mediation effects of privacy management and narrative self-disclosure were detected.

Table 4.16

Mediation Effects of Privacy Management and Narrative Self-disclosure Between Social Network Characteristics and Social Capital

IV: SNC	Serial Mediators	DV: Social Capital	Indirect effects			
			Effect	*SE*	95% *CI*s	*N*
Frequency of visit	PM→SD	Bonding	.0009	.0010	(-.0003, .0039)	462
		Bridging	.0008	.0011	(-.0008, .0040)	470
Average Time	PM→SD	Bonding	.0005	.0011	(-.0012, .0035)	462
		Bridging	.0006	.0015	(-.0018, .0044)	470
No. of Friends	PM→SD	Bonding	.0000	.0000	(.0000, .0000)	457
		Bridging	.0000	.0000	(.0000, .0000)	465
No. of actual friends	PM→SD	Bonding	.0000	.0000	(.0000, .0000)	454
		Bridging	.0000	.0000	(.0000, .0001)	462
Diversity	PM→SD	Bonding	.0001	.0003	(-.0004, .0010)	441
		Bridging	.0004	.0005	(-.0004, .0018)	450

Note. IV: Independent variable; SNC: Social network characteristics; PM: Privacy management; SD: Self-disclosure; DV: Dependent variable; SK: Social capital. The 95% bias-corrected bootstrap confidence interval for the mediation effect of privacy management was based on 10,000 bootstrap samples. The control variables include gender, age, education, and income.

INDIRECT EFFECTS OF SOCIAL NETWORK CHARACTERISTICS ON SOCIAL CAPITAL THROUGH PRIVACY MANAGEMENT

RQ4b further explored whether social network characteristics indirectly affect social capital through privacy management. To test the mediation effects of privacy management between social network characteristics and social capital, the simple mediation analysis conducted using ordinary least squares path analysis was used testing whether social network characteristics indirectly influenced social capital through participants' privacy management. As Table 4.17 showed, the 95% confidence intervals of mediation effects by privacy management between social network characteristics and social capital included zero, and therefore, no mediation effect of privacy management was detected.

Table 4.17

Mediation Effects of Privacy Management Between Social Network Characteristics and Social Capital

IV: SNC	Mediator	DV: Social Capital	Indirect effects			
			Effect	*SE*	95% *CI*s	*N*
Frequency of visit	PM	Bonding	.0016	.0032	(-.0022, .0124)	467
		Bridging	-.0015	.0025	(-.0106, .0012)	475
Average Time	PM	Bonding	.0007	.0027	(-.0022, .0107)	467
		Bridging	-.0003	.0021	(-.0077, .0025)	475
No. of Friends	PM	Bonding	.0000	.0000	(.0000, .0000)	462
		Bridging	.0000	.0000	(.0000, .0001)	459
No. of actual friends	PM	Bonding	.0000	.0000	(.0000, .0001)	459
		Bridging	.0000	.0000	(-.0001, .0000)	467
Diversity	PM	Bonding	.0004	.0010	(-.0008, .0039)	446
		Bridging	-.0003	.0009	(-.0037, .0007)	455

Note. IV: Independent variable; SNC: Social network characteristics; PM: Privacy management; DV: Dependent variable; SK: Social capital. The 95% bias-corrected bootstrap confidence interval for the mediation effect of privacy management was based on 10,000 bootstrap samples. The control variables include gender, age, education, and income.

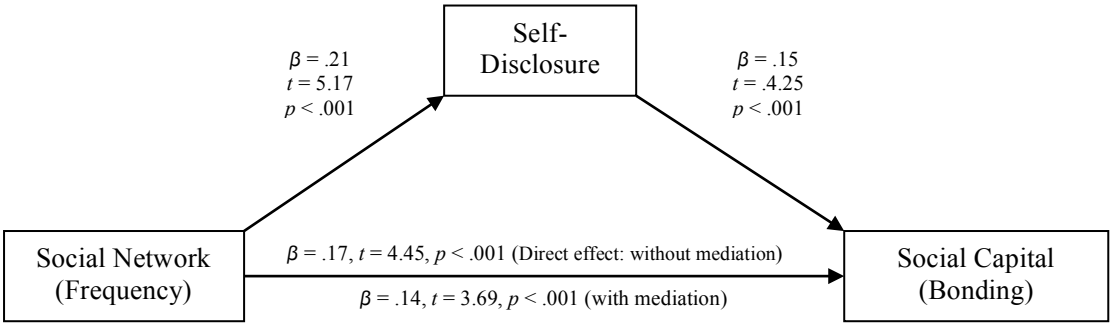
THE INDIRECT EFFECT OF SOCIAL NETWORK CHARACTERISTICS ON SOCIAL CAPITAL THROUGH NARRATIVE SELF-DISCLOSURE

RQ4c explored whether social network characteristics indirectly affect social capital through narrative self-disclosure. Three main social network characteristics were examined: how often participants use Facebook, the average amount of time they spent on Facebook for per visit, and diversity of their network (the variety of their Facebook friends' occupations). This study tested those three characteristics respectively, with both bonding social capital and bridging social capital. Three findings were illustrated here.

First, as Figure 4.3a and Figure 4.3b showed, frequency of using Facebook indirectly influenced bonding social capital (.0149, .0501) and bridging social capital (.0169, .0520) through participants' narrative self-disclosure, and the mediating effects were positive. This finding confirmed that, through self-disclosure, increases of social capital were associated with participants' more frequent use of Facebook.

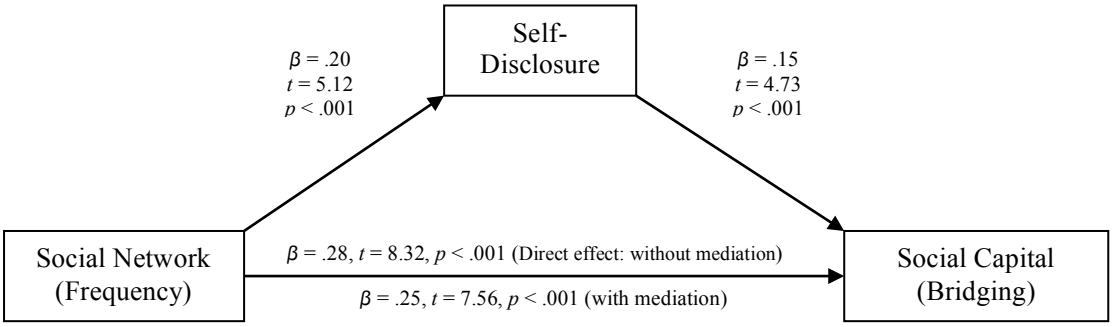
Second, as Figure 4.4a and Figure 4.4b showed, the average amount of time spent on Facebook per visit indirectly influenced bonding social capital (.0197, .0719) and bridging social capital (.0273, .0828) through participants' narrative self-disclosure, and the mediating effect was positive. This finding confirmed that, through self-disclosure, increases of both types of social capital were associated with participants' increase of the average amount of time spent on Facebook.

Figure 4.3a: The Indirect Effects of Social Network Characteristic (Frequency) on Social Capital (Bonding) through Narrative Self Disclosure



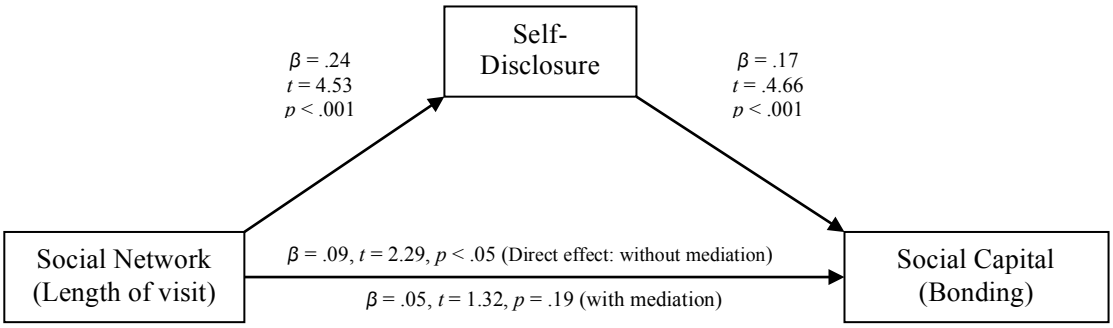
Note: The bootstrapped 95% bias corrected *CI*s using 10,000 bootstrap samples:
Self-Disclosure as a single mediator (SNC→SD→SC-Bonding): (.0149, .0501)
The control variables include gender, age, education, and income. $N = 476$.

