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Uses and gratifications on social networking sites: Analysis of use and value of social networking sites for three types of social capital on college students

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Uses and gratifications on social networking sites: Analysis of use and value of social networking sites for three types of social capital on college students

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Abstract

Social networking sites (SNS), such as Facebook and LinkedIn, have recently emerged as popular media worldwide. The rapid adoption of SNS by college students in the United States raises many questions. Why do youths like SNS? How do they use them? Will these SNS activities replace or complement face-to-face relationships? To address these questions, this research provides a quantitative examination of college students' uses and gratifications of SNS, with a focus on social capital. More specifically, it examines how individuals' perceived value of social capital drives the generation of user-created content, and how gratifications obtained from SNS are different from other media. SNS usage and satisfaction were explored as the consequences of social capital motives toward SNS. This study found that different types of social capital, especially "bridging" social capital, impacted students' use of SNS. Also the most obvious finding in this study is that SNS did not substitute for face-to-face relationships, but instead assisted students' communication with different connections.

User-created content enables users to create and publish different kinds of media content to make visible communication. Additionally, users may perform different activities on SNS for various reasons and motivations. Users' social interactions are undergoing a true revolution, and social capital has been tightly related to today's SNS. Another major finding was that the motivations for obtaining "bonding," "bridging" and "linking" social capital had affected individuals' user-created content activity.

Chapter 1 Introduction

In virtual communities such as Facebook and LinkedIn, individuals create online profiles, and communicate and maintain personal connections with other users (Pew Internet, 2011; Ellison, Steinfield, and Lampe, 2007). As new media, social networking sites (SNS) hold particular importance for young adults when it comes to developing and maintaining relationships, community engagement, and political participation. Ellison, Steinfield, and Lampe (2007) tested and supported the conclusion from early research that SNS use was positively related to new connection formations and existing connection maintenance. In Wellman, Haase, Witte and Hampton's (2001) study, the use of SNS was positively associated with participation in voluntary organizations and politics. Dimitrova, Shehata, Strömbäck, and Nord (2011) studied different forms of digital media and their effects on political participation and knowledge. They found that SNS usage has significant and positive effects on political participation, and has stronger effects than other digital media, though it has the weakest effect on political knowledge.

A variety of SNS such as Facebook, LinkedIn, MySpace, and Twitter, have developed different approaches and features to encourage social connections among college students. Because businesses are interested in knowing what influences consumers' perceptions of value and what affects their participation in SNS, a small amount of research has been conducted to investigate the perceived value of social networking sites. Uses and gratifications theory, which refers to the "how" and "why" of media use, serves as an appropriate theoretical framework for examining the uses of SNS. The emergence of SNS communication also may revive the theory of uses and gratifications. This study was among

the first empirical studies that investigate how gratifications sought from the three types of social capital lead to various SNS use patterns among college students, and how well gratifications are obtained by SNS use.

While social capital can be explored from various angles, the focus here was on measuring three dimensions ("bonding," "bridging," and "linking") of perceived value by SNS users, and how each relates to SNS activities. "Bonding" social capital reflects strong ties, such as family and close friends. With respect to demographic characteristics, "bonding" is considered horizontal in nature. "Bridging" social capital is also horizontal and reflects weak ties that connect people in heterogeneous groups, such as classmates and club members (Putnam, 2000). Differing from "bonding" and "bridging," "linking" social capital is considered vertical. It indicates ties to people or organizations across power differentials, such as political parties and banking institutions (World Bank, 2002). The various types of social capital and the variety of user's SNS activities suggest that SNS users adapt a complex strategy to develop their social relationships online.

College students today use many communication channels such as face-to-face, phone calls, text messages, emails, blogs, instant messengers, and SNS. Within SNS, there are a variety different features being adopted by students. Freshmen/sophomores may have different preferences than juniors/seniors for information technology in support of their life development (ECAR, 2009). The purpose of this study is to understand if SNS affect social development among students by determining the similarities and differences concerning the use patterns and behaviors of SNS between two groups—freshmen/sophomores, and juniors/seniors. Investigating the similarities and differences in SNS usage patterns provides

a two-fold benefit: (1) informing SNS businesses about the use preferences and behavior of different target groups in college; (2) presenting how target populations use SNS to build and change social capital on SNS, in accordance with uses and gratifications theory. This study also examined whether or not students are satisfied with the gratifications from different types of communication including face-to-face, phone calls, text messages, emails, blogs, instant online messengers and SNS. In order to assess whether SNS usage hinders or actually supplements creation of social capital, this study made a comparison between SNS and other media usage for gratifications obtained with respect to the three forms of social capital.

1.1. Social Networking Sites (SNS) and User-Created Content

It took radio broadcasters 28 years to reach an audience of 50 million, television 13 years, Internet 4 years, and Facebook less than 9 months to reach 100 million (Qualman, 2009). A normal college student may have hundreds of friends on Facebook, tens of connections on LinkedIn, and around 50 followers on Twitter. In virtual communities such as Facebook and LinkedIn, individuals create online profiles, communicate with other users and create or maintain personal connections with others (Pew Internet, 2009; Ellison, Steinfield, & Lampe, 2007). By simply clicking the mouse and striking the keyboard, users are able to keep in touch with others, hunt for jobs, or collect the latest updated information from their connections. Even President Obama used SNS to gain supporters, contributing to his presidential election victory in 2008 (Carr, 2008).

A characteristic of the Internet is its ability to create a community. SNS stimulate participation and interaction of Internet users. In 2008, 23.9% of people worldwide had

access to the Internet, compared to 75.9% of people in the U.S. (World Bank, 2008). Using intelligent web services and innovative software applications such as SNS, users are able to "present themselves, articulate their social networks, and establish or maintain connections with each other" (Ellison, Steinfield & Lampe, 2007). SNS are distinguished from former virtual community sites like forums by the following characteristics: 1) most online contacts between users have been formed with each other in person offline (Williams, 2006); 2) various functions and applications improve the frequency of mutual communication and involvement of users utilizing features such as status updates, and posted comments (Clever, Kirchner, Schray & Schulte, 2008); 3) users are more active in "choosing, interacting and creating content" (Clever et al. 2008, P12). Therefore, SNS provide users with a new online canvas of social space to expand creativity and communication.

Participation in SNS has grown rapidly in recent years. In December 2009, there were 248 million monthly user-visits in the top eight social networking sites in the US, an increase of 41% from January 2009 (Mintel, 2010). Indicated in the report of Nielsenwire (2010), SNS have dominated Americans' Internet activity and daily life. Internet users spent 22.7% of their total U.S. Internet time on SNS in 2010, an increase of 43% in one year. In this study, Facebook and LinkedIn will be measured as case examples.

Facebook.com, launched in 2004, is currently the most popular social networking site in America; 92% of social networking sites users have Facebook accounts, and 52% of them visit Facebook daily (Pew Internet, 2010). Initially developed for college and university students to connect and interact with each other, Facebook.com has been opened to all users since September, 2006 (Forbes, 2006). LinkedIn.com, a social network site aimed at

working professionals, was officially launched in 2003. It grew from 4.5 million visitors to 8 million in 2009. This corresponded with the U.S. unemployment rate of 9.7% in August (ComScore, 2009). Studies showed that LinkedIn visitor growth has a proportional relationship with the unemployment rate (Woodard, 2009; ComScore, 2009). As of March 2012, the number of users has grown to 161 million around the world, and 98 million in the United States. Among these new users, students and recent college graduates are the fastest growing group (LinkedIn, 2012). So Facebook and LinkedIn are two popular SNS among college students, which provide different features.

SNS are not only highly popular in the United States, but also globally. As reported by Facebook itself, with more than 70 languages, about 70% of the 500 million active users are outside the United States (Facebook, 2010). Meanwhile, in other countries, local SNS expand and share their domestic markets, websites like Mixi.com in Japan (Fogg & Lizawa, 2008), StudiVZ.com in Germany (ComScore, 2007b), and Renren.com in China (Chinadaily, 2009). Online social networks complement one's real-life network and build it globally. Connecting to a common SNS, people are able to instantly fulfill their social needs across geographic borders such as staying in touch with distant friends and family members, and looking for jobs and other opportunities.

Though SNS possess different characteristics and business models, they share one common feature—user-created content (OECD, 2007). User-created content has features that traditional media do not, such as: 1) every user has the opportunity to produce and publish news through SNS; 2) users are more active in choosing information and media consumption,

since there is a large amount of information updating in seconds with various formats (OECD, 2007).

In the past, building social capital involved face-to-face meetings and keeping contacts with people by phone or traditional mail. Looking for a date? How about the daughter of mom's coworker? Wonder where to get a stylish hair cut? Ask the cute girl in class. Despite the fact that these activities are still part of everyday life, shifting to online social networking presents many other benefits. One may easily find more people who share the same interests, expanding their "bridging" social capital. One may keep in active contact with extended family, thus expanding their "bonding" social capital. One may also follow company profiles to track promotions and opportunities, thus expanding their "linking" social capital. User-created content has changed the nature of communication, resulting in more active relationships. Assisted with user-created content, online social networking has changed the structure of communication. This change suggests an urgent need to investigate the motivations and usage patterns of SNS activities.

What are the motivations for users to continue creating and developing content on SNS? SNS businesses and other media have this concern. As Royal (2008) pointed out, users who create content on SNS "are primarily motivated by the creation of social capital" (p.3). In this study, users' motivations to create content are explored in gratifications sought as perceived value of "bonding," "bridging" and "linking" social capital. This study may provide businesses and marketers with an insight into how individuals use and interact with SNS.

1.2. Three Types of Social Capital

Social capital as a concept has been defined in multiple ways. In the past two decades, there have been numerous studies of social capital in multiple fields (Adler & Kwon, 2002). The term "social capital" broadly refers to the resources embedded in the relationships among people (Resnick, 2001; Williams, 2006). Though there are divergent views of its definition in the past two decades, the fundamental idea—a social network has value—has been shared (Dekker & Uslander, 2001; Bourdieu, 1986; Bourdieu & Wacquant, 1992; Burt, 1992; Coleman, 1988; Lin, 2001; Putnam, 1995). These studies concluded there are a variety of positive social outcomes at both individual and collective levels such as personal self-esteem and satisfaction with life, lower crime rate, better economies, healthier communities, and more participation in politics (Lin, 2001; Adler & Kwon, 2002; Woolcock, 2001; Putnam, 1995; Dimitrova et al., 2011).

Because of the rise of social networking sites, scholars give attention to the relationship between social networking sites and social capital. Social capital, which reflects interpersonal relationships, is the fundamental motivation for users to create content on SNS (Ellison, Steinfield, & Lampe 2008; Williams, 2006, 2007).

Earlier research in this area has been limited because of insufficient conceptual frameworks. The current empirical studies have been hampered because the SNS innovations are relatively new and changing rapidly. Therefore it is difficult to conduct reliable statistical longitudinal analyses.

To further refine the framework of this research, the concept of "linking" social capital which refers to connections across vertical power differentials, was introduced

(Woolcock, 2001; Szreter & Woolcock, 2004). Some theoretical distinctions have been made among "bonding," "bridging" and "linking" ties, but only a few studies have distinguished empirically between these types of social capital, especially their correlation with SNS. More research regarding SNS consequences on social capital among young adults is needed. This study marks the first attempt to examine how perceived value of "bonding," "bridging" and "linking" social capital affects SNS usage and activities.

Chapter 2 Literature Review

2.1. User-Created Content

User-created content (UCC), also called user-generated content, is the main feature of social networking sites (SNS). UCC plays a crucial role in the increasing popularity and success of SNS (Vickery & Wunsch-Vincent, 2007). The main characteristics of UCC were presented by the Organization of Economic Co-operation and Development (2007): 1) media content must be published in some context; for instance, users publish photos on Facebook; 2) individuals have put "a certain amount of creative effort" into "creating the work" (p.8), such as people posting comments on photos; 3) creations are made "outside of professional routines and practices" (p.8); for instance, amateurs are providing information and news etc.

User-created content appears in many forms on SNS as text, images, video, audio and more. A number of applications and features distinguish Facebook from other SNS competitors. Facebook provides users easy access to build a profile, upload pictures, update one's status, write on other users' "walls," comment on pictures, send a message and more. Voluminous content is continuously generated by millions of Facebook users to develop their social relationships.

Unlike the ways that Facebook exploits various content and applications to attract more visitors, LinkedIn operates with simple text and allows only a single profile picture to suit its purpose. Like an online resume, a user's LinkedIn profile contains current title, company, experience, education, and recommendations. It has no fancy applications, but it shows a news feed about user connections' job changes.

A profile on SNS is a locus of social interaction that evolves and changes within social networks and communities (Zeynep, 2008). Individual members can define their social networks according to links between users on their profile pages (Boyd & Heer, 2006). Users also express their virtual social identity and update content such as photos and comments through site functions. At a collective level, a considerable amount of social interaction and social integration are undertaken in SNS (Quan-Haase, 2007).