Figure 4.3b: The Indirect Effects of Social Network Characteristic (Frequency) on Social Capital (Bridging) through Narrative Self Disclosure



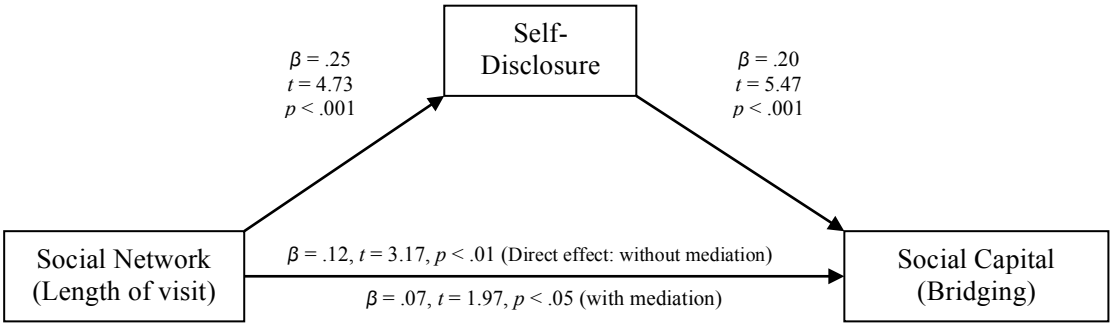
Note: The bootstrapped 95% bias corrected *CI*s using 10,000 bootstrap samples:
Self-Disclosure as a single mediator (SNC→SD→SC-Bridging): (.0169, .0520)
The control variables include gender, age, education, and income. $N = 485$.

Figure 4.4a: The Indirect Effects of Social Network Characteristic (average time each use) on Social Capital (Bonding) through Narrative Self- Disclosure



Note: The bootstrapped 95% bias corrected *CI*s using 10,000 bootstrap samples:
Self-Disclosure as a single mediator (SNC→SD→SC-Bonding): (.0197, .0719)
The control variables include gender, age, education, and income. $N = 476$.

Figure 4.4b: The Indirect Effects of Social Network Characteristic (average time each use) on Social Capital (Bridging) through Narrative Self -Disclosure

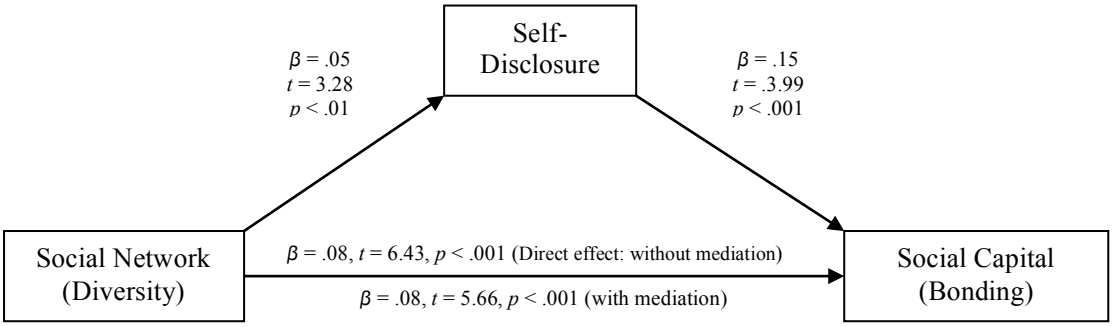


Note: The bootstrapped 95% bias corrected *CI*s using 10,000 bootstrap samples:
Self-Disclosure as a single mediator (SNC→SD→SC-Bridging): (.0273, .0828)
The control variables include gender, age, education, and income. $N = 485$.

Third, as Figure 4.5a and Figure 4.5b showed, diversity of Facebook friends' occupations indirectly influenced bonding social capital (.0033, .0155) and bridging social capital (.0054, .0187) through participants' narrative self-disclosure, and the

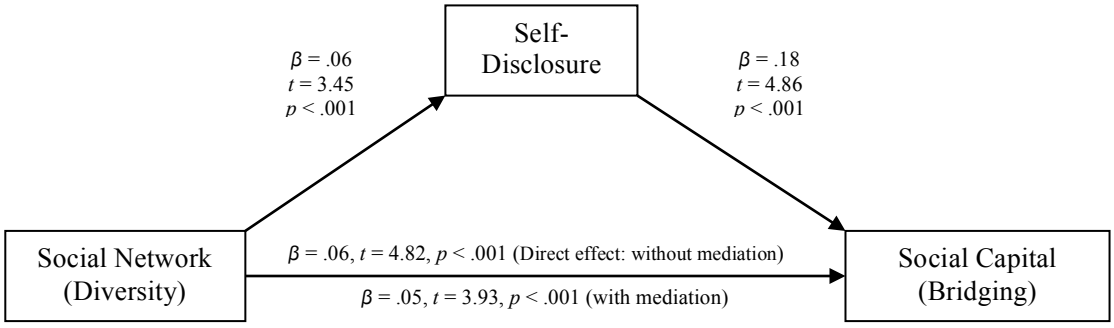
mediating effect was positive. This finding confirmed that, through self-disclosure, increases of both types of social capital were associated with participants' network diversity.

Figure 4.5a: The Indirect Effects of Social Network Characteristic (Diversity) on Social Capital (Bonding) through Narrative Self-Disclosure



Note: The bootstrapped 95% bias corrected *CI*s using 10,000 bootstrap samples:
Self-Disclosure as a single mediator (SNC→SD→SC-Bonding): .0033, .0155)
The control variables include gender, age, education, and income. $N = 453$.

Figure 4.5b: The Indirect Effects of Social Network Characteristic (Diversity) on Social Capital (Bridging) through Narrative Self-Disclosure



Note: The bootstrapped 95% bias corrected *CI*s using 10,000 bootstrap samples:
Self-Disclosure as a single mediator (SNC→SD→SC-Bridging): .0054, .0187)
The control variables include gender, age, education, and income. $N = 463$.

STRUCTURAL EQUATION MODELING ANALYSIS OF INTEGRATED MODEL

For further analysis about the model, a Structural Equation Modeling (*SEM*) analysis was conducted by using the statistical software M*plus* 5.2 (Muthen & Muthen, 2008) with maximum likelihood estimation method. Although M*plus* could not show the Mardia's normalized multivariate kurtosis, the univariate skewness and kurtosis for the 26 observed variables ranged from -.91 to .1.76 and from -1.27 to 1.50 (except to that number of Facebook friends had relatively higher skewness and kurtosis), respectively, the normality still could be assumed. There are two purposes for conducting this *SEM* analysis: the first is to investigate the mediation role of privacy management in an integrated model, and the second is to specify the full model to examine whether the observation is consistent with the proposal model based on previous studies.

This study used the following variables to conduct the *SEM* analysis: five items of bonding social capital, five items of bridging social capital, six items of narrative self-disclosure (one item was removed later due to the fact that it was cross-loaded with social capital), one item of privacy management, seven items of social privacy concerns, and three single items of social network characteristics (number of Facebook friends, frequency of using Facebook, and network diversity). This study did not use identity-based self-disclosure because it was an aggregated single indicator, which lacks the capacity to detect measurement errors, and the narrative self-disclosure is more appropriate because it includes broader possible information disclosure than profile information. This study chose social privacy concerns, instead of institutional privacy concerns, because the latter has relatively low reliability (α =.62) and only narrowly focuses on Facebook site's privacy issues.

For considering whether the model fits the data well or not, three model-fit indices and chi-square test were consulted. The maximum likelihood estimation was

used for this analysis. The chi-square test may provide initial assessment for overall fit, and it shows a good fit between the model and data when the chi-square test shows non-significant. The three model fit indices consulted are root mean square error of approximation (*RMSEA*), Bentler's comparative fit index (*CFI*), Tucker Lewis index (*TLI*) and standardized root mean square residual (*SRMR*).

Researchers have suggested some criteria for assessing the model-data fit. The *RMSEA* is calculated based on the target model chi-square and degrees of freedom and takes sample size into account. The preferred good fit value for *RMSEA* is less or equal to .05, and reasonable fit value is between .05 and .08 (Hu & Bentler, 1999). The *SRMR* calculated by using standardized residuals and standard deviations is also reported. The value of *SRMR* smaller than .08 is preferred, which indicates a good fit (Hu & Bentler, 1999). As for *CFI* and *TLI*, the recommended good fit value should be greater .90 or .95 (Hu & Bentler, 1999). These model fit indices criteria were used in *SEM* analysis for this study.