Facilitated by user-created content, SNS have turned out to be vital communication channels for people to interact with each other (Nielsenwire, 2010). One reason it is perceived that online social networking has social implications is because it has been integrated in certain connotations and understandings of society by users (Fuchs, 2009). For instance, when people click the "like" button on a business or organization's page on Facebook, it indicates their interest in that business or organization. In addition, "the creation of content by users" leads to major social changes (OECD, 2007, p.12). User-created content alters "the way users produce, distribute, access, and re-use information, knowledge, and entertainment," thus potentially resulting in "increased user autonomy, increased participation and increased diversity" (Clever et al., 2008, p.12). For these reasons, social networking sites and user-created content are likely to change the nature of communication (Benkler, 2006), from passively receiving information to actively choosing, interacting and creating content.

It is believed that content created by SNS users contains major social implications (OECD, 2007). However, it remains unclear how specifically SNS translates into social

capital. This study attempts to compare the various uses of SNS to an individual's motivation for connecting with social capital, including "bonding," "bridging," and "linking."

2.2. Uses and Gratifications

The theory of uses and gratifications has been studied for more than 60 years. Instead of asking what media do to people, this theory asks, "What does an active audience do with the media, why, and with what effect?" (Lasswell, 1948). It assumes that individuals select media and content to fulfill their needs. Specifically, the theory aims to explain what social or psychological needs motivate people to engage in a variety of media use behaviors (Katz, Blumber, & Gurevitch, 1974). As Katz et al. (1974) concluded, the approach of uses and gratifications concerns "(1) the social and psychological origins of (2) needs, which generate (3) expectations of (4) the mass media and other sources, which lead to (5) differential patterns of media exposure (or engagement in other activities), resulting in (6) need gratifications and (7) other consequences, perhaps mostly unintended ones" (p.20). This theory assumes that people are goal-oriented and seek out gratifications that lead to active media use (McGuire, 1974, P167-196). Robin and Bantz (1989) summarized five principal elements in the above model: "an individual's social and psychological environment, an individual's needs or motives for communication, functional alternatives to media selection, communication behaviors and the consequences of one's behaviors" (P182). These elements underline connections between user perceived value and subsequent generation of social capital, which outline a connection for uses and gratifications and the SNS.

Uses and gratifications theory is applicable in explaining a variety of media uses and consequences. It has been applied in a number of studies of all kinds of media, including newspapers (Lazarsfeld & Stanton, 1949); radio (Herzog, 1944; Warner & Henry, 1948), television (Conway & Rubin, 1991) and the Internet (Perse & Dunn, 1998; Webster & Lin, 2002). The perspective of uses and gratifications emphasizes that motives, corresponding media consumption, and needs obtained may vary between individuals (Papacharissi, 2008). The emergence of online technologies has re-energized the application of uses and gratification theory for the new media. Compare to the active users of traditional media, a high level of interactivity is demanded from users of new media, such as Internet, blogs, and SNS. The inherent nature of SNS has changed the communication feature (Ruggiero, 2000). In SNS, users are not only consuming media content, they are also creating and sharing content. For example, Facebook users may actively check information from the news feed, post pictures or words and respond with and receive feedback. This example also shows users' activities on SNS are more goal-oriented than those using traditional media. Therefore, though the theory of uses and gratifications is applicable for a study of SNS, it requires expanding and retesting.

The uses and gratifications model, an audience-based framework, is able to explain how people use SNS for social capital purposes. It is also able to explain the gratifications that users obtain from SNS use. Therefore, this study adapts the uses and gratifications framework to the characteristics of SNS following the Katz et al. (1974) example: (1) perceived value of "bonding," "bridging" and "linking" social capital are considered the (2) social needs, which (3) motivate people to adopt (4) SNS and develop (5) different user-

created content on SNS, resulting in (6) need gratifications of "bonding," "bridging" and "linking" social capital. This adapted framework retests the applicability of this theory to SNS. The result will contribute to the enhancement and modernization of uses and gratification theory.

2.3. Social Capital

2.3.1. Definition of social capital

Social capital refers to the resources from relationships that accumulate for an individual or collective (Field, 2003). Bourdieu (1986), who defined social capital as the sum of actual or potential resources which are built in personal social networks, claimed that individuals kept their privileged positions by connecting to other privileged individuals. His theoretical framework was examined by Coleman (1988).

Coleman differentiated three forms of capital: economic capital, cultural capital and social capital, and described social capital as accumulated actual or potential resources through social networks. This definition was associated with Bourdieu's view, but Coleman included all kinds of resources, individual and collective, privileged and not privileged.

In a study measuring CEO compensation as an effect of social capital, researchers indicated that social capital is a resource that is available through an individual's "social network and elite institutional affiliations" which pay attention to a specific kind of individual (Belliveau, O'Reilly, & Wade, 1996, p.1568).

At the individual level of social capital, Lin (2001) built his theory based on Marx's concept of capital. According to Lin's theory, social capital is defined as "resources embedded in a social structure which are accessed and/or mobilized in purposive actions" (P29). Accordingly, social capital consists of three elements: social resources, accessibility/opportunity, and "action-oriented" (Lin, Cook, & Burt, 2001, p.12). Lin claimed that social resources are gained by individuals with purpose, and are assumed to bring positive outcomes.

There are two complementary perspectives on the conceptions of social capital. For one perspective, researchers such as Bourdieu (1986), Coleman (1988) and Lin (2001) focus on social capital at the individual level. Another perspective focuses on social capital at group or community level. Community social capital was framed by Putnam (2000) as the collective value of all social networks and potential social networks, and it produces civic engagement that improves the common health of a society. According to this concept, Putnam observed the declination of community social capital in American society, implicating lower levels of trust in government and lower levels of civic participation. From a practical and operational level, The World Bank (2010) considered social capital as "institutions, relationships, and norms that shape the quality and quantity of a society's social interactions," and believed that positive social capital will benefit society (p.1).

Due to the broad field of study that is social capital, the divergent views of its theory and varying ways to quantify it, there is some confusion in its definition (Lin, 2001). Some scholars related social capital to social trust and norms as its collective nature (Putnam, 1995; Putnam, 2000; World Bank, 1999). Coleman (1988) pointed out the functional aspect of

social capital, and referred to social capital as "anything that facilitates individual or collective action" (p.302). More broadly, Fukuyama (2002) understood social capital as "any instance" in which people share "informal norms or values" (p.23). To avoid this confusion and help to predict the motivation of social capital on SNS usage, this study applies three dimension of social capital to social networks.

2.3.2. "Bonding" social capital and "bridging" social capital

In order to sort the range of outcomes of social capital, two forms were distinguished from earlier studies: "bridging" and "bonding" social capital (Putnam, 2000). "Bonding" social capital refers to strong ties between individuals with close relationships and homogeneous groups like close friends and family (Ellison, Steinfield & Lampe, 2008). Early attempts to define social capital emphasized collective aspects, suggesting requirements for closure or density of social networks (Bourdieu, 1986). In Bourdieu's (1986) viewpoint, in order to maintain a group's domination, connections in the group are supposed to be exclusive of outsiders. "Bonding" social capital is exclusive, occurring among close connections that may be beneficial for the accessibility of rare resources and emotional and substantive support (Putnam, 2000).

Alternatively, "bridging" social capital refers to weak ties between individuals with loose connections and facilitates obtaining information or knowledge across social or geographical distances (Granovetter, 1973; Norris, 2002; Putnam, 2000). Granovetter (1973) first drew attention to the benefits of weak ties, and elaborated by defining these ties' characteristics as having infrequent contact, and with absence of emotional support (1983). Putnam (2000) conceptualized "bridging" social capital into a community context, and

suggested that "bridging" social capital is inclusive and outward-looking and "better for linkage to external assets and for information diffusion" (p.22), and may broaden social horizons or world views. Similarly to the "significant ties" notion, Pew (2006) stated that these "bridging" ties are weaker than the average close relationship but a bit stronger than with casual acquaintances. "Bridging" social capital provides advantages when people need to reach outside of their close ties.

Donath and Boyd (2004) hypothesized that online social networks may increase the number of an individual's weak ties, while strong ties may not change. This assumption was tested by Ellison, Steinfield, and Lampe (2007). Extended from Putnam's (2000) "bonding" and "bridging" social capital framework, they added "maintained" social capital which refers to connections with members of a previously inhabited community as a new dimension. Ellison et al., (2007) found students' Facebook usage helped them to accumulate "bridging" and "maintained" social capital, however, not "bonding" social capital.

2.3.3. The vertical dimension—"linking" social capital

"Linking social capital" implies a different dimension of the social capital definition, referring to connections across social strata (OECD 2001). Woolcock (2001) assumed that "bridging" indicated the horizontal dimension of social capital since it reaches out from individuals' strong ties to heterogeneous connections. In a vertical dimension, "linking social capital" scales up to "people in power, whether they are in politically, socially or financially influential positions" (Woolcock & Weetser, 2002, p.26). The importance of "linking" social capital is also illustrated in World Bank's (1997) report. From the results of the Social Capital and Poverty Survey (SCPS), researchers found that high village-level social capital

leads to higher GDP and lower levels of corruption, thus pointing out the importance of endowments of social capital in community and society development. Though the "linking social capital" was not mentioned in World Bank's report, the idea of "bridging the state closer to people" (p.110), described as connecting people who have "different amounts of power and resources, and different interests" to "government, business, and civic organizations" (p.110), is similar to the "linkage" dimension of social capital. In a later study, from a broader perspective, "linking" social capital was defined as linkages with "higher levels of decision-making and resource allocation" (p.14), and formal institutions beyond the community (World Bank, 2002). For instance, in 1972, due to Kalahan Educational Foundation (KEF)'s relationship with government, the rights of Kalahan people living in the forests were successfully protected. Since then, the KEF has been expanding its linkage to "various government, civil society and market institutions" and has enhanced its contribution to the community (P15) (Dahal et al., 2008).

Considering only "bonding" and "bridging" relationships at a horizontal level was too narrow a definition for the value of social capital. In order to accommodate the range of connections associated with social capital, it is necessary to recognize the multidimensional nature of its resources. Thus in this study, three types of social capital--"bonding," "bridging," and "linking"--are distinguished and analyzed.

2.4. Hypotheses and Research Questions

Using the existing literature on SNS and social capital, this study focused on how use and value of SNS translate into social capital among college students. The framework of uses

and gratifications was utilized in understanding users' motivations to use and create SNS content. Therefore, the present study was conducted to evaluate: (a) why people use SNS, (b) how people use SNS, and (c) what gratifications are met by using SNS.

The Pew Internet 2011 Report found variation in the characteristics of users across different SNS. For example, LinkedIn has nearly twice as many male users than female users, while other SNS "have significantly more female users than male users" (p.10). The average adult LinkedIn user is older than the average Facebook user. Also, it is assumed that students may have different motivations that lead to alternative uses of SNS. For example, students who want to keep in touch with close family and high school friends that are motivated by "bonding" social capital may use Facebook more frequently. Students who want to connect with new friends that are motivated by "bridging" social capital may use Facebook and Facebook group more frequently. Students who would like to connect with future employers or apply to companies are motivated by "linking" social capital and may use LinkedIn and LinkedIn group more frequently.

Hypothesis 1: Varying needs for the three types of social capital predict proportional intensity of social networking site use.

H1a: Needs for "bonding" social capital predict more Facebook use.

H1b: Needs for "bridging" social capital predict more Facebook, Facebook Group and LinkedIn use.

H1c: Needs for "linking" social capital predict more LinkedIn and LinkedIn Group use.

The central element of uses and gratifications is that people are active in their selection of media and content to meet certain needs (Katz, Blumler & Gurevitch 1974).

Levy and Windahl (1985) proposed that media activity is dependent on social factors, media content, and media availability. Most importantly, not all consumers use SNS in the same manner or with the same frequency. In this case, a user's selectivity may relate to a specific type of SNS and what it offers including the content characteristics of the SNS platform and attributes of the SNS in relation to user's needs. Patterns of SNS use need to be identified. The combination of "bonding," "bridging" and "linking" social capital is a comprehensive predictor for SNS activities. In another way, various SNS content is created by users for various motivations. For example, a Facebook user could "write" on a friend's "wall" and comment on their "status" frequently, thus maintaining the "bonding" social capital. A LinkedIn user could "follow" a company profile for resources and information in order to increase "linking" social capital.

Research Question 1: What can varying needs for the three types of social capital predict about the frequency of user-created content generation?

In the contemporary converging environment of traditional and new media, there are divergent views on consequences of SNS use. Early studies suggested that online activities decrease the time for face-to-face interaction, hampering people's social interactions (Putnam 2000). Recent studies argued that the SNS platform offers opportunities to extend connections and is a tool to supplement the offline social life such as face-to-face interaction. For instance, SNS fulfill "bridging" social capital needs, and do not decrease "bonding" social capital (Ellison, Steinfield & Lampe 2007). This raised the question: how well are needs met by SNS when compared to other media? This study permitted a general comparison of uses and gratifications obtained from SNS with those from talking on the phone, face-to-face, text messaging, email, blogging and using online messenger. This

comparison among media allowed authors to draw conclusions about how different media fulfill user needs for "bonding," "bridging" and "linking" social capital.