The *SEM* analysis followed the two-step rule (Bollen, 1989; Kline, 2005): a *CFA* analysis for measurement model with all possible unanalyzed associations among factors, and then a full model analysis with the measurement model and the proposed structural model (path model). Because correlations among the measures for social network characteristics (i.e., size, intensity, and diversity) were small (r ranges from .14 to .25) and a single latent factor *CFA* analysis showed factor loadings for the three measures were all below .5 (λ for network size was .49, λ for network intensity was .26, and λ for network diversity was .49), it was not appropriate consider the three measures was affected by one single latent factor, and therefore, the current study used the three measures as three different social network characteristic factors to conduct the subsequent analyses. In addition, privacy management was the

accumulation of the possible privacy management measure measures participants have ever employed, so it was also used as a latent variable with only one indicator.

Although the four multiple-item measures all have relatively high Cronbach's α, which suggested good reliability, this study still included measurement model and structural model for a full model analysis, instead of a path model analysis, for the following two reasons. First, the measurement model can assess the measurement error, and the estimates of the direct effects for the structural model are corrected for measurement error (Kline, 2005). Second, including the measurement model can help to detect cross-loading problems (Kline, 2005), which also happened in this study (the six items of self-disclosure cross-loaded with social capital).

The first step *CFA* analysis showed the sixth indicator ("I updated my Facebook frequently") for self-disclosure was cross-loaded with both social capital latent factors (bonding and bridging); the current study removed that item for further analysis. After removing that item, the results showed a good fit between the data and measurement model, χ^2 (275) = 864.37, $p < .001$, *CFI* = .907, *TLI* = .890, *RMSEA* = .064 (90% CI: .059, .069), and *SRMR* = .057. Although the chi-square test was significant, but because chi-square test was sensitive to sample size and the other model fit indices all suggested a good fit, with caution that the social network characteristics and privacy measurement were single indicator latent variable, the current study concluded the measurement model was a good fit and further employed full model analysis with the proposed structural model.

The initial full model analysis (as proposed previously) showed that it was a good fit between data and the model, χ^2 (279) = 872.15, $p < .001$, *CFI* = .905, *TLI* = .891, *RMSEA* = .064 (90% CI: .059, .069), and *SRMR* = .058. However, the further look at the factors loadings, neither bonding social capital nor bridging social capital were affected by social network size (λ for bonding social capital was .02, $p = .63$; λ

for bridging social capital was .03, p = .49). Besides, privacy management was not affected by network size (λ = .06, p = .18) and network diversity (λ = .07, p = .11). After removing those paths, the model was still a good fit with the data, χ^2 (285) = 886.06, p < .001, *CFI* = .904, *TLI* = .891, *RMSEA* = .064 (90% CI: .059, .068), and *SRMR* = .060. See Figure 4.6. However, the regression paths from privacy concern to self-disclosure (β = .10, p = .052) and from network diversity to self-disclosure (β = .07, p = .11) did not reach a statistical significance level at .05, so they were removed from the current model. After removing those two paths, it still generated a reasonable model fit (χ^2 (285) = 891.78, p < .001, *CFI* = .904, *TLI* = .892, *RMSEA* = .064 (90% CI: .059, .068), and *SRMR* = .062). The Chi-square difference test showed that the removal of those two paths did not generate a significantly worse model fit, $\chi^2_{difference}(2) = 5.72$, p = .06. Therefore, for parsimony, this study did not include those two paths in the final model.

According to the final integrated model (see Table 4.19), among three social network characteristics, both network intensity and network diversity have direct and positive effects on bonding social capital (Intensity: β = .19, p < .001; Diversity: β = .26, p < .001) and bridging social capital (Intensity: β = .38, p < .001; Diversity: β = .16, p < .001). In other words, the frequent use of Facebook and a more diverse social network on Facebook will help individuals gain social capital. In addition, network intensity has direct and positive effects on privacy management (β = .10, p < .05) and self-disclosure (β = .10, p < .05). It also has a direct and negative effect on privacy concerns (β = -.11, p < .05), suggesting that frequent use of Facebook may lower users' concerns about possible privacy issues. Network size has a direct and positive effect on self-disclosure (β = .17, p < .001). Those who have more Facebook friends tend to disclose more about themselves.

As the previous mediation analysis has suggested that privacy concerns indirectly affect both bonding social capital and bridging social capital through privacy management and self-disclosure, the integrated model shows a similar pattern: privacy concerns positively influence privacy management (β = .28, p < .001), privacy management positively influences self-disclosure (β = .13, p < .01), and self-disclosure will bring more bonding social capital (β = .10, p < .05) and bridging social capital (β = .12, p < .01).

In summary, based on the SEM analysis, the paths from privacy concerns to social capital through privacy management and self-disclosure support this study's argument that privacy management plays a key mediation role between privacy concerns and self-disclosure, and between privacy concerns and social capital. In other words, the more privacy management, the more self-disclosure and the more increases of social capital. In addition, the paths from network intensity to social capital through privacy management and self-disclosure also indicate that the positive mediating effects of privacy management on social capital social. The more frequent use of Facebook may encourage users to employ more privacy management, and it will help them to gain social capital through more self-disclosure.

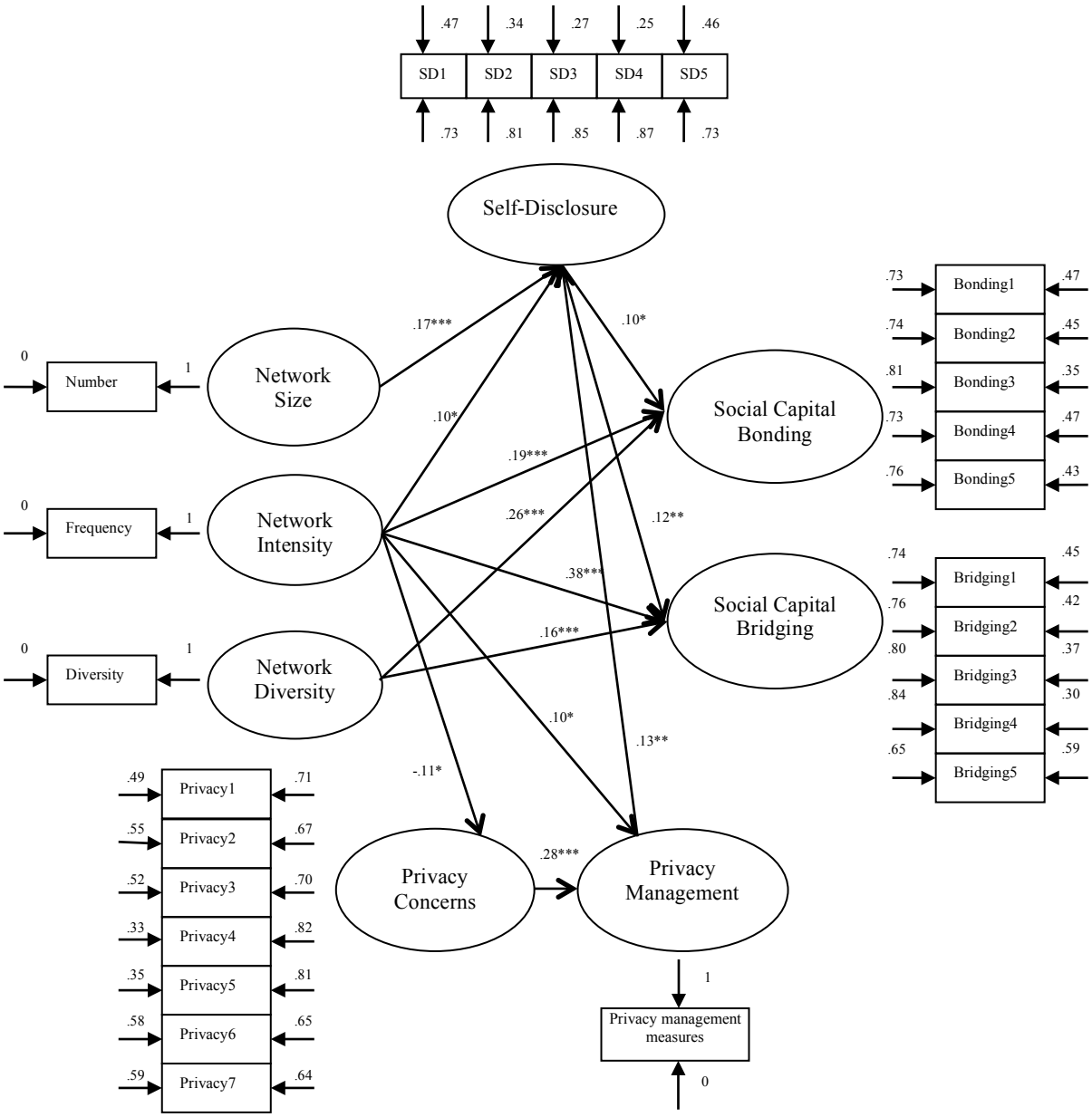
Table 4.18

Path Coefficients of the Final Integrated Model

Path coefficients	Direct effects	
	β	*SE*
Social Network Characteristics		
Network Size → Self-disclosure	.17***	.045
Network Intensity → Privacy Concerns	-.11*	.046
Network Intensity → Privacy Management	.10*	.042
Network Intensity → Self-disclosure	.10*	.045
Network Intensity → Bonding Social Capital	.19***	.045
Network Intensity → Bridging Social Capital	.38***	.040
Network Diversity → Bonding Social Capital	.26***	.043
Network Diversity → Bridging Social Capital	.16***	.042
Privacy Concerns		
Privacy Concerns → Privacy Management	.28***	.043
Privacy Management		
Privacy Management → Self-disclosure	.13**	.045
Self-disclosure		
Self-disclosure → Bonding Social Capital	.10*	.047
Self-disclosure → Bridging Social Capital	.12**	.045

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

Figure 4.6: SEM Analysis for Integrated Model



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

Chapter 5: Discussion

The major purposes of this study were to revisit the privacy paradox phenomenon, update the current relationships among privacy concerns, self-disclosure, and social capital on Facebook, integrate these relationships into a quantitative model, and explore the role of privacy management in these relationships. This goal was realized by using MTurk to test a theoretical model that used survey data from 522 respondents. There are four sections of key findings: 1) the impact of the structural factor—Facebook social networks—and impact of individuals' self-disclosure on Facebook on their perceived bridging and bonding social capital; 2) the impact of privacy concerns on self-disclosure and perceived social capital on Facebook and an update on the current status of the privacy paradox; 3) the indirect effect of privacy concerns on social capital through privacy management and self-disclosure examined by the mediation analysis; and 4) the proposed integrated model examined through SEM analysis to confirm the relationships among privacy concerns, social network characteristics, privacy management, self-disclosure, and social capital. The next section summarizes key findings, provides discussion of theoretical contributions and implications, and suggests directions for future studies based on this dissertation's limitations.

SOCIAL CAPITAL ON FACEBOOK

Social capital is defined as the resources embedded in social networks based on trust and reciprocity (Putnam, 2000). These resources come from the connections with others. The various forms of social media have provided a new way to connect with others. Among these social media, the special role of Facebook—the connection of existing social relationships with their extended networks through self-disclosed information and with the greatest amount of privacy control options—makes it the

most popular SNS in the U.S. (Duggan et al., 2013). The connections of various personal social networks and the links to friends' social networks on Facebook make it a place for people to receive and accumulate social capital. When someone connects with friends on Facebook, all types of information disclosed by these connected friends (e.g., the profile information, the updated status, the forwarded or liked information) directly come into his/her Facebook news feed, with no effort. Social networks on Facebook provide not only the information that is hard to receive from other media or personal outlets (e.g., friends' personal information, daily activities, and/or opinions toward a public issue) but also the physical and mental support and resources. Many studies on social capital and Facebook have proven that people receive both bridging (e.g., contact with a broader range of people) and bonding (e.g., access to limited resources) social capital through their social connections on Facebook (Burke et al., 2010; Ellison et al., 2007, 2011; Steinfield et al., 2008, 2009). Studies on Uses and Gratifications also have showed that people use Facebook mainly for social reasons ((Johnson & Kaye, 2006, 2009; Kaye & Johnson, 2006, 2014).

This dissertation used multiple regression analyses to examine factors that predict perceived social capital. Two structural factors of social network characteristics—network intensity and network diversity—predict individuals' perceived bridging and bonding social capital on Facebook. People who use Facebook more intensely and people who have a more diverse social network on Facebook also perceive more bridging and bonding social capital. The findings support the impact of social network characteristics on individuals' perceived social capital on Facebook, and are consistent with the existing literature. Network intensity is a significant predictor of social capital (Ellison et al., 2007; Valnezuela, Park, & Lee, 2009). People who check Facebook more frequently may receive a higher amount of information and an updated status of connected networks than those who check

Facebook less frequently. Facebook's News Feed provides users an opportunity to browse connected friends' update status and actions, and people who use Facebook more frequently are more likely to notice the latest information disclosed by their connected networks and gain more social capital. This dissertation defines the diversity of Facebook networks as the types of occupations one's connected people have in his/her Facebook social network. Therefore, the more diverse one's Facebook social network is, the higher the possibility of more types of resources and diverse information that one can receive from it.

In addition to the structural impact of the Facebook social network, the level of individuals' self-disclosure on Facebook also predicts their perceived social capital, both bridging and bonding. The more that people disclose their thoughts and ideas on Facebook, the more social capital they perceive. Trust and reciprocity are the main elements in establishing relationships according to social capital theory (e.g., Putnam, 2000). Self-disclosure scholars have also argued that trust established in relationships is the basis of self-disclosure (Cozby, 1973; Jourard, 1971) and self-disclosure furthers intimacy and closeness in relationships. When self-disclosure in a relationship is high, people have higher feelings of trust and solidarity (Wheeless, 1976, 1978; Wheeless & Grotz, 1976), and this relationship is more intimate and rewarding (Jourard, 1971). Studies on social media and perceived social capital have also found a positive relationship between self-disclosure and social capital (Burke et al., 2011; Steinfield et al., 2008). Findings in this study reaffirmed this positive relationship. Narrative self-disclosure is directly associated with both perceived bonding and bridging social capital. Identity-based self-disclosure is directly associated with perceived bridging social capital. People who disclose more about their thoughts and ideas on Facebook perceive more bridging and bonding social capital, while people who disclose more on their Facebook profiles receive more

bridging social capital. Personal thoughts and ideas are more sensitive information compared with the factual background information on the profile (Taddicken, 2014), and this narrative type of self-disclosure is based on trust and also increases trust, furthers intimacy, and builds interpersonal relationships (Altman & Taylor, 1987), which explains the increasing social capital that accompanies it. The profile information is related to bridging social capital but not bonding social capital because it is essential in providing social clues for identifying the person when initiating connection and interaction (Ellison et al., 2010). After the connection is established on Facebook, the identity-based information helps weak-ties or new connections to know more about the background of the person and find commonalities, such as common interests and connected networks through schools or jobs. However, this identity-based information does little to increase bonding social capital, which more often comes from strong ties or existing social connections. These closer social connections have known the background information about the person and this type of information alone will not increase bonding social capital. Therefore, the bonding social capital will be enhanced only through the self-disclosure about thoughts and ideas that furthers trust and deeper mutual understanding.

These findings suggest that Facebook is an important place for people to gain both bridging and bonding social capital. Individuals' Facebook social networks in terms of network intensity and network diversity, and their self-disclosure on Facebook decide the amount of bridging and bonding social capital they may accumulate on Facebook.

In addition to the impact of the Facebook social network and self-disclosure on perceived social capital, the dissertation also examined the impact of privacy management and privacy concerns on social capital. Findings show that privacy management alone has no direct impact on accumulating social capital on Facebook.

It is understandable because these privacy management strategies such as blocking friends, deleting posts, or untagging photos are for limiting the spread of personal information and have no direct affect on increasing social capital alone. However, privacy management is essential for increasing social capital when linked to self-disclosure on Facebook, and these mediated relationships will be discussed later.

The other factor, social privacy concerns, has a negative effect on bonding social capital and no effect on bridging social capital when controlling all other variables. It means that if people's social privacy concerns increase, their perceived bonding social capital on Facebook decreases. It may be because people who have higher social privacy concerns (i.e., concerns about the unwanted audience and unwanted use of their Facebook information) are less likely to disclose information about themselves, and the decrease in self-disclosure affects the perceived bonding social capital they have because bonding social capital, unlike bridging social capital, is nurtured through closer trust and reciprocity within stronger social ties. People who do not disclose information about themselves on Facebook can still receive diverse information from their connected networks. Therefore, this dissertation next examines the role of self-disclosure in the relationship between privacy concerns and social capital to crystalize the impact of privacy concerns on social capital on Facebook.