Research Question 2: Do students use different types of communication channels for "bonding," "bridging" and "linking" social capital?

Moreover, adopting the uses and gratifications approach to this study, a test was made for gratifications sought matching the gratifications obtained with respect to "bonding," "bridging" and "linking" social capital. This result can provide marketers with insights into whether SNS represents a valuable marketing medium.

Research Question 3: Are students satisfied with gratifications obtained from different types of communication channels regarding their needs for "bonding," "bridging" and "linking" social capital?

Chapter 3 Methodology

A survey was conducted to assess SNS activities regarding the perceived value of "bonding," "bridging" and "linking" social capital, and the consequences of SNS use on the satisfaction of "bonding," "bridging," and "linking" social capital obtained. Since this study aims to analyze users' activities on social networking sites (SNS), using an online survey was an efficient way to reach the target audience. The survey was hosted on SurveyGizmo (www.surveygizmo.com), and was fielded in March 2012. An online survey invitation was sent to 22,060 enrolled undergraduate students at Iowa State University, along with a short description of the study, consent form, and a link to the survey. A total of 1424 students responded to the survey invitation, yielding a 6.5% response rate. Among the 1424 students who visited the survey, a total of 953 participants completed it, yielding a 67% completion rate. Respondents who did not complete the survey were excluded. Comparing to the whole Iowa State University undergraduate student population, the survey respondents appeared to be representative of a typical university cross section with a few exceptions. Female, freshmen and on-campus students were slightly overrepresented. But in general, the students who responded are typical of ISU students.

The measurements used in this study contributed to prior works involving college students' use of social networking sites and the corresponding effect on social capital in four ways: 1) it measured use and value on two different SNS platforms: Facebook and LinkedIn; 2) it adapted the framework of uses and gratifications to investigate the relationships between social networking use and three dimensions of social capital—"bonding," "bridging," and "linking" social capital; 3) it quantified and compared the gratifications obtained from SNS

usage and other media usage; 4) it compared the SNS uses and gratifications among college students in different years of school to evaluate user-perceived value of social capital as transient or enduring, as well as identifying any differences among subgroups with respect to the three dimensions of social capital. SNS technology changes quickly, so evaluating these four groups simultaneously allowed for more direct comparisons of social capital characteristics than would a repeated-measures type of study.

1) Dependent variables: usage and satisfaction with communication channels including SNS, face-to-face, over the phone, text messaging, email, blogging and using instant messenger. Measures of SNS usage including usage of various Facebook and LinkedIn user-created content features, intensity of use of Facebook and LinkedIn, and intensity of use of Facebook and LinkedIn groups were also dependent variables.

2) Independent variables: gratifications sought as perceived value of social capital, including the need for "bonding" social capital, need for "bridging" social capital, and need for "linking" social capital.

3) Control variables: demographic and other descriptive variables included gender, age, student classification, and residence.

3.1. Facebook and LinkedIn

This study measured use and value on two different SNS platforms--Facebook and LinkedIn--for several reasons. First, some studies have previously compared the social capital of SNS users and non-SNS users (Lenhart, Purcell & Zickuhr 2010). However, this

simple comparison may have overlooked the differences that are associated with certain demographic characteristics (Anotic, Sabatini & Sodini 2010). For example, a higher education level is associated with higher social capital. Additionally, a person with higher education is more likely to adapt SNS technology. Therefore, to eliminate the demographic factors, this study did not compare SNS users and non-SNS users. Second, as mentioned above, SNS have been widely adopted by college students. Also, it would have been hard to find the same number of non-SNS users and SNS users. Third, individuals may have been active in more than one SNS, and there was diversity in user activities and motivations across different SNS platforms (Pew Internet Report 2011). To better understand students' selectivity of media types and media content and their relationships to various types of social capital, this study used Facebook.com and LinkedIn.com as its two primary social networking sites.

Facebook is the most popular SNS among young adults in United States, with 71% of young adults (18-29 years old) and 75% of adults (30+ years old) having active profiles on this site (Pew Internet Report 2010). Facebook was launched in 2004 and had attracted a total of $2 billion in funding from business investors in five years (Womack 2010). This site had accumulated more than 500 million active users internationally and 135.1 million monthly unique U.S. users by 2010 (Facebook 2010). Thus, Facebook represents the current majority of young SNS users and provides a valuable opportunity to explore the relationships between SNS and social capital.

Potentially filling a different niche for online interactions, LinkedIn provides a platform for professional interactions; therefore, this SNS may mainly facilitate increases in

"linking" social capital. Launched in 2003, LinkedIn is the world's largest professional network. It currently has more than 100 million members worldwide, and one million new members join each week (LinkedIn, 2011). In contrast with Facebook, LinkedIn usage is higher in adults (19% have profiles) than in young adults (7% have profiles) (Pew Internet, 2010). LinkedIn users are also more politically engaged than other typical SNS users (Pew Internet, 2011).

When viewed together, usage of two different SNS provided insight into the changes in personal and professional social capital across college years. Facebook has dominated the SNS markets with a wide range of users, while LinkedIn is comprised mainly of professionals (Pew Internet Report 2010). Although students liked to use Facebook for social interactions and personal relationships, LinkedIn use provided insight into their professional relationships and potential career goals. A Pew Internet 2011 Report found that Facebook users "get more social support" and "have more close relationships" (P.4). And LinkedIn users are "more politically engaged" (P39). Hence the report claimed that users tend to choose different SNS platforms to best meet their social and professional needs.

3.1.1. Uses and Satisfactions of Communication Channels

(1) The frequency of different media usage by college students in order to socialize or communicate with three types of connections, including family or close friends, classmates or club members, and bank representatives or future employees: a. talk on the phone; b. face-to-face; c. text message; d. use SNS; e. send email; f. online messenger. A 6-point scale (1=never, 2=every few weeks, 3=1-2 days a week, 4=3-5 days a week, 5=about once a day, 6=several times a day) was used for each type of communication channels.

(2) The gratifications students obtained from using different communication channels when socializing or communicating with three types of connections as family or close friends, classmates or club members, and bank representatives or future employees: a. talk on the phone; b. face-to-face; c. text message; d. use SNS; e. send email; f. online messenger. A 5-point scale (1= not good at all, 2= not too good, 3=neutral, 4=somewhat good, 5=very good) were used for each communication channel.

Users' Facebook and LinkedIn profiles and main functions were measured in the first part of SNS activities. Using two response choices (1= yes; 2= no) and answering separate questions for Facebook and LinkedIn, respondents were asked whether they (a) have a Facebook account; (b) use Facebook Group/Page; (c) have a LinkedIn account; (d) use LinkedIn Group.

3.1.2. Intensity of SNS Use and User-Created Content

More than simply gauging the frequency or duration of media use, Ellison, Steinfield, and Lampe (2007) created a scale to assess users' engagement on Facebook. This study adapted these scales, and created separate questions concerning the intensity of use of Facebook and LinkedIn. In addition, different user-created content was investigated to determine "how" people use SNS. The following items were included in the Facebook survey:

(1) The number of total Facebook friends (1=none, 2=less than 50, 3=50 to 100, 4= 101 to 199, 5= 200 to 449, 6= 500 or more, 7=don't know).

(2) The frequency of visiting Facebook in a week (1= never, 2=1-2 days a week, 3=3-5 days a week, 4=about once a day, 5=several times a day, 6=don't know).

(3) The frequency of generating user-created content on Facebook including commenting on others' status, writing on others' walls, commenting on others' pictures or videos, sending a private message, sending an event invitation (1=never, 2=1-2 days a week, 3=3-5 days a week, 4=about once a day, 5=several times a day, 6=don't know).

Similar questions were asked to assess college students' involvement in LinkedIn, but with the following changes to category (3). For LinkedIn, the categories for social activities on LinkedIn were: comment on others' updates, send a private message, recommend someone, suggest a profile update for someone, follow up on a company.

3.1.3. Intensity of SNS Group Use

SNS group usage reflects users' engagement in group or community activity; hence Valenzuela, Park, and Kee's (2009) scales of intensity of Facebook groups use were adapted for this study. Separate questions were provided for Facebook and LinkedIn. The following items were addressed:

(1) The frequency of visiting Facebook groups in a week (1= never, 2=1-2 days a week, 3=3-5 days a week, 4=about once a day, 5=several times a day, 6=don't know).

(2) "Bridging" types of Facebook groups and organizations in which respondents are active in: a. community group or neighborhood association; b. sports or athletics league; c. hobby group or club; and d. charitable or volunteer organization (1= never, 2= yes, but not active, 3= yes, active, 4=don't know).

(3) "Linking" types of Facebook groups and organizations in which respondents are active in: a. political parties or organizations; b. fan groups for a particular TV show, movie,

celebrity, or musical performer; c. professional or trade association; and d. bank institution (1= never, 2= yes, but not active, 3= yes, active, 4=don't know).

(4) The frequency of creating content on Facebook Groups or Pages, including reading the profiles of any Groups or Pages, commenting on a topic, sharing a group topic, sending a group message, or posting a picture or video in the group (1=never, 2=1-2 days a week, 3=3-5 days a week, 4=about once a day, 5=several times a day, 6=don't know).

Similar questions as the above (1) (2) (3) and (4) were asked to assess the respondents' involvement on LinkedIn Groups, except for the following changes to category (4): The frequency of creating content on LinkedIn group, with content including reading the profiles of any groups, commenting on a topic, sharing a topic, or sending a group message.

3.2. Needs for "Bonding," "Bridging" and "Linking" Social Capital and Various Social Media Use

The three types of social capital serve as motivation that leads to SNS and other social media usage. Statements of examples for "bonding," "bridging" and "linking" social capital were listed to reflect common social needs. This study used existing measures of "bridging" and "bonding" social capital with words changed to reflect the context of this study. It was advantageous to adapt existing measurements when they have already been validated. Nevertheless, there were no existing "linking" social capital measurements applicable for this topic (Kawachi et al. 2004). Therefore, new "linking" social capital example statements were created. For each dimension, respondents were tested for their need of this type of social capital (1= yes, I agree, 2= No, I disagree, 3= don't know). The

perceived values of "bonding," "bridging" and "linking" social capital were assumed to be related and not mutually exclusive.

Questions related to the independent variables (the three dimensions of social capital) were randomly assigned for each student to reduce biases related to question order. Freshmen and sophomores were combined as a group, while juniors and seniors were combined as a group. Comparing these two groups further ensured confidentiality of responses.

3.2.1. "Bonding" Social Capital Statements

"Bonding" social capital refers to relationships with frequent contact that share deep feelings of affection and obligation. This type of social capital is usually seen between family members, close friends and neighbors. The following survey items were adapted from Ellison et al. (2007), Williams (2006) and Royal (2008) to quantify "bonding" social capital for each student group. Regarding students' activities on Facebook or LinkedIn, a series of statements were adopted.

With which of the following statements do you agree or disagree?

1. There are people who would take me to the doctor if needed.
2. There are people I can turn to for advice about making very important decisions.
3. There are people who care about me and listen to my problems.

3.2.2. "Bridging" Social Capital Statements

"Bridging" social capital refers to relationships between distant friends, associates and colleagues. Following Ellison et al. (2007), Williams (2006) and Royal (2008), 3 items

of the "bridging social capital" scales were adapted to reflect aspects in this study. Respondents were asked whether they agree with the following statements:

1. I want to meet new people who share my interests.
2. I like to be involved in organized sports and/or clubs.
3. I like to participate in social events and parties.

3.2.3. "Linking" Social Capital Statements

The concept of "linking social capital" refers to connections to people of different societal levels and authority. For example, access to bankers, social workers, politicians, public administrations, and educational institutions can all be considered "linking social capital" (Szreter and Woolcock, 2004). The key function of "linking" social capital is the capacity to access resources, ideas, and information from formal institutions. The survey questions were designed to try to quantify this concept and its key function. Sundquist et al. (2006) used participation in voting as a proxy for "linking" social capital, hypothesizing that voting demonstrates some level of trust in institutional political power. Voting participation had been included as a component of "linking" social capital statements:

1. My credit score and relationship with my bank are important to me.
2. There are people I interact with who would be good job references for me.
3. I enjoy participating in politics, campaigns, protests and/or demonstrations.

3.3 Control Variables

Perceived value of social capital may be one of the motivations that lead to SNS usage, but not the only reason. The following were factors that might influence users' SNS

selection and activities: 1) Student classification. Freshmen and sophomore students, and junior and senior students, were grouped for all student classification analyses. Freshmen/sophomores were expected to be more likely to use Facebook to keep in touch with high school friends and get to know more new college friends. Juniors/seniors were expected to be more likely to use LinkedIn to reach more employment opportunities. By comparing two groups of students, this study examines if students in different years of school have different needs for the three types of social capital. 2) Gender. It was expected that more males would use LinkedIn, and more females would use Facebook (Royal 2008). 3) Residence. Students who live on campus were expected to have been more inclined to spend more time on "bonding." Students who live with parents as in the same neighborhood would tend to spend more time on "bridging" (Stone 2001). 4) Age. Because students of different ages would be expected to use social media differently, this was used as the fourth control variable.

Thus, in this study, control variables included gender, age, student classification, and residence.

3.4. Method of Data Analysis

Different statistical methods were utilized to analyze the data collected from the online survey: paired samples t-test, independent samples t-test, bivariate correlations, Pearson's correlations, and path analysis.

Three independent t-tests were conducted to compare needs for three types of social capital by different student classifications. This was done in order to determine whether student classifications may affect students' need changes in obtaining social capital.

For research questions 2 and 3, three groups of six paired samples t-tests were employed to analyze respondents' use frequency and use satisfaction with different communication channels including talking on the phone, face-to-face, text messaging, SNS, email, blogging and using online messenger for the three types of social capital needs.

For the first hypothesis, path analysis and Pearson correlation techniques were applied to examine the relationships between different needs for three types of social capital and different types of SNS use. "Bonding," "bridging," and "linking" social capital each served as the independent variables. Dependent variables included the amount of time spent online, numbers of times individuals check SNS daily, intensity of SNS use, and intensity of SNS group-related use. In order to investigate how perceived value of "bonding," "bridging" and "linking" social capital motivates various SNS activities, three separate path analyses were conducted. Pearson's correlations were employed to investigate the interrelationship between Facebook and LinkedIn.

For Research Question 1, path analysis were conducted to examine the relationships between needs for the three types of social capital and use frequency of different types of user-created content. The dependent variable for the first research question included main kinds of user-created content on Facebook and LinkedIn, as well as content on Facebook Group and LinkedIn Group. Also, three separate path analyses according to "bonding," "bridging" and "linking" social capital were created.

3.4.1. Path Models

The statistical package of Mplus Version 6.1 was used to test the path model through the maximum-likelihood method. This technique allowed the testing of hypotheses about cause and effect without manipulating variables (Klem, 1995). The relationships in hypothesis one that various forms of social capital lead to various SNS uses were represented in the path model shown in Figure 1.

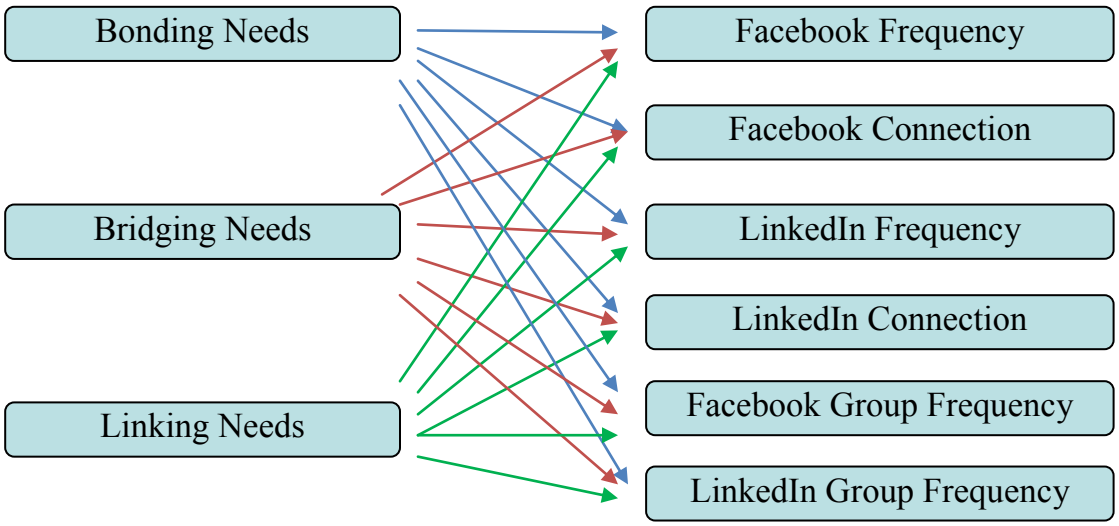

Figure 1. Path model for SNS use from three types of social capital

Control variables including age, gender, year of school and on or off-campus residence were used as controls in the model to examine their influence on SNS uses as shown in Figure 2.

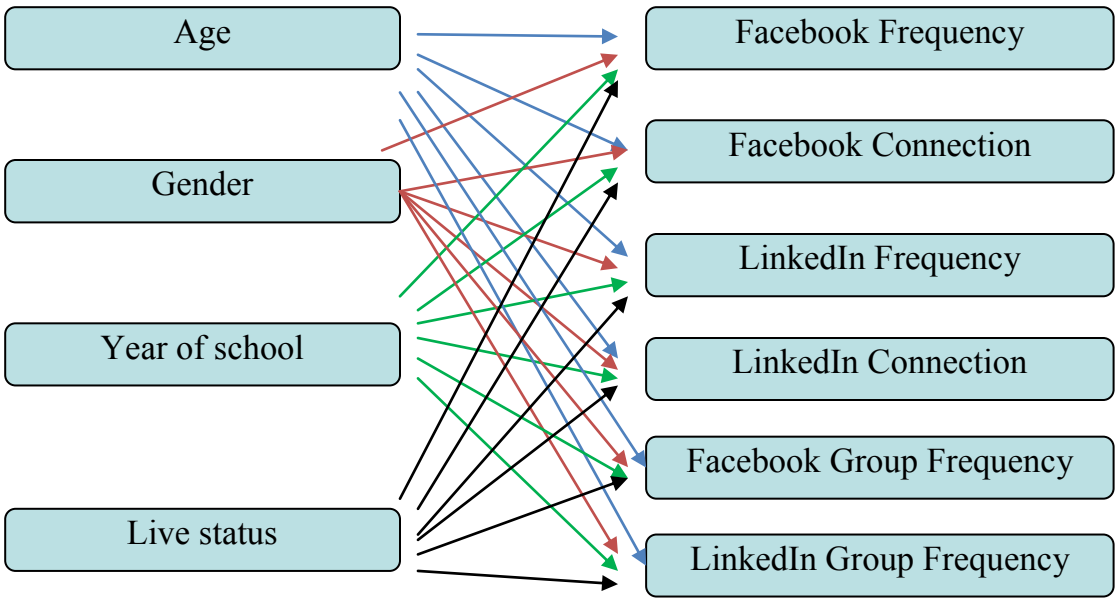

Figure 2. Control variables and SNS uses

For research question 1, which asked which type of social capital needs predict certain user-created content activities, Facebook, Facebook Group, LinkedIn and LinkedIn Group user-created content were tested separately. Putting dependent variables and independent variables in a path model, an example of testing three types of social capital and Facebook user-created content was created, shown as Figure 3.

The path models between three types of social capital and Facebook Group, LinkedIn, and LinkedIn Group user-created content were similar with user-created content words changed.

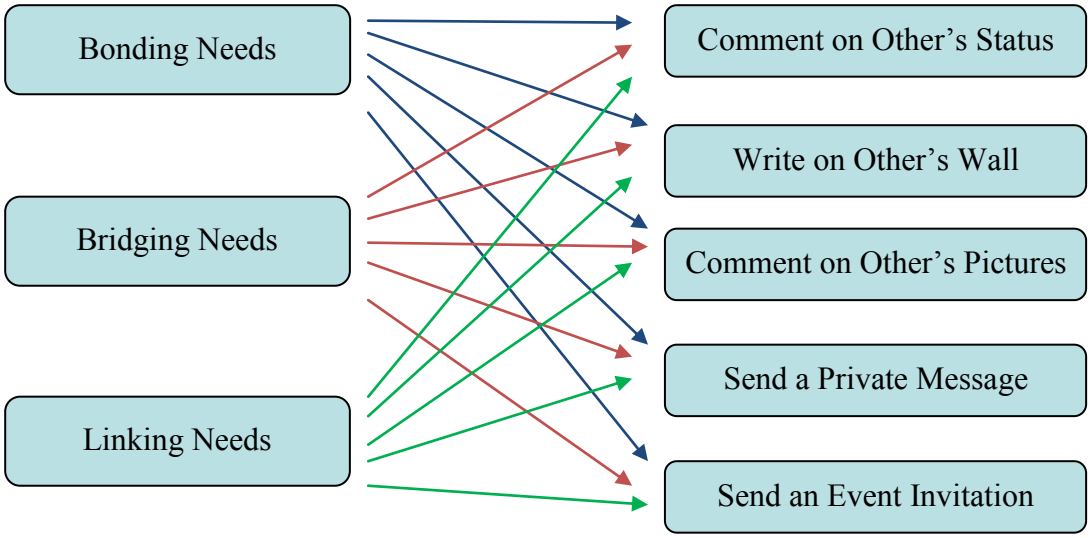

Figure 3. Social capital predicts Facebook user-created content

Another path model as Figure 4 was conducted to test the relationship between control variables and user-created content on Facebook. The path models between control variables and Facebook Group, LinkedIn, and LinkedIn Group user-created content were similar with user-created content words changed.

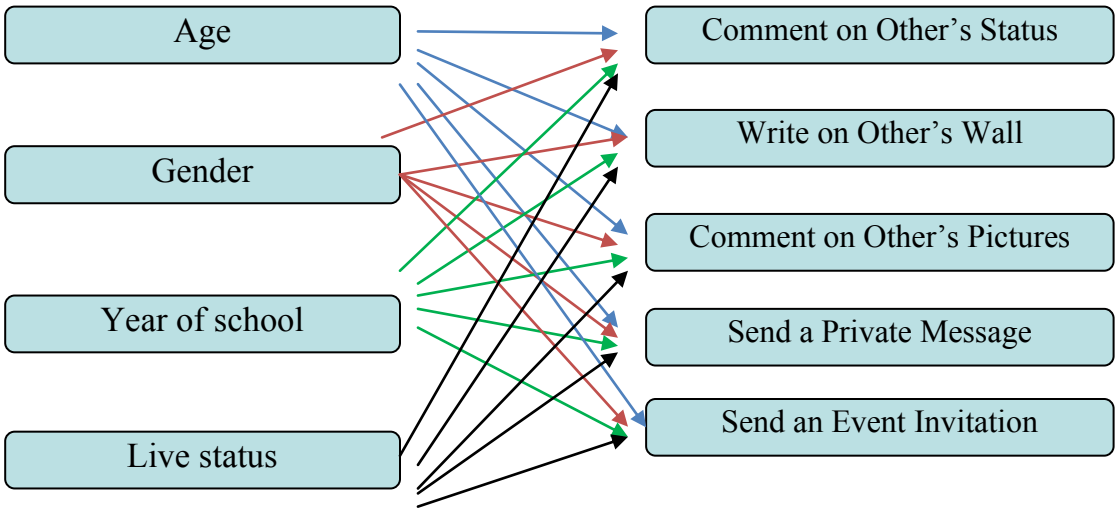

Figure 4. Control variables and Facebook user-created content

Chapter 4 Results and Discussion

4.1. Descriptive Statistics

A total number of 953 respondents participated and completed the online questionnaire. The demographic information is presented in Table 1. A larger number of female students (61.6%) than male students (38.4%) participated this study. The age of the respondents ranged from 18 to 44 years old, with the primary age group of participants being 18 to 22 years old (87.1%). Freshmen (27.1%) and seniors (27.3%) were the two dominant groups completing this survey, followed by juniors (25%) and sophomores (20.7%). In addition, more students lived on campus (57.8%) than lived off campus (38.5%) and only a small percentage of students lived with their families (3.6%). The ISU population percentage rate by gender, age, school year and residence were compared to the respondent sample rates. Among 2012 spring enrolled ISU undergraduate students, 53.6% were males, 46.4% were females; 86.5% were 18 to 22 years old; 18.4% were freshmen, 21.8% were sophomores, 24.8% were juniors and 35% were seniors; 44.4% lived on campus and 55.6% lived off campus. Therefore, compared to the ISU population, the distribution of respondents has more females, more freshmen, fewer seniors, and more on-campus students. These differences may be caused by several reasons: 1) females have higher response rates than males on average, thus more females take surveys than males; 2) freshmen are more likely than seniors to respond to the survey; 3) most freshmen live on campus, and seniors live off campus. So there were more on-campus freshmen than off campus seniors.

Specifically, independent t-tests and path analysis were run to determine the three types of social capital needs and SNS use variations in responses by gender (male and

female), student classification (freshmen/sophomores, and juniors/seniors), and residence status (on campus, off campus rental, and with family). Only statistically significant differences that are meaningful are presented in this study. No significant effects for age, gender and residence were found.

Table 1. Descriptive data of respondents

	Item	Frequency	Percent
Age	18	101	10.6
	19	235	24.7
	20	206	21.6
	21	184	19.3
	22	104	10.9
	Over 22	123	12.9
Gender	Male	366	38.4
	Female	587	61.6
Year in School	Freshman	258	27.1
	Sophomore	197	20.7
	Junior	238	25.0
	Senior	260	27.3
Live	On campus	552	57.9
	Off campus rental	367	38.5
	With family	34	3.6

Three independent sample t-tests were conducted comparing needs of two groups--freshmen/sophomores and juniors/seniors--for the three types of social capital. As shown in Table 2, there was a significant difference in "bridging" need between freshmen/sophomores ($M=5.40$, $SD=1.11$) and juniors/seniors ($M=5.23$, $SD=1.29$); $t(953) = 2.15$, $p<.05$, two-tailed, in which, the "bridging" social capital need for freshmen/sophomores was higher than juniors/seniors. Also there was a significant difference in "linking" needs for

freshmen/sophomores (M=4.10, SD=1.27) and juniors/seniors (M=4.27, SD=1.18); t (953) =-2.10, p<.05, two-tailed. In other words, juniors/seniors have a higher need for "linking" social capital than freshmen/sophomores. However, there was no significant difference in "bonding" needs between freshmen/sophomores and juniors/seniors. These results demonstrate that students with different school classifications have different levels of social capital needs.