BREAKING THE TRADITIONAL PRIVACY PARADOX

Many studies have examined the relationship between privacy concerns and self-disclosure on social media, and they found a very interesting disconnection between individuals' privacy concerns and their self-disclosure on social media. People's self-disclosure on social media does not decrease when their privacy concerns increase. For years, researchers have used the term "privacy paradox" to address people's social networking behaviors in disclosing personal information on

the high-risk Internet (e.g., Barnes, 2006), and this phenomenon has drawn significant attention. Many qualitative studies have interviewed social media users and found that these users did have privacy concerns, and these privacy concerns affected their self-disclosure on social media. Quantitative studies on social media also hypothesized the same direction that more privacy concerns lead to less self-disclosure. However, using quantitative approaches, past studies did not find significant direct and negatively associated relationships between privacy concerns and self-disclosure on social media, and thus reaffirmed the privacy paradox (e.g., Acquisti et al., 2006; boyd & Hargittai, 2010; Debatin et al., 2009; Tufekci, 2008; Yao et al., 2007; Youn & Hall, 2008; Taddicken, 2014). However, qualitative studies have affirmed this negative relationship, arguing that privacy concerns did exist in their interviewed participants and these concerns did affect their self-disclosure (e.g., Livingston, 2008; Young & Quan-Haase, 2009). Therefore, one major question this study tried to answer regarded the updated status of the privacy paradox.

Based on analysis of different levels of concepts with more comprehensive measurements, this paradox is not fully apparent in this study. The findings showed that three types of privacy concerns (Facebook site privacy concerns, privacy invasion concerns, and social privacy concerns) are negatively associated with individuals' personal information disclosure on Facebook. People who have more privacy concerns disclose less personal information on their Facebook profiles. Two exceptions involved the narrative self-disclosure of personal thoughts and ideas. There is no direct effect between social privacy concerns and the disclosure of personal thoughts and ideas or between privacy invasion concerns and the disclosure of personal thoughts and ideas. However, these findings indicate why this study integrated the concept of social capital, the importance of social connection, and the key for users to continue to disclose their information on social media.

Previous studies have mainly focused on the disconnection between privacy invasion concerns (e.g., hackers, cyber-stalking) and the identity-based disclosure of personal factual information (e.g., profile name, birth date, address). However, this study found that all three types of privacy concerns affect users' identity-based disclosure, breaking the traditional privacy paradox. In addition, this study found the existence of a social privacy paradox, that is the disconnection between social privacy concerns and narrative self-disclosure. There are two possible explanations for such findings. First, many previous studies were conducted at the beginning of the social media era. Social networking sites (SNSs) were not only a new media platform but also a new type of social connection for users. People were excited to explore the new media, connect to various social networks, and garner benefits from new social connections. Institutional privacy concerns emphasized by previous privacy paradox studies seemed insignificant in a context in which people neglected possible privacy invasion risks while connecting with each other through identity-based self-disclosure. However, SNSs such as Facebook have existed for a decade and been adopted by millions people around the world.[3] Over these years of adaptation and accumulated experience, Facebook has gradually and greatly affected users' daily lives, from information seeking and receiving to interpersonal relationships (Ellison et al., 2010). People who are more aware of various types of privacy risks (e.g., invasion, unwanted uses) and their impact on social relationships best gain from Facebook. These accumulated experiences on Facebook, especially related to privacy concerns and social relationships, may in turn affect their self-disclosure behaviors. People may be more aware of the permeable Facebook settings, the limited control of their disclosed information on Facebook, and the spillover effect of their disclosed

[3] Till June 2014, there were 829 million daily active Facebook users on average (Facebook, 2014, retrieved from http://newsroom.fb.com/company-info/)

information that would affect their interpersonal relationships, their reputations, or their future employment. All these experiences and concerns would affect their self-disclosure and the strategies they take on Facebook. In addition, their knowledge and Internet skills may be higher than they were 10 years ago. This study found that more than 65% of Facebook users said that setting privacy controls on Facebook is not difficult, and more than 60% of them set their profile private (friends-only). Therefore, this study updated information on the current relationship between privacy concerns and self-disclosure to capture a larger picture of the changing context of society. The findings show that people have more awareness of all types of privacy concerns and these privacy concerns do decrease their willing to disclose identity-based information.

In addition to the break of the traditional privacy paradox by updating the current relationship between privacy concerns and identity-based self-disclosure, this study found the existence of a social privacy paradox. That is, higher social privacy concerns does not lead to less narrative self-disclosure. People who have higher social privacy concerns will disclose less identity-based information on their Facebook profiles, but they do not disclose less information about their thoughts and ideas on Facebook. Identity-based information may not be useful in furthering existing interpersonal relationships and in accumulating bonding social capital. It is important for identifying individuals. The identity-based information provides important social clues such as name, photos, school, and work place for existing friends to identify their friends and accept their friend requests on Facebook. It also provides newly connected friends to find commonalities such as common friends and from the same school or city to initiate friendships. Not only do the new connections become familiar with the person through his/her profile information, but also third-parties and intruders are more likely to collect and misuse the identity-based profile information.

For example, the intruders or hackers may guess possible password through the revealed birth date or create a fake profile by using identity-based information[4]. On the other hand, narrative self-disclosure is key to accumulating social capital on Facebook and to maintaining interpersonal relationships. Therefore, the privacy paradox between privacy concerns and narrative self-disclosure still exists. However, people are not naïve or have a lack of skill in disclosing their sensitive information such as thoughts and ideas. They will use other strategies to maintain their social relationships while protecting their privacy, such as deleting friends, untagging themselves, etc. Therefore, this dissertation introduces the role of privacy management to examine the relationships among privacy concerns, self-disclosure, and social capital.

INTRODUCING PRIVACY MANAGEMENT

As previous mentioned, some studies that focused on teenagers and students (e.g., Livingston, 2008; Young & Quan-Haase, 2009, 2013) have used a qualitative approach to determine that these social media users were not ignorant of possible privacy invasions and did try to balance their personal privacy and social relationships, whether these strategies worked or not. Recent quantitative studies also have examined the role of privacy management in the relationship between privacy concerns and self-disclosure, but they either lacked clear connection to social capital (Child, Haridakis, & Petronio, 2012) or simplified individuals' privacy management to one strategy: changing their profile to "friends-only" (Stutzman & Kramer-Duffield, 2010). A Pew study reported that SNS users are becoming more active in

[4] For example, many Facebook users have searched ways to solve the stolen and fake Facebook profiles problems. See https://www.facebook.com/help/community/question/?id=636938942994849

managing their profiles, and about two-thirds have deleted their friends, removed their comments, or untagged photos (Madden, 2012).

Results in this study showed that Facebook users who have higher social privacy concerns engaged in more privacy management strategies; however, higher invisible privacy concerns such as concerns about the Facebook site and invasion of privacy by a third party do not lead to privacy management. This makes sense because Facebook users have to actively manage their social relationships, especially their social privacy concerns, which directly affect the accumulation of their social capital. These privacy management strategies give them a way to reduce their privacy concerns regarding unwanted use and provide a sense of security for further disclosure of their thoughts and feelings. Tufekci (2008) also found that once students who worried about their privacy decided to use SNSs, they managed their concerns by adjusting the visibility of their Facebook profiles or using nickname on Myspace instead of regulating the level of their self-disclosure. However, these relationship-based privacy management strategies cannot solve users' invisible privacy concerns about the institution, the Facebook site, or unexpected invasions, such as cyber stalking. These privacy settings are still very permeable (Acquisti & Cross, 2006). For example, the blocked stalker can still access to the stalked person's information through reviewing the public profiles of that person's connected friends or through adding their connected friends. It may be easy to change one's own setting but it is difficult to control the Facebook settings and actions of one's networked friends.

To further the exploratory findings of some qualitative studies about SNS users' employed strategies in managing their social relationships and private information, this study emphasized the role of privacy management in individuals' self-disclosure on Facebook. To examine the role of privacy management on Facebook quantitatively, previous quantitative studies often used one strategy—

changing the default public profile to "friends-only"—and examined its impact on individuals' disclosure of their factual background information (Ellison et al., 2011b; Stutzman et al., 2010). However, this concept and measurement of privacy management did not capture a full list of strategies that reduce users' social privacy concerns—how to manage information that affects their social relationships and related social capital. This type of privacy management simplified individuals' daily practice in managing their privacy concerns and ignored challenges that individuals' are facing—a "friends-only" profile does not go private at all. Information is easily spread from the personal network and can be seen by unwanted users because of the permeable Facebook settings (Acquisti & Cross, 2006). In addition, new measurements and concepts of privacy management must be developed because Facebook changed its default setting from public to friends-only in 2014. Therefore, this study emphasized the social privacy concerns regarding unwanted use, which have seldom been measured, and examined how individuals have used different strategies to manage their social privacy concerns.

THE MEDIATING ROLE OF PRIVACY MANAGEMENT

This dissertation proposed a major question: whether privacy is an asset or a barrier in using SNSs. To answer this question, this study found that private information about personal information, thoughts, and ideas shared on Facebook become assets in using Facebook and accumulating social capital. Meanwhile, this study also found that higher privacy concerns reduce the level of personal information and thoughts people are willing to share in such a semi-public network. Therefore, privacy concerns become a barrier in Facebook use and in accumulating social capital within these networks. It seems that the concept of privacy is both an asset in terms of personal information and a barrier in terms of privacy concerns; however, what else

works in this dilemma? What role can be brought in to explain this delicate relationship? This study introduced privacy management as a mediator in these relationships to provide a clearer view.

As mentioned earlier, self-disclosure is positively correlated with social capital. The more one discloses, the more social capital one accumulates. However, privacy concerns have reduced individuals' self-disclosure on Facebook. In this pattern, more privacy concerns lead to less self-disclosure, and less self-disclosure leads to less social capital. The current study argued that privacy management plays a significant role in these relationships that has not previously been explored and tested. Therefore, this study tested the indirect effect of privacy concerns on social capital through the serial mediating roles of privacy management and self-disclosure. All findings confirmed that privacy management is important in redirecting the relationships among privacy concerns, self-disclosure, and social capital. People who have higher privacy concerns tend to disclose fewer personal thoughts and ideas on Facebook and miss the opportunity to accumulate social capital. However, when they employ more privacy management strategies, they are more willing to self-disclose and thus accumulate more social capital on Facebook networks (Privacy Concerns→Privacy Management→Self-Disclosure→Social Capital).

These findings provide quantitative empirical evidence of the role of privacy management in the relationships among privacy concerns, self-disclosure, and social capital. Employing these privacy management strategies helps individuals alleviate their privacy concerns and encourages them to accumulate social capital by disclosing more personal information. Privacy management works to reduce not only social privacy concerns but also privacy concerns toward the Facebook site. It also shows that SNS users have no obvious options for solving the invisible and structural privacy concerns. Employing a certain level of privacy management strategies gives

these users a sense of security that they at least are doing something to manage their Facebook networks.

Previous quantitative studies on privacy management emphasized one option (friends-only) or a certain direct relationship (e.g., privacy management and self-disclosure) or only reported the percentage use of these privacy management strategies. This study contributes to a more complete understanding by testing the single and serial mediator role of privacy management and self-disclosure between various types of privacy concerns and social capital. The study adopted a better measure that is closer to the reality of daily SNS use to examine how individuals manage their information and social actions on Facebook. It confirmed what was found in qualitative studies (people do employ strategies to manage their social relationships and privacy concerns on Facebook) and emphasized the importance of gaining social capital through Facebook use.

Self-Disclosure and Privacy Management

The mediation analyses show that privacy concerns indirectly affect social capital through privacy management and narrative self-disclosure. Self-disclosure and privacy management are two closely related concepts. In this study, self-disclosure means the actual disclosed content users display on their Facebook profile, such as personal background information and personal thoughts and feelings regarding challenges in life and work. The disclosed information is explicit and visible to the connected networks, and it affects the disclosers' social relationships, good and bad. Privacy management here refers to strategies users consciously employ regarding their disclosed information. These strategies, such as removing posts, deleting friends, or un-tagging photos, are obvious to the disclosers but implicit to the connected

networks. The findings show that people who employ more privacy management strategies disclose more personal thoughts and ideas.

It is arguable and reasonable that the disclosure of information has included a certain level of management; however, the study provided a simple way to differentiate these two complex concepts of privacy management and self-disclosure. Take managing money, for example; privacy management is like the strategies financial experts suggest to manage and allocate money, while self-disclosure is similar to how someone actually uses his/her money. Each act of spending certainly includes a thought or hidden philosophy, wise or not. However, not everyone actually "consciously manages" their money in an explicit way. People who consciously manage their social privacy concerns on Facebook may feel more secure and comfortable in disclosing more personal thoughts and feelings, which is directly related to perceived social capital. This is similar to people consciously managing their money gaining more than those who do not consciously manage it. Therefore, this study distinguished privacy management and self-disclosure and the findings revealed differences.

In the study, social privacy concerns are directly associated with both self-disclosure and privacy management. People who have higher social privacy concerns are less likely to disclose their identity-based information and more likely to employ privacy management. People who have higher social privacy concerns employ more privacy management strategies. This study also examined the impact of the structural factor of social network characteristics on social capital through self-disclosure and privacy management. This is because Facebook users accumulate useful resources derived from their social network (boyd et al., 2007; Ellison, Steinfield, & Lampe, 2007) and what constitutes their social network will determine the resources they can

obtain and that will affect their behaviors, including self-disclosure and privacy management.

Previous studies found a relationship between social network and self-disclosure; for example, Young et al. (2009) found that Facebook network size is positively related to self-disclosure. This dissertation furthers the relationships of social network characteristics and self-disclosure to social capital. The mediation analyses showed that social network characteristics indirectly affect social capital through narrative self-disclosure. That means, the more frequent Facebook use, the larger the increase of individuals' self-disclosure about thoughts and ideas, and then this indirectly increase their social capital, both bonding and bridging. The same pattern is found in network diversity. The more diverse the Facebook network, the more bonding and bridging social capital individuals gain through self-disclosure.

The SEM analysis also shows the indirect effect from network size to social capital through self-disclosure. Connecting with more people on Facebook increases self-disclosure, which could indicate that self-disclosure is a sign of trust in these relationships (Cozby, 1973) and also an approach to gain trust, draw closer, and sustain intimacy in various kinds of social relationships in one's social network (Livingston, 2008).

Without much quantitative literature examining the direct relationship between structural factors and privacy management strategies, this study assumed that people who have larger numbers of friends and friends with diverse backgrounds and who use Facebook more intensely are more likely to manage their private information. However, unlike self-disclosure, it is surprising that no relationships exist among the three social network characteristics and privacy management. In addition, privacy management is not directly related to either bridging or bonding social capital. Unlike self-disclosure, privacy management is not the mediator between social network

characteristics and social capital. These findings help researchers distinguish the impact from social networks and from individuals' privacy concerns on privacy management. It is higher privacy concerns that lead to privacy management (e.g., Stutzman et al., 2011), not social network characteristics, and privacy management alone does not lead to higher perceived social capital.

THE SEM MODEL

This study proposed a full model based on previous studies to provide a broader view of the relationships among these concepts. There are abundant studies about each pair in the relationship between each concept, but they lack an integrated model for examining the role of privacy management and these concepts. With structured equation modeling (*SEM*), the collected data fit the proposed model. The integrated model shows that social network characteristics both directly and indirectly affect social capital via self-disclosure. For example, the more friends one has on Facebook, the more one is likely to disclose about self and the more bridging and bonding social capital one would accumulate. These findings confirm the impact of Facebook social network characteristics on individuals' self-disclosure and perceived social capital on Facebook.

The main focus of this study was Facebook users' privacy concerns. Is the relationship between privacy concerns and self-disclosure only a paradox? Do privacy concerns have no impact on self-disclosure on Facebook? Is privacy a trade-off to gain social capital? In the debate on the privacy paradox, one school of thought has argued that people are ignorant about their privacy concerns and continue to disclose their personal information on SNSs, while another school of thought has suggested that people trade off their privacy for social capital. However, the relationship between privacy concerns and self-disclosure may be more complex and not a clear-

cut choice between giving up Facebook completely and giving up privacy completely. There may be other options and this study provides an alternative via privacy management.