Table 2. Independent t-test results comparing social capital needs between freshmen/sophomores and juniors/seniors

Group		*N*	*Mean*	*SD*	*t*	*p*
Bonding Need	Group1	455	5.87	.56	1.06	.29
	Group2	498	5.82	.66		
Bridging Need	Group1	455	5.40	1.11	2.15	.03
	Group2	498	5.23	1.29		
Linking Need	Group1	455	4.10	1.27	-2.10	.04
	Group2	498	4.27	1.18		

Note: Group 1 combined freshmen and sophomores; group 2 combined juniors and seniors.

Five path analyses were conducted to examine the relationships between control variables such as age, gender, school year and residence and SNS use and generating user-created content. No significant results were found for age, gender and residence, or the relationship between school year and students' Facebook use behavior. Significant relationships were found between year of school and intensity of LinkedIn use, and user created content on LinkedIn in path analyses as shown in Figure 5. These significant relationship results are indicated by the path coefficients from year of school to LinkedIn use

frequency (β=.19, p<.00), number of LinkedIn connections (β=.16, p<.00), and to frequency of generating LinkedIn user-created content as "comment on other's update" (β=.11, p<.00), "send a private message" (β=.18, p<.00), "recommend someone" (β=.19, p<.00), "suggest a profile update for someone" (β=.18, p<.00), and "follow up on a company" (β=.17, p<.00).

Therefore, these directional paths illustrated that students in higher school year will have higher intensity of LinkedIn use, and generated more content on LinkedIn, but have no difference in Facebook use intensity and Facebook user-created content generation.

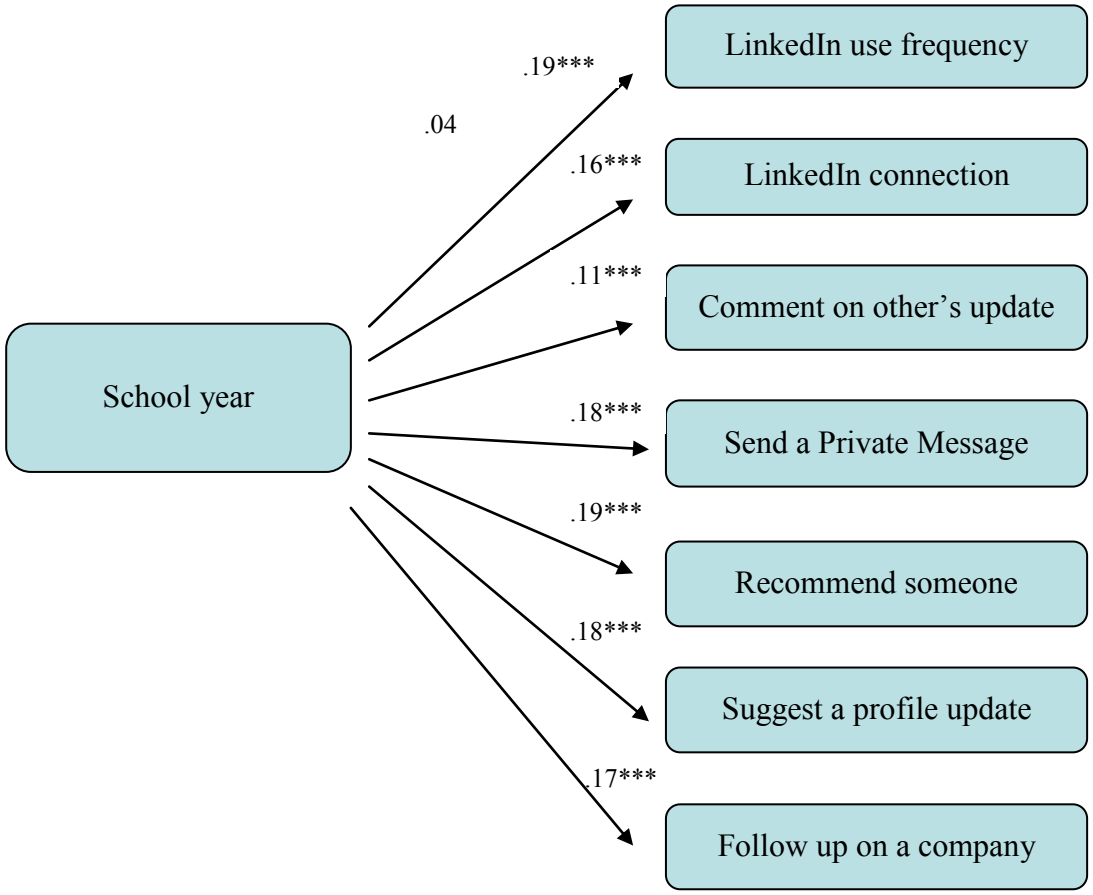

Figure 5. School year and LinkedIn use and LinkedIn user-created content

*Note. All path coefficients are standardized, N=953. * p < .05. ** p < .01. *** p < .001.*
Fit information: $x^2(0, N = 953) = .00; CFI = 1.00, RMSEA = .00, SRMR = .00.$

However, unlike other models, perfect measurement of the relations between dependent variables and independent variables could be tested in path analysis. Only the structural relationships between the observed variables were modeled, so path analysis was very useful in controlling school of year.

4.2. Social Capital and SNS Use

Among all 953 respondents, 913 students (95.8%) had a Facebook account, and 756 of them (79.3%) were in an online Group or a Page on Facebook. Compared to the number of Facebook users, the number of LinkedIn users and LinkedIn Group users was much smaller. A total 226 students (23.7%) had a LinkedIn account; however, only 67 of them (7%) were in an online group on LinkedIn. A total of 221 students (23.2%) had both a Facebook account and a LinkedIn account, which means most LinkedIn users in this study had Facebook accounts.

Correlations among the nine variables of interest are shown in Table 3. The results show that the three types of social capital were positively and significantly correlated with one another. Normally, when independent variables are correlated, it is difficult to interpret their relationships with the dependent variable. The path model was able to solve this problem by individually analyzing the path from each independent variable to each dependent variable (Hu & Bentler 1995).

The correlations results in Table 3 showed that the number of Facebook "friends" was significantly related to Facebook use frequency. The number of LinkedIn connections was significantly related to LinkedIn use frequency. Facebook Group use frequency was significantly related to Facebook use frequency and number of Facebook connections.

LinkedIn Group use frequency was significantly related to LinkedIn use frequency and number of LinkedIn connections. In addition, "bonding" social capital needs were significantly related to the number of Facebook connections. In other words, the larger a "bonding" social capital need, the higher number of Facebook connections. "Bridging" social capital significantly related to Facebook usage including Facebook connections, Facebook use frequency, and Facebook Group use frequency, but to not any LinkedIn usage. This implies that individuals with a higher need for "bridging" social capital are more active on Facebook. "Linking" social capital was significantly related to most LinkedIn usage including the number of LinkedIn connections and use frequency of LinkedIn. Linking social capital need also shared a significant correlation with the number of connections on Facebook.

Table 3 Correlations among all hypothesis 1 variables

Variable	1	2	3	4	5	6	7	8	9
1. Bonding Needs	-----								
2. Bridging Needs	.35***	-----							
3. Linking Needs	.18***	.31***	-----						
4. Facebook Connection	.18***	.30***	.11**	-----					
5. Facebook Frequency	.04	.11**	.05	.23**	-----				
6. LinkedIn Connection	.04	.09	.18*	.24**	-.05	-----			
7. LinkedIn Frequency	-.01	.03	.14*	.05	.02	.31***	-----		
8.FB Group Frequency	.000	.09*	.05	.12**	.35**	.08	.18*	-----	
9. LinkedIn	.052	.07	.12	.12	.15	.26*	.69*	.49*	-----

Group Frequency

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

Path analysis was used to test the path model through the maximum-likelihood method. As suggested by Hu and Bentler (1999), three fit indices were used to assess goodness-of-fit of the model: the comparative fit index (CFI; values of .95 or greater), the root-mean-square error approximation (RMSEA; values of .06 or less), and the standardized root-mean-square residual (SRMR; values of .08 or less). However, it is important to note that the hypothesized path model (see Figure 1) is a saturated model, and has a perfect fit in the fit index values. The results from testing the model illustrated the path coefficients from three types of social capital with respect to different SNS use.

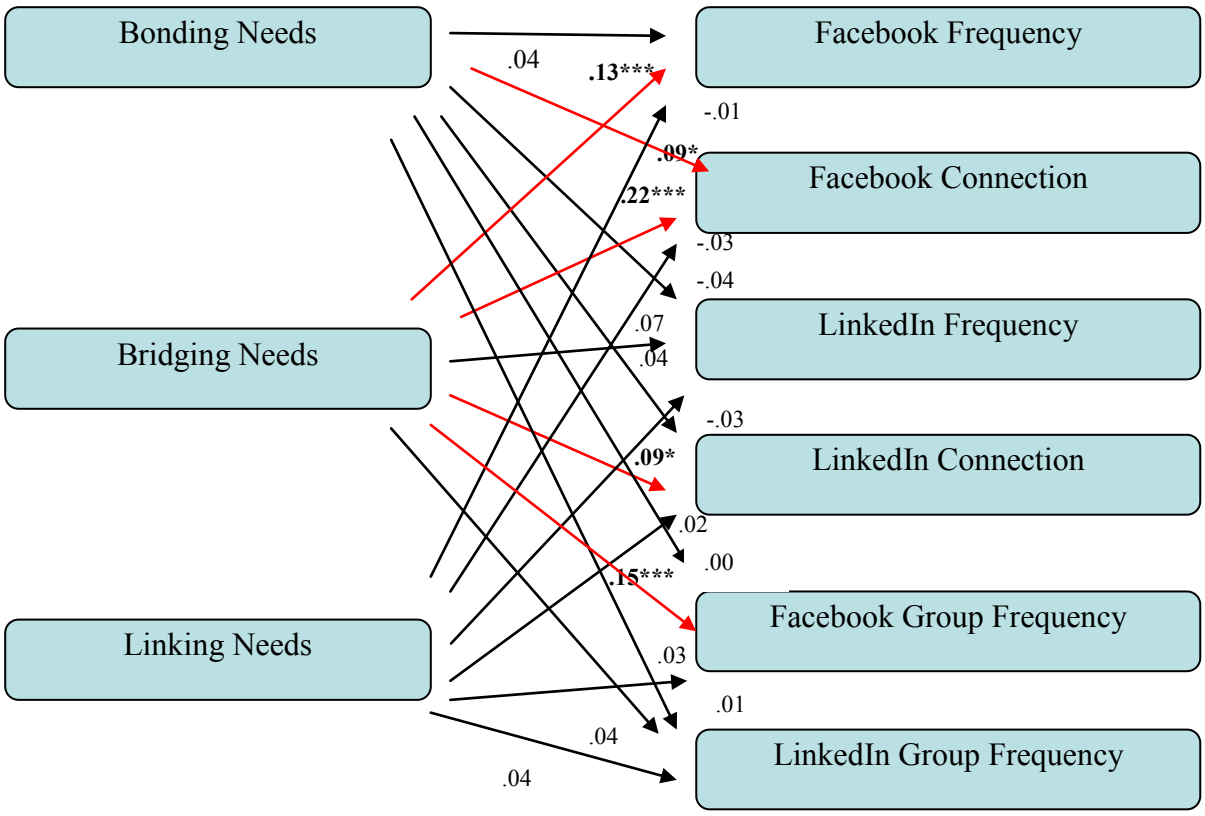

Figure 6. Social Capital Needs Predict SNS Use

*Note. All path coefficients are standardized, N=953. * $p < .05$. ** $p < .01$. *** $p < .001$. Fit information:* $x^2(0, N = 953) = .00; CFI = 1.00, RMSEA = .00, SRMR = .00$.

As presented in Figure 6, there were significant positive relationships discovered between need for "bridging" social capital and Facebook activity. These significant relationship results are indicated by the path coefficients from "bridging" need to Facebook use frequency (β=.13, p<.00), number of Facebook connections (β=.22, p<.00), and Facebook Group use frequency (β=.15, p<.00). Though the path coefficient from "bridging" needs to number of LinkedIn connections was significant (β=.09, p<.05), the other path coefficients for LinkedIn use frequency and LinkedIn Group use frequency were not significant. Need for "bridging" social capital directly predicts proportional Facebook use activity, but no such relationship was found for LinkedIn use. In other word, individuals who

wanted to gain more "bridging" social capital would prefer using Facebook and Facebook Group, and gaining more LinkedIn connections.