On one hand, the findings in this study show that individuals' privacy concerns do affect their self-disclosure on Facebook, especially when they disclose their personal information on their profile. Users are not ignorant about the risk of all types of privacy invasion (e.g., site, third party, social relationships) and these concerns affect their Facebook use. On the other hand, the findings show that people accumulate social capital through self-disclosure and their Facebook networks have an impact on their accumulated social capital. Therefore, to join the debate on the privacy paradox, the model includes privacy management and argues that perhaps this is not simply about the privacy paradox (a single and direct relationship between privacy concerns and self-disclosure) but about an integrated model that include privacy concerns, the Facebook social network, privacy management, self-disclosure, and social capital. This integrated model shows no direct relationship between privacy concerns and self-disclosure, which seems to confirm the privacy paradox phenomenon at the surface. However, findings from the correlation analyses between privacy concerns and self-disclosure with varied measurements proved that the traditional privacy paradox does not exist. The integrated model also proved the mediation role of privacy management. The path from privacy concerns to self-disclosure and to social capital became positive when adding privacy management. When people who have higher privacy concerns employ these privacy management strategies, they feel more secure in continuing to disclose on Facebook and to accumulate social capital. The integrated privacy management provides an alternative for looking at the privacy paradox phenomenon, and this model shows that Facebook

users can employ these strategies to resolve their social privacy concerns on Facebook.

There are a few differences between regression analysis and SEM analysis. First, the direct effect of social network intensity on privacy management is found in the integrated model, which did not reach a statistical significance level in regression analysis. Second, the direct effect of self-disclosure on both bonding and bridging social capital increases in the integrated model compared to regression analysis. Third, in the regression model, social privacy concerns had a direct and negative effect on bonding social capital; however, no direct effect of social privacy concerns on bonding social capital was found in the integrated model.

SIGNIFICANCE OF THE STUDY

The findings of this dissertation have several contributions. One major theoretical contribution of this study is to link the discussion of privacy concerns and self-disclosure to social capital. Studies on the privacy paradox focused only on the disconnection between privacy concerns and self-disclosure, and the explanation they often provided is the lack of Internet skills and knowledge of these social media users. However, social media, especially Facebook, are in a special arena that has blurred public/private spheres and are made for social connections. Social connections are important and people receive various resources through social connections on Facebook. Without taking social capital into consideration when discussing privacy concerns and self-disclosure on Facebook, it cannot capture the full picture or find an answer to the lasting privacy paradox. In addition, social capital is a complex concept, and it refers to both structural and perceived outcomes. To examine the structural impact of social capital, this study also distinguished the structure as the social network characteristic and perceived outcomes as bridging and bonding social capital.

The second theoretical contribution lies in the mediating role of privacy management. Previous quantitative studies on privacy management emphasized one option (friends-only), a certain direct relationship (e.g., privacy management and self-disclosure), or only reported the use percentage of these privacy management strategies. This study contributes to a more comprehensive understanding by testing the single and serial mediator role of privacy management and self-disclosure between various types of privacy concerns and social capital. The findings of this dissertation confirmed that privacy management reduces individuals' social privacy concerns and encourages these users to disclose more personal thoughts and ideas to gain more bridging and bonding social capital. These relationships were not found or tested in previous studies; however, this study has confirmed the essential role of privacy management in solving the disconnection among privacy concerns, self-disclosure, and social capital.

In addition to adding the role of privacy management to examine the relationship among privacy concerns, self-disclosure, and social capital, the integrated model and relationship among these key variables were tested quantitatively and confirmed. It provides a theoretical framework when examining the relationships among social network characteristics, privacy concerns, privacy management, self-disclosure, and social capital.

This dissertation also makes methodological contributions. It contributes to the field by using distinct levels of concepts with better measurements. For example, this study explores different types of privacy concerns (institutional privacy concerns, social privacy concerns, privacy concerns about invasions), self-disclosure (identity-based vs. narrative self-disclosure), and privacy management. These better measurements and the comparison between different types of measures provide a more complete and clearer view to examine these relationships. For example, these

measurements help researchers to update the social privacy paradox phenomenon and break the traditional privacy paradox. Future studies on the privacy paradox should focus more on the aspect of narrative self-disclosure of implicitly personal information, such as thoughts and ideas. The aim was to capture a possible relationship in the intriguing privacy paradox phenomenon using a quantitative approach. The study adopted a better measure that is closer to the reality of daily SNS use to examine how individuals manage their information and social actions on Facebook. It confirmed what was found in qualitative studies (people do employ strategies to manage their social relationships and privacy concerns on Facebook) and emphasized the importance of gaining social capital through Facebook use.

Previous studies on the privacy paradox were concerned with invisible privacy invasion from SNS sites and third parties; they suggested that people solve this problem by increasing their Internet skills and knowledge, by being aware of what to disclose online, and by decreasing their self-disclosure. However, these suggestions cannot help users solve their invisible institutional privacy concerns such as invasion from the Facebook sites and the third parties. This study reaffirmed that self-disclosure on Facebook is significantly related to both bonding and bridging social capital, and these users will not easily give up accumulating social capital on Facebook. The current study also emphasized Facebook users' real daily visible privacy concerns regarding the management of social relationships on Facebook that affect their accumulation of social capital, which was not discussed in previous studies.

Therefore, this study identified both visible and invisible privacy concerns to clarify their relationships with privacy management and social capital, filling the gap created by previous studies. In addition, the findings suggest that social media and policy makers provide an effective way to deal with individuals' invisible privacy

concerns since giving up SNSs is no longer an effective option for most users because SNSs have become a new way of social connection and a new field for accumulating social capital. The companies and policy makers need to help individuals avoid privacy invasions that they truly cannot manage (i.e. institutional privacy concerns and privacy invasions) in addition to the existing privacy settings and management strategies that are mainly for social privacy concerns.

LIMITATIONS AND FUTURE STUDIES

This dissertation tries to integrate related concepts into one model and clarify their complex relationships empirically. It employs closer-to-reality measurements and the various levels of analysis enrich the dissertation. Nonetheless, this study is not without limitations that necessitate further research. Data were collected through MTurk, an online crowd-sourcing site, which does not offer a true random selection of respondents, thus findings are limited in their generalizability to the Internet population as a whole. This study aimed to explore the relationships among privacy concerns, privacy management, self-disclosure, and social capital. Data collected through MTurk provided the student researcher who has limited resources with an opportunity to test the proposed new quantitative model and explore an emerging important privacy management concept associated with online SNS use. Extant research has proven that the data obtained are high quality and that participants recruited through MTurk are more representative of the U.S. population and more diverse than the convenience samples collected through traditional methods (Berinsky, Huber, & Lenz, 2012; Mason & Suri, 2011). Even though MTurk participants tend to be younger and more liberal, their demographics and opinions on public issues are representative of data collected from high-quality national Internet surveys (Berinsky, Huber, & Lenz, 2012). It also provided data about online use that

are beyond convenient student samples, which face the same generalizability issue. This study further selected the sample based on age, trying to reduce the skew of the younger generation when using MTurk data. Researchers are encouraged to replicate this study with an representative sample to further define the role of privacy management in the relationships among privacy concerns, self-disclosure, and social capital, and to compare the similarity and difference of findings with data collected through MTurk and through other national online surveys.

This study has both adopted and developed diverse measurements to test the proposed arguments and models. This helps researchers examine the long-term phenomenon from a new perspective, not only the concept itself but also a new measurement of the concept. Although the study has tried to include many measurements to test the complex concepts and relationships, there is room to improve, especially in the concept of social capital. Social capital is a complex concept, and it refers to both structure and perceived outcomes. To understand the relationship between social network structure and embedded social capital, this study distinguished the structure as the social network characteristic and perceived outcomes as bridging and bonding social capital. However, social capital is not limited to this structure. Though using the same theoretical concept and definition and for the most part examining social capital as a dependent variable, studies from different fields examined social capital differently. For example, social capital can be measured by political participation, civic engagement, membership, or core discussion network.

This study borrowed Williams' (2006) perceived bridging and bonding social capital as the dependent variable to capture the social capital accumulated through Facebook social networks. The strength of Williams' measurement of social capital is that it catches features of social capital embedded in online social networks such as

more expressive support and diverse information. Over the decade, Facebook has generated a special type of social network that blurs both the private/public boundary and online/offline boundary. This type of social network challenges the traditional way of measuring social capital. Social capital on Facebook cannot be distinguished as purely online or offline social capital. It is more complicated than merely treating it as an online social capital embedded in an online social network. Facebook social networks are a mix of online and offline social networks, and with various distances of relationships connected on it. New norms of interpersonal relationships have been emerging on Facebook over the decade. It is even not easy to simply use the traditional strong-tie and weak-tie distinction to measure Facebook social networks because Facebook social ties can be fluid. People may feel closer with Facebook friends whom them interact with more often, or friends who disclose more personal thoughts and feelings. The offline weak ties can gradually become strong ties on Facebook social network through increasing self-disclosure and interactions. Therefore, future studies can work on providing a better explanation of the differences between traditional social networks and the Facebook social network, and the new measurement of social capital accumulated on Facebook. For example, the resources listed on resource-generator (e.g., education, politics, and finance) may be more appropriate in measuring the social capital people may gain through the social connections on Facebook because these resources are more specific than the abstract nature of position generator's (Appel, 2014). In addition, the meaning and the resources social occupations provide on Facebook social networks may not be as hierarchy as they are in the offline social networks. People whose occupations are defined lower in the occupation index may bring as important emotional support and resources to their networks as those whose occupations are listed higher in the occupation index. Also, future studies can employ different measures of bridging and

bonding social capital and examine the impact of strong ties and weak ties in ones' social network based on self-disclosure and privacy management. In addition, this study controls basic demographic factors, and future studies could include more control variables (e.g., the willingness to share, personality traits) to make these relationships clearer.