For "bonding" social capital, only the path coefficient for Facebook connections was significant. Other paths were not significant. In addition, all path coefficients from "linking" social capital to outcome variables were not significant. "Bridging" social capital was significantly and positively associated with Facebook use and Facebook Group use; "bonding" social capital was negatively associated with LinkedIn use; "linking" social capital was negatively associated with Facebook use. These results support hypothesis 1b: Needs for "bridging" social capital predict more Facebook, Facebook Group and LinkedIn use. Also the results partially support hypothesis 1a that needs for "bonding" social capital predict more Facebook connections, though not Facebook use. In addition, no significant relationship between needs for "linking" social capital and intensity of SNS use and SNS Group use was found. So hypothesis 1c was not supported.

4.3. Social Capital and Different Types of User-Created Content

Four path analyses were conducted to analyze the associations between three types of social capital and different types of SNS user-created content including Facebook user-created content, Facebook Group user-created content, LinkedIn user-created content, and LinkedIn Group user-created content. Among the 953 participants, 913 used Facebook, 756 used a Facebook Group, 226 participants used LinkedIn, and only 67 of them used a LinkedIn Group. So four path analyses were tested separately in the following order:

1) Facebook users (N=913); tested path coefficients from the three types of social capital to Facebook user-created content. These included: comment on others' status, write

on others' walls, comment on others' pictures or videos, send a private message, and send an event invitation;

2) Facebook Group users (N=756); tested path coefficients from social capital needs to Facebook Group user-created content. This content included: read the profile of any groups/pages, comment on a topic, share a topic, send a group message, and post a picture/video;

3) LinkedIn users (N=226); path coefficients from social capital needs to LinkedIn user-created content. The content included: comment on others' updates, send a private message, recommend someone, suggest a profile update for someone, and follow up on a company;

4) LinkedIn Group users (N=67), tested path coefficients from social capital to LinkedIn Group user-created content. This content included: read the profiles of any groups, comment on a topic, share a topic, and send a group message.

Looking at Figure 7, the results show the path coefficients from the three types of social capital to five types of user-created content on Facebook. None of the path coefficients from "bonding" social capital to the five Facebook user-created content outcome variables were significant.

The following path coefficients from "bridging" social capital were significant: to "comment on others' status" content (β=.16, $p<.00$), "write on others' walls" content (β=.14, $p<.00$), "comment on others' pictures or videos" content (β=.15, $p<.00$), and "send a private message" content (β=.09, $p<.05$). Not significant was the path from bridging needs to "send

an event invitation" content (β=.07, p>.05). Also "comment on a topic," "share a topic," and "comment on others' pictures" were the most frequent contents created by individuals who needed "bridging" social capital. And the path coefficients from needs for "linking" social capital to "comment on others' status" content (β=.07, p<.05), and "write on others' wall" content (β=.07, p<.05) were significant, but not the path to "comment on others' picture/video" (β=.06, p>.05), "send a private message" (β=.05, p>.05), and "send an event invitation" (β=.06, p>.05). That is to say, needs for "bridging" and "linking" social capital predict some Facebook user-created content.

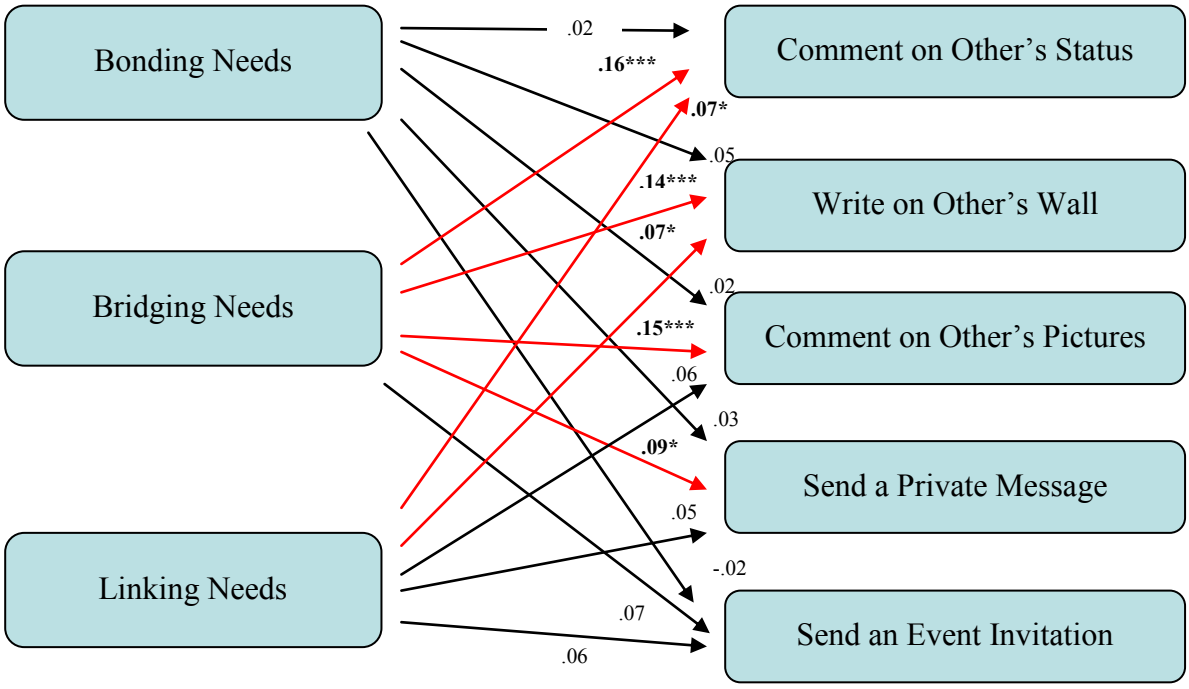

Figure 7. Paths from social capital needs to Facebook user-created content

*Note. All path coefficients are standardized, N=953. * p < .05. ** p < .01. *** p < .001.*
Fit information: $x^2(0, N = 953) = .00; CFI = 1.00, RMSEA = .00, SRMR = .00.$

The path results of social capital needs and Facebook Group user-created content are presented in Figure 8. Though none of the path coefficients from "bonding" social capital to

five types of Facebook Group user-created content were significant, all the paths from "bridging" social capital and "linking" social capital to Facebook Group content were significant. The results show the following: the path coefficients from "bridging" social capital to "read the profiles of any groups/pages" content (β=.13, p<.00), to "comment on a topic" (β=.11, p<.01), to "share a topic" (β=.09, p<.05), to "send a group message" (β=.10, p<.01), and to "post a picture/video" (β=.11, p<.01). In addition, "read the profiles of any groups/pages," and "comment on a topic" on Facebook Group were content created most frequently for the "bridging" need. Significant predictability is found with the path coefficients from linking social capital to "read the profile of any groups/pages" (β=.07, p<.05), to "comment on a topic" (β=.08, p<.05), to "share a topic" (β=.11, P<.01), to "send a group message" (β=.09, p<.05), and to "post a picture/video" (β=.09, p<.05). Overall, "bridging" and "linking" social capital predicts all Facebook Group user-created content.

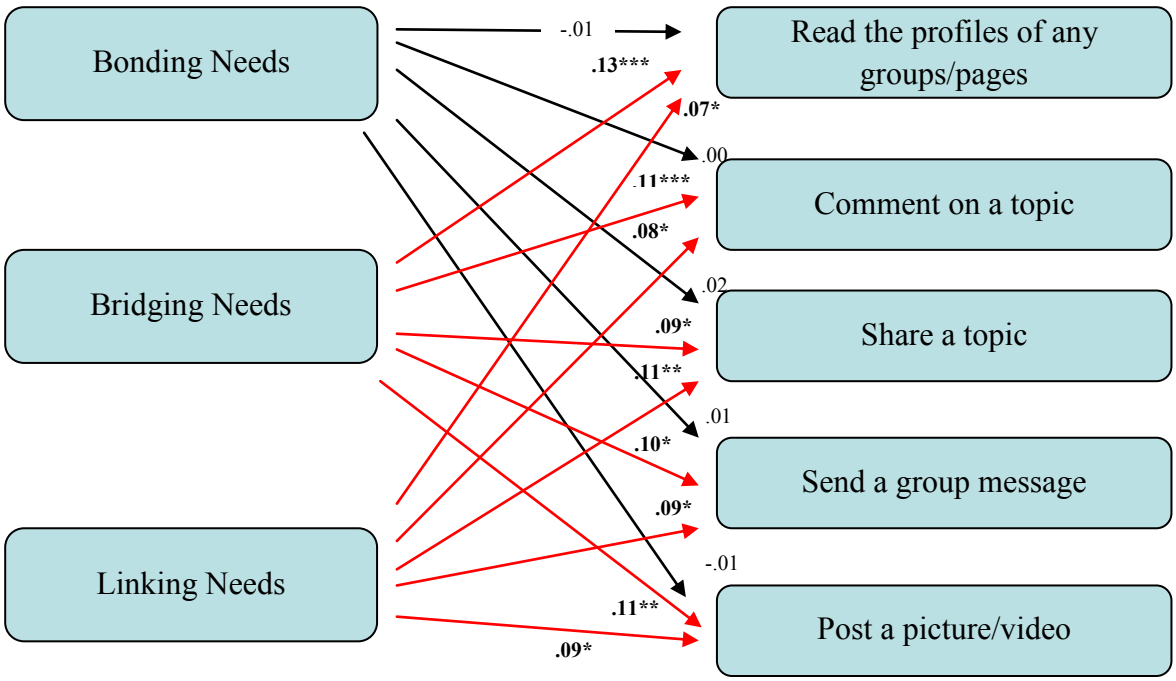

Figure 8. Paths from social capital needs to Facebook Group user-created content

*Note. All path coefficients are standardized, N=953. * $p < .05$. ** $p < .01$. *** $p < .001$.*
Fit information: $x^2(0, N = 953) = .00; CFI = 1.00, RMSEA = .00, SRMR = .00.$

The results in Figure 9 show that all path coefficients from "bonding" and "linking" social capital to the five types of LinkedIn content were not significant. The paths from "bonding" social capital showed negative relationships to all LinkedIn user-created content.

However, the path coefficients from "bridging" social capital to all five LinkedIn user-created content were significant as follows: to LinkedIn "comment on others' update" content (β=.09, p<.05), to "send a private message" content (β=.09, p<.05), to "recommend someone" (β=.09, p<.05), to "suggest a profile update for someone" (β=.09, p<.05), and to "follow up on a company" (β=.08, p<.05). This supports the idea that the need for "bridging" social capital is associated with creation of LinkedIn user-created content.

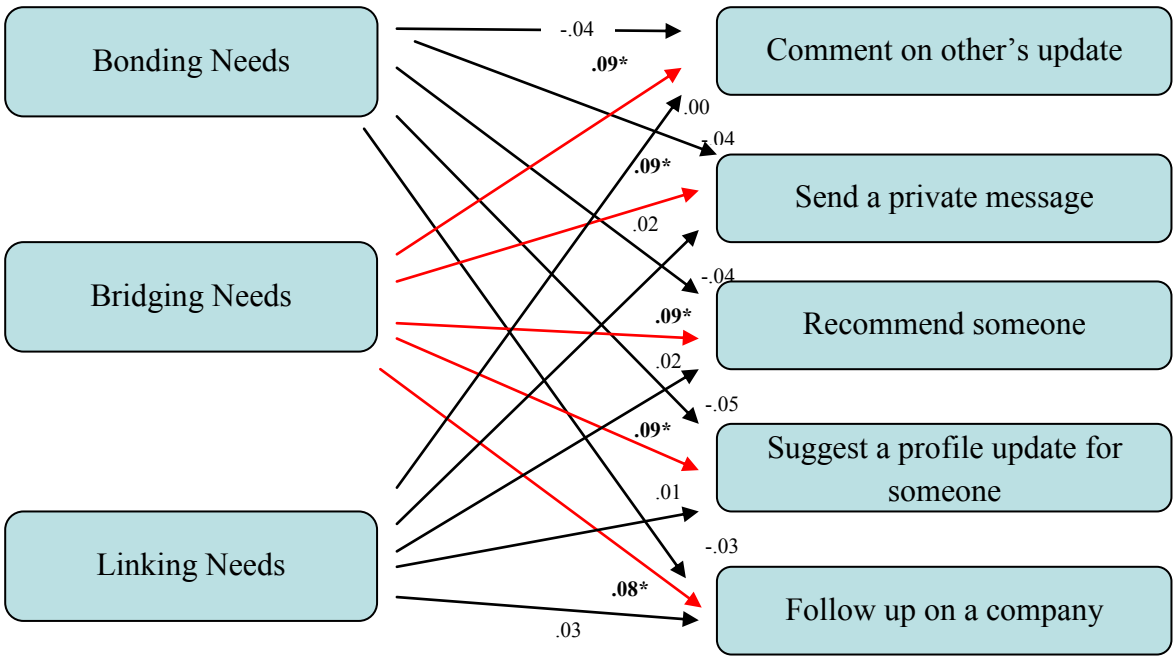

Figure 9. Paths from social capital needs to LinkedIn user-created content

*Note. All path coefficients are standardized, N=953. * $p < .05$. ** $p < .01$. *** $p < .001$.*
Fit information: $x^2(0, N = 953) = .00; CFI = 1.00, RMSEA = .00, SRMR = .00.$

The results from the path analysis (Figure 10) show that none of the path coefficients from "bonding," "bridging," and "linking" social capital to the four types of LinkedIn group user-created content were significant. Needs for social capital do not significantly predict creation of any LinkedIn Group user-created content.

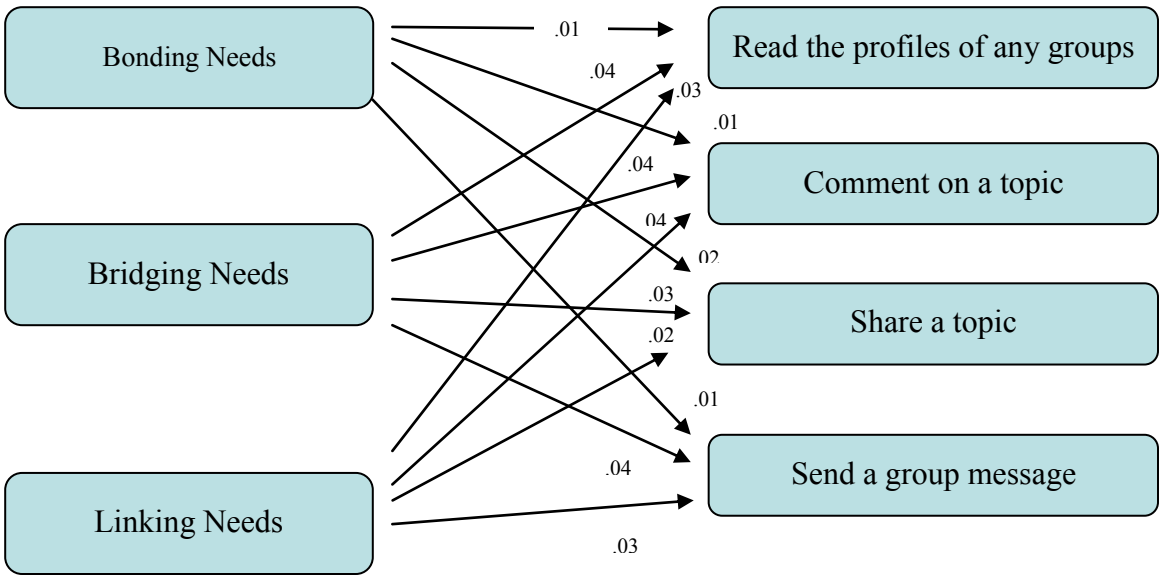

Figure 10. Paths from social capital needs to LinkedIn Group user-created content

Summarizing the four path analysis groups, students' "bonding," "bridging" and "linking" social capital were not substantial predictors for all types of user-created content creation. "Bonding" social capital showed few significant relationships to various SNS user-created content. Need levels for "linking" social capital were able to predict some Facebook user-created content and all Facebook Group user-created content, while needs levels for "bridging" social capital were able to predict most Facebook user-created content, all Facebook Group user-created content, and all LinkedIn user-created content. It is possible that the sample of LinkedIn Group users was too small to produce significant results.

4.4. Social Capital and Uses and Gratifications of Main Communication Channels

Paired-sample t-tests were conducted to compare the frequency of using SNS and other communication channels for three types of social capital needs.

1a. Frequency of use for communication channels with respect to "bonding" needs

Six paired-sample t-tests were conducted to compare the frequency of using SNS and six other communication channels (i.e., talk on the phone, face-to-face) with respect to the need for "bonding" social capital.

Table 4. Use frequency of communication channels for "bonding" social capital

	Variable	N	Frequency	SD	t	df	Sig (2-tailed)
Group 1	Talk on the phone	948	3.88	1.25	-10.05	947	.000
	Use SNS	948	4.47	1.59			
Group 2	Face-to-face	948	4.72	1.58	4.27	947	.000
	Use SNS	948	4.47	1.59			
Group 3	Text Message	948	5.27	1.19	-15.64	947	.000
	Use SNS	948	4.47	1.59			
Group 4	Send email	948	3.40	1.62	-18.81	947	.000
	Use SNS	948	4.47	1.59			
Group 5	Use blog	949	1.30	.87	-57.78	948	.000
	Use SNS	949	4.47	1.59			
Group 6	Use online messenger	948	2.20	1.58	-37.50	947	.000
	Use SNS	948	4.47	1.59			

Note: frequency scale: 1= never, 2= every few weeks, 3= 1-2 days a week, 4= 3-5 days a week, 5= about once a day, 6= several times a day.

The measurement scale used for this analysis is not a true interval scale. It is an ordinal scale since the distances between answer alternatives are not equal. But it is treated as interval variable for this analysis.

There was significantly more frequency of use for text message (M=5.27, SD=1.19) and face-to-face (M=4.72, SD=1.58) than for SNS (M=4.47, SD=1.59); t (947) =-15.64,

p<.00; t (947) = 4.27, p<.00, respectively. There was significantly more frequency of use for SNS (M=4.47, SD=1.59) than talk on the phone (M=3.88, SD=1.25), send email (M=3.40, SD=1.62), use online messenger (M=2.20, SD=1.58), and use blog (M=1.30, SD=.87); t(947)=-10.05, p<.00; t(947)=-18.81, p<.00; t(947)=-37.50, p<.00; t(947)=-57.78, p<.00, respectively.

As shown in Table 4, from the highest to lowest use frequency, communication channels were ranked as follows: text message, face-to-face, SNS, talk on the phone, send email, use online messenger, lastly, use blog. These results suggested that to fulfill individual needs for "bonding" social capital, students used text message, face-to-face, and SNS more frequently than other communication channels (M>4). Online messengers and blogs were not frequently used for "bonding" social capital.

1b. Satisfactions of use for communication channels use with respect to "bonding" needs

Correspondingly, six paired-sample t-tests were conducted to compare satisfaction from using SNS and six other communication channels (i.e., talk on the phone, face-to-face) regards to "bonding" social capital.

As shown in Table 5, users of face-to-face (M=4.77, SD=.65), talk on the phone (M=4.50, SD=.71), and text message (M=4.18, SD=.87) were significantly more satisfied than users of SNS (M=3.70, SD=1.03); t (946) =27.05, p<.00; t (946) =21.07, p<.00; t (944) =14.64, p<.00 individually. Users of SNS (M=3.70, SD=1.03) were significantly more satisfied than those who send email (M=3.49, SD=1.05), use online messenger (M=2.86,

SD=1.23), and use blog (M=1.96, SD=1.02); t (945) =-5.37, p<.00; t (942) =-18.59, p<.00; t (942) =-39.57, p<.00, respectively.

Table 5. Comparisons of satisfaction of communication channels for "bonding" social capital

	Variable	N	Mean	SD	t	df	Sig (2-tailed)
Group 1	Talk on the phone	947	4.50	.71	21.07	947	.000
	Use SNS	947	3.70	1.03			
Group 2	Face-to-face	947	4.77	.65	27.05	946	.000
	Use SNS	947	3.70	1.03			
Group 3	Text Message	945	4.18	.87	14.64	944	.000
	Use SNS	945	3.70	1.03			
Group 4	Send email	946	3.49	1.05	-5.37	945	.000
	Use SNS	946	3.70	1.03			
Group 5	Use blog	943	1.96	1.02	-39.57	942	.000
	Use SNS	943	3.70	1.03			
Group 6	Use online messenger	943	2.86	1.23	-18.59	942	.000
	Use SNS	943	3.70	1.03			

Note: satisfaction scale: 1= not good at all, 2= not too good, 3= neutral, 4= somewhat good, 5= very good.

Results showed that for "bonding" social capital, students were more satisfied with gratifications obtained from face-to-face, talking on the phone, text messaging, and using SNS than other communication channels. Generally students who used online messengers or blogs were not as satisfied (M<3).

2a. Frequency of use for communication channels with respect to "bridging" needs

Similarly to analysis of "bonding", six paired-sample t-tests were conducted to compare how often college students use SNS and six other communication channels to fulfill "bridging" social capital needs.

Table 6. Use frequency of communication channels for "bridging" social capital

	Variable	N	Frequency	SD	t	df	Sig (2-tailed)
Group 1	Talk on the phone	949	2.12	1.28	-20.12	949	.000
	Use SNS	949	3.13	1.54			
Group 2	Face-to-face	948	4.40	1.32	25.31	948	.000
	Use SNS	948	3.13	1.54			
Group 3	Text Message	948	3.56	1.56	9.89	948	.000
	Use SNS	948	3.13	1.54			
Group 4	Send email	949	3.36	1.39	3.96	949	.000
	Use SNS	949	3.13	1.54			
Group 5	Use blog	947	1.16	.61	-38.71	947	.000
	Use SNS	947	3.13	1.54			
Group 6	Use online messenger	948	1.64	1.17	-30.38	948	.000
	Use SNS	948	3.13	1.54			

Note: frequency scale: 1= never, 2= every few weeks, 3= 1-2 days a week, 4= 3-5 days a week, 5= about once a day, 6= several times a day.

It is shown in Table 6 that face-to-face (M=4.40, SD=1.32), text messaging (M=3.56, SD=1.56) and sending email (M=3.35, SD=1.39) were significantly more frequent than using SNS (M=3.13, SD=1.54); t (947) =25.31, p<.00; t (947) =9.89, p<.00; t (948) =3.96, p<.00 individually. And SNS (M=3.13, SD=1.54) were more frequently used than talking on the phone (M=2.12, SD=1.28), using online messengers (M=1.64, SD=1.17), and using blog (M=1.16, SD=.61); t (948) =-20.12, p<.00; t (947) =-30.38, p<.00; t (946) =-38.71, p<.00 respectively.

These results suggest that to fulfill their needs for "bridging" social capital, students used face-to-face, text messaging, and sending email more frequently than SNS and other communication channels.

2b. Satisfaction from using communication channels for "bridging" needs

Six paired-sample t-tests were conducted to compare satisfaction for SNS use and six other communication channels regarding "bridging" social capital.

Table 7. Comparisons of satisfaction of communication channels and SNS for "bridging" social capital

	Variable	N	Mean	SD	t	df	Sig (2-tailed)
Group 1	Talk on the phone	945	3.72	1.14	-.11	941	.000
	Use SNS	945	3.73	1.08			
Group 2	Face-to-face	945	4.72	.61	25.85	940	.000
	Use SNS	945	3.73	1.08			
Group 3	Text Message	946	4.16	.87	12.70	942	.000
	Use SNS	946	3.73	1.08			
Group 4	Send email	945	4.23	.94	11.68	941	.000
	Use SNS	945	3.73	1.08			
Group 5	Use blog	941	1.98	1.08	-38.18	938	.000
	Use SNS	941	3.73	1.08			
Group 6	Use online messenger	940	2.66	1.24	-22.56	937	.000
	Use SNS	940	3.73	1.08			

Note: satisfaction scale: 1= not good at all, 2= not too good, 3= neutral, 4= somewhat good, 5= very good.

There was significantly more satisfaction from face-to-face (M=4.72, SD=.61), sending email (M=4.23, SD=.94), and text messaging (M=4.16, SD=.87) than from SNS (M=3.73, SD=1.08); t (940) =25.85, p<.00; t (942) =12.70, p<.00; t (941) =11.68, p<.00 respectively. Satisfaction of using SNS (M=3.73, SD=1.08) was higher than using blogs (M=1.98, SD=1.08) and online messengers (M=2.66, SD=1.24); t (938) =-38.18, p<.00; t (937) =-22.56, p<.00 respectively. Talking on the phone (M=3.72, SD=1.14) had comparable satisfaction to SNS (M=3.73, SD=1.08); t (941) =-.11.

Overall, regarding "bridging" social capital, college students were satisfied with face-to-face, sending email, text messaging, SNS and talking on the phone, but not using blogs and online messengers.

3a. Frequency of use for communication channels for "linking" social capital

For "linking" social capital, six paired-sample t-tests similar to the "bonding" and "bridging" tasks were conducted.

Table 8. Use frequency of communication channels for "linking" social capital

	Variable	N	Frequency	SD	t	df	Sig (2-tailed)
Group 1	Talk on the phone	941	1.89	.89	23.19	940	.000
	Use SNS	941	1.21	.69			
Group 2	Face-to-face	938	2.26	1.11	27.94	937	.000
	Use SNS	938	1.21	.69			
Group 3	Text Message	943	1.25	.71	1.70	942	.000
	Use SNS	943	1.21	.69			
Group 4	Send email	942	2.61	1.24	35.24	941	.000
	Use SNS	942	1.21	.69			
Group 5	Use blog	941	1.07	.43	-7.15	940	.000
	Use SNS	941	1.21	.69			
Group 6	Use online messenger	942	1.10	.57	-6.01	941	.000
	Use SNS	942	1.21	.69			

Note: frequency scale: 1= never, 2= every few weeks, 3= 1-2 days a week, 4= 3-5 days a week, 5= about once a day, 6= several times a day.