Fortunately, overcoming the limitations of current studies can become a motive for future studies. This study has opened several promising directions for future studies. The variety in types of privacy concerns, self-disclosure, and social capital identified in this study suggests that the relationship between the "privacy paradox" and these concepts is complex. Thus, future analysis of the links among these concepts requires focusing on specific types of privacy concerns, privacy management strategies, disclosed information, and specific gained social capital. For example, people who have higher institutional privacy concerns and people who have higher social privacy concerns may employ different types of privacy management strategies (e.g., self-censor, erase the digital footprint). These different types of privacy management strategies may have varied impacts on disclosed information, and thus indirectly affect perceived social capital. Future studies can also develop different types of social capital garnered by identifying different motivations of SNSs, as well as examine how these motivations and gained resources affect individuals' disclosed information on SNSs and related privacy management strategies. All these interactions among privacy and social concerns and corresponding strategies in self-disclosure may determine whether Facebook will become a forum for only sharing and forwarding articles or a place for users to disclose their thoughts and ideas. If individuals' privacy concerns continue to increase and the privacy management strategies people currently adopt can no longer provide them a sense of security, they may stop disclosing personal information and thoughts. Facebook may become

another media outlet that spreads news stories and articles, but not a place for people to further interpersonal relationships and accumulate bonding social capital. These user actions will eventually determine the direction of Facebook policy, the existence of Facebook and the position of SNSs in society.

Appendix: Key Measurements

Institutional Privacy Concerns

Q. Do you agree or disagree with following statements about the privacy concerns of Facebook site, where 1 is strongly disagree and 7 is strongly agree?

1. I'm concerned that Facebook is collecting too much personal information about me.
2. Facebook and other companies should take more steps to make sure that hackers cannot access the personal information in their computers.
3. Facebook should devote more time and effort to verifying the accuracy of the personal information in their databases.
4. Facebook should never sell the personal information they have collected to other Web sites.

Social Privacy Concerns

Q. Some people have concerns about the unexpected consequences of their Facebook posts. For each of the following, please tell me how concerned, if at all, you are about these issues. 1 is not concerned at all and 7 is extremely concerned.

1. When you post photos on your Facebook profile, are you concerned that people will download your photos?
2. When you update your status, are you concerned that people will misunderstand or distort your words?
3. Are you concerned that your friends will tag you in their photos or mention you in their walls without your permission?
4. Are you concerned that your posts will be seen by people you don't wish to see it?
5. Are you concerned that your information will be seen even after you have changed the privacy settings?
6. Are you concerned about how much information advertisers can learn about your Facebook behavior?
7. Are you concerned about how your Facebook activity might affect your future academic or employment opportunities?

Privacy Invasion Concerns

Q. Some people have concerns about their privacy invasions such as identity theft, information leakage, hacker, blackmail, or cyber stalking on Facebook. Please tell me how concerned you are about these privacy invasions on Facebook. 1 is not concerned at all and 7 is extremely concerned.

Social Network Size

Q. Approximately how many total "friends" do you have in your Facebook network?

Q. Approximately how many friends do you actually interact with on Facebook?

Social Network Intensity

Q. Approximately how long have you been using Facebook?

Q. How often have you checked your Facebook account?

Less than a few times per month (1)
A few times per month (2)
A few times per week (3)
Daily (4)
More than 3 times per day (5)
More than 5 times per day (6)

Q. The average amount of time you spent on Facebook each use:

Up to 5 minutes (1)
15 minutes (2)
30 minutes (3)
1 hour (4)
More than 1 hour (5)

Social Network Diversity

Q. I am going to ask some general questions about jobs some people on your Facebook network may now have. These people include your relatives, friends and acquaintances (acquaintances are people who know each other by face and name). If there are several people you know who have that kind of job, please tell me the one that occurs to you first. Do you know someone who is a ____ on Facebook? (Yes/No)

1. A nurse
2. A farmer
3. A lawyer
4. A middle school teacher
5. A babysitter/housemaid
6. A janitor
7. A personnel manager
8. A hairdresser
9. An accountant
10. A production manager
11. An operator in a factory
12. A computer programmer
13. A taxi driver
14. A professor
15. A police officer
16. A Chief Executive Officer (CEO) of a large company

Identity-Based Self-Disclosure

Q. We are interested in the items you display on your Facebook user profiles. Not everyone has done these things. Please tell me whether you ever do each one. Do you ever display... (Yes/No)

1. Name
2. Birth Date

3. Relationship Status
4. Current Status of what you are doing
5. Phone Number
6. Personal Address
7. Political Views
8. Religious Views
9. User Photo
10. The city or town where you live
11. Videos of you
12. Your Interests, such as movies, music or books you like
13. School Name
14. Job/Company
15. E-mail Address

Narrative Self-Disclosure About Thoughts And Ideas

Q. Some people share their thoughts and ideas on Facebook and some do not. How about you? 1 is Never True and 7 is Always True.

1. When I face challenges in my life, I feel comfortable talking about them on my Facebook.
2. I like my Facebook entries to be long and detailed.
3. I like to discuss work concerns on my Facebook.
4. I often tell intimate, personal things on my Facebook without hesitation.
5. I share information with people whom I don't know in my day-to-day life.
6. I update my Facebook frequently.

Privacy Management

Q. Thinking about the ways people might use Facebook... Do you ever... (Yes/No)

1. Delete people from your network or friends' list
2. Remove your name from photos that have been tagged to identify you
3. Delete comments that others have made on your profile or account
4. Delete or edit something that you posted in the past
5. Post updates, comments, photos or videos that you later regret sharing
6. Set up your profile or account so that it automatically includes your location on your posts
7. Post fake information like a fake name, age or location to help protect your privacy
8. Share inside jokes or coded messages that only some of your friends would understand
9. Block people
10. Delete or deactivate a profile or account

Bonding Social Capital

Q. Some people use Facebook to connect with friends and receive emotional and physical support from their friends, and some do not. Do you agree or disagree for the following statements? (1=strongly disagree and 5=strongly agree)

1. There are several people on Facebook I trust to help solve my problems

2. There is someone on Facebook I can turn to for advice about making very important decisions
3. The people I interact with on Facebook would put their reputation on the line for me
4. The people I interact with on Facebook would be good job references for me
5. The people I interact with on Facebook would share their last dollar with me

Bridging Social Capital

Q. Some people use Facebook to interact with friends and receive information of their friends, and some do not. Do you agree or disagree for the following statements? (1=strongly disagree and 5=strongly agree)

1. Interacting with people on Facebook makes me interested in things that happen outside of my town
2. Interacting with people on Facebook makes me want to try new things
3. Interacting with people on Facebook makes me interested in what people unlike me are thinking
4. Interacting with people on Facebook makes me feel connected to the bigger picture
5. Interacting with people on Facebook gives me new people to talk to

Demographics

Q. What is your gender?

Male (1)
Female (2)

Q. What is your ethnicity?

White (1)
Hispanic or Latino (2)
Black or African American (3)
Native American or American Indian (4)
Asian / Pacific Islander (5)
Other (6)

Q. What is the highest level of education you have completed?

Less than high school (1)
High school (2)
Some college (3)
Bachelors degree (4)
Some graduate education (5)
Professional certificate (6)
Masters degree (7)
Doctoral degree (8)

Q. What was your age on your most recent birthday?

Q. Last year, what was your family's total household income, before taxes? (If you are supported by your parents, what would you estimate for their total household income, before taxes?)

Less than $10,000 (1)
$10,000 to $19,999 (2)
$20,000 to $29,999 (3)
$30,000 to $39,999 (4)
$40,000 to $49,999 (5)
$50,000 to $59,999 (6)
$60,000 to $74,999 (7)
$75,000 to $99,999 (8)
$100,000 to $129,999 (9)
$130,000 or above (10)

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