The results show that the use frequency with respect to "linking" social capital of sending email (M=2.61, SD=1.24), face-to-face (M=2.26, SD=1.11), and talking on the phone (M=1.89, SD=.89) were significantly higher than SNS usage (M=1.21, SD=.69); t

(941) =35.24, p<.00; t (937) =27.94, p<.00; t (940) =23.19, p<.00. The frequency of use for SNS (M=1.21 SD=.69) was significantly higher than use of online messengers (M=1.10, SD=.57), and blogs (M=1.07, SD=.43); t (941) =-6.01, p<.00; t (940) =-7.15, p<.00 respectively.

In general, these communication channels were not used frequently for the purpose of "linking" social capital (M<3). Comparatively, students preferred to send email, face-to-face or talk on the phone than use SNS to contact "linking" connections.

3b. Satisfaction obtained using communication channels for "linking" needs

Lastly, six paired-sample t-tests were used to compare the satisfaction of SNS use and other communication channels for "linking" social capital needs.

Table 9. Satisfaction of communication channels for "linking" social capital

	Variable	N	Mean	SD	t	df	Sig (2-tailed)
Group 1	Talk on the phone	936	4.32	.92	47.14	929	.000
	Use SNS	936	2.10	1.09			
Group 2	Face-to-face	938	4.63	.81	45.93	930	.000
	Use SNS	938	2.10	1.09			
Group 3	Text Message	931	2.18	1.11	2.63	928	.000
	Use SNS	931	2.10	1.09			
Group 4	Send email	937	4.32	.92	54.85	930	.000
	Use SNS	937	2.10	1.09			
Group 5	Use blog	933	1.75	.96	-10.84	929	.000
	Use SNS	933	2.10	1.09			
Group 6	Use online messenger	928	1.84	.99	-8.55	924	.000
	Use SNS	928	2.10	1.09			

Note: satisfaction scale: 1= not good at all, 2= not too good, 3= neutral, 4= somewhat good, 5= very good.

There was significantly more satisfaction obtained from using face-to-face (M=4.63, SD=.81), sending email (M=4.32, SD=.92), talking on the phone (M=4.32, SD=.92), and text messaging (M=2.18, SD=1.11) than from SNS (M=2.10, SD=1.09); t(930)=45.93, p<.00; t(930)=54.85, p<.00; t(929)=47.14, p<.00; t(928)=2.63, p<.01 respectively. The satisfaction of using SNS (M=2.10, SD=1.09) was higher than use of blogs (M=1.75, SD=.96) and online messengers (M=1.84, SD=.99); t (929) =-10.84, p<.00; t (924) =-8.55, p<.00 respectively.

From these results, one surmises that students were more satisfied with communication channels such as face-to-face, sending email and talking on the phone regarding the accumulation of "linking" social capital. However, students were not as satisfied with using SNS for "linking" needs.

To summarize the paired-sample t tests' results, for three types of social capital, students used various communication channels with different use frequencies, and they reported different levels of gratifications obtained from these different communication channels. After comparisons with SNS and other communication channels, face-to-face and text messaging were utilized more frequently than SNS for three social capital needs. In addition, text messaging was used most frequently for "bonding" social capital; face-to-face was used most frequently for "bridging" social capital; and email was used most frequently for "linking" social capital. Though SNS were not used most frequently for the three social capital needs, they were used relatively frequently for "bonding" needs as its average use frequency was 3-5 days a week (M=4.47, SD=1.59), and was relatively frequent for "bridging" needs as its average use frequency for "bridging" needs was 1-2 days a week

(M=3.13, SD=1.54) . Blog and online messenger had lower use frequencies than SNS for all three social capital needs.

Though students used different communication channels for different social capital purposes, they rated face-to-face as the most satisfying communication method to obtain all three types of social capital. SNS users were satisfied with "bonding" and "bridging" social capital obtained from SNS usage. SNS users were not satisfied with "linking" social capital. Blogs and online messengers provided little user gratification for the three types of social capital. These results showed various satisfaction levels among different communication channels for different social capital purposes.

Chapter 5 Conclusion

In this study, a model of uses and gratifications was used to examine college students' needs and uses of social networking sites (SNS). This is not the first study to examine the relationship between "bonding" and "bridging" social capital and SNS use, though it is the first to examine the relationship between "linking" social capital and SNS use. The literature concerning social capital and SNS usage was newly developed and seemed to be limited in relation to the social capital categories. "Bonding" and "bridging" social capital were introduced to SNS studies, in which "bonding" social capital refers to close relationships and "bridging" social capital refers to weak relationships (Ellison, Steinfield & Lampe 2007; Williams, 2006). This study introduced "linking" social capital to SNS studies as the vertical relationships to people in power or organizations (Woolcock & Weetser, 2002). The combined study of "bonding," "bridging" and "linking" social capital was more comprehensive. In addition, the needs for three types of social capital, studied as motivations for individuals' social networking sites use, can be included in uses and gratifications literature and extended the theoretical framework.

Both SNS individual use and SNS group use were assessed. Also a general comparison of uses and gratifications among SNS and six other communication channels was conducted to determine how SNS compare with other channels in meeting uses and gratifications for each of the three forms of social capital. Two SNS forms—Facebook and LinkedIn—were used in this study. Measures of SNS individual use intensity, SNS group use intensity, SNS user-created content, use frequency of SNS and six other communication channels (including face-to-face, email, text message, phone, online messenger and blog),

and satisfaction from SNS and the six other communication channels were taken. After the survey was conducted, four variables to test if students are active in SNS "bridging" and "linking" types of groups were dropped from the model, due to the fact that these variables were only directly related to "bridging" and "linking" social capital, but were not related to "bonding" social capital, which may have produced bias.

5.1. Findings and Implications

Hypothesis 1 predicted that different needs for "bonding," "bridging" and "linking" social capital would lead to different levels of SNS use. Results showed a significant relationship between social capital needs and certain kinds of SNS use. In addition, hypothesis 1a, 1b and 1c are directional hypotheses that predict more Facebook use is motivated by "bonding" social capital; more Facebook, Facebook Group and LinkedIn use are motivated by "bridging" social capital; and more LinkedIn and LinkedIn Group use are motivated by "linking" social capital. Pearson correlations and path analysis were applied to test these relationships between social capital needs and different intensity of SNS uses for hypothesis 1, 1a, 1b and 1c. For Research Question 1, examining how varying needs for the three types of social capital related to different frequency of user-created content generation, path analyses were applied to test the relationships. For research question 2 and 3, paired-samples t-tests were employed to compare the general use frequency and gratifications of SNS and six other communication channels for the three types of social capital. Path analysis was utilized in this study to directly measure the relationship of independent variables to dependent variables. Although people visited SNS regularly, they did not overlook face-to-

face interaction or disregard the importance of face-to-face communication. Instead, face-to-face was always rated higher than SNS in terms of use frequency and use satisfaction.

Furthermore, significant relationships were shown between year of school and needs for three types of social capital, intensity of LinkedIn use, and user-created content on LinkedIn. Juniors/seniors have higher needs for "linking" social capital. Seniors will use LinkedIn more frequently, increase more connections on LinkedIn, and generate more user-created content on LinkedIn. For future study, year of school can be considered as one main factor in students' social development on SNS, and can be tested as an independent variable. Nevertheless, no significant relationships were found between age, gender, and residence and needs for three types of social capital, SNS use and user-created content generation. The reason for this finding could be that all students have needs for three types of social capital. Students' SNS behaviors are affected by their needs for three types of social capital instead of their age, gender and residence. Also with students' social development, when they have higher needs for "linking" social capital, they reflect a higher use intensity of LinkedIn and a higher volume of LinkedIn user-created content generation.

5.1.1 "Bridging" Social Capital—the Main Motivation for SNS Use

Previous research suggested a positive relationship between Facebook usage and "bridging" social capital, but not "bonding" social capital (Donath & Boyd, 2004; Ellison, Steinfield & Lampe, 2007). This study tested the relationship between "bonding," "bridging," and "linking" social capital and SNS general usage including Facebook use frequency, number of connections on Facebook, Facebook Group use frequency, LinkedIn use frequency, number of connections on LinkedIn, and LinkedIn Group use frequency.

Results showed strong support for the idea that the need for "bonding" social capital was significantly associated with the number of Facebook connections; need for "bridging" social capital was significantly and positively associated with Facebook use intensity, Facebook Group use intensity and number of connections on LinkedIn, but not LinkedIn use frequency or LinkedIn Group use frequency; need for "linking" social capital did not appear to be significantly related to SNS use. In other words, students who were in need of "bonding" social capital increased their connections on Facebook; students who were in need of "bridging" social capital used Facebook and Facebook Group actively, gained more connections on LinkedIn, but did not use LinkedIn or LinkedIn Group frequently; and for "linking" social capital, students did not show a significant SNS use trait. In addition, individuals' need for "bridging" social capital is the most significant of the three with respect to their SNS usage.

User-created content is a representative aspect of SNS. It distinguishes Facebook, LinkedIn or other SNS from each other by various types of content. Facilitated with user-created content, individuals are able to express themselves and extend their social interactions through SNS. Previous studies assumed that user-created content carried social implications with respect to social capital (OECD, 2007). This study attempted to find out if user-created content is related to social capital and if so, how it is related. A variety of results were found.

"Bridging" social capital need was significantly associated with user-created content on Facebook, Facebook Group and LinkedIn; "linking" social capital need was able to predict user-created content on Facebook Group and some features of user-created content on

Facebook; "bonding" social capital need did not show significant relationships with any certain user-created content. User-created content on LinkedIn Group was not found to have significant associations with any type of social capital need. It is possible due to the number of LinkedIn Group users was too small to show significant results. Students with higher "bridging" social capital needs were more active in developing user-created content on Facebook, Facebook Group and LinkedIn. Students with higher "linking" social capital needs created more content on Facebook Group, and some types of content on Facebook. Again, "bridging" social capital showed the most significant correlation to individuals' SNS user-created content generation, but "bonding" social capital did not. Based on results for hypothesis 1 and Research Question 1, differences in SNS use and user-created content, results from different needs for "bonding" social capital, "bridging" social capital and "linking" social capital, implied that "bridging" social capital was the main motivation for students' SNS usage.

These findings supported past studies for use of SNS for "bridging" social capital, because the results in this study showed that not only the intensity of Facebook use, Facebook Group use and LinkedIn use, but also the user-created content of Facebook, Facebook Group and LinkedIn was significantly related to need for "bridging" social capital. The lack of significant connection between "bonding" and "linking" social capital needs and SNS use is not surprising. Previous studies showed that individual tend to use SNS for "bridging" social capital purpose, but not for "bonding" social capital. In addition, the results from comparing the uses and gratifications from SNS and other communication channels for "linking" social capital showed that SNS was not used frequently and students were not

satisfied with SNS use. For SNS researchers and investigators, these findings show that students' communication behavior on SNS varies with different social needs. Students' adoption of SNS has social implications that need to be studied further. This study extends past research exploring the relationship between perceived gratifications of three types of social capital and SNS use by focusing on specific features. It is the first study to investigate if the motivation for obtaining three types of social capital will affect students' creation or consumption of various types of SNS content. Findings implied that individuals' "bridging" social capital was able to predict their user-created content formation on SNS, as well as "linking" social capital. For SNS researchers and investigators, this research brings up a few new perceptions in SNS studies. A comprehensive combination of "bonding," "bridging" and "linking" social capital was tested as the motivation for students SNS use behavior. This new motivation should be included in future SNS studies.

User-created content, as the main feature of SNS, has not been studied in depth with respect to its correlation with social capital. User-created content generates some interesting challenges and may provide more insight into "why" and "how" individuals use the SNS. The significant relationship between "bridging" and "linking" social capital to some features of SNS user-created content provide an insight into students' SNS use patterns. Because no significant relationship was found between "bonding" social capital and user-created content, neither did three types of social capital and LinkedIn Group user-created content, the relationship between three types of social capital and various user-created content awaits further examination.

Taken as a whole, the main findings of how "bonding," "bridging" and "linking" social capital lead to various SNS uses and various user-created content on SNS provide a new dimension and understanding of the uses and gratifications model for SNS. Individuals appear to select different sites and generate various user-created content regarding three types of social capital needs. Therefore, applying uses and gratifications theory to the SNS, this study extends the well-known theory to SNS use motivations and users' active media selection and content generation.

In addition, developing "linking" social capital, which refers to connections with people across power and social strata such as government officers and political advocates, may enhance students' participation in political and civic community. So studying the relationship between "linking" social capital and SNS use behavior provides an interesting perception on SNS studies. Also "linking" social capital can be tested as a predictor for political and community participation.

For SNS designers, the need for "bridging" social capital may be the most important purpose for students to generate more content; the need for "linking" social capital also leads to students' user-created content generation on Facebook. Knowing this, designers may be able to further analyze these relationships to create or improve user-created content for SNS users to obtain their "bridging" and "linking" social capital.

5.1.2. SNS Does Not Replace Other Communication Channels

Previous studies had different concerns about the effect of SNS use on peoples' social lives. In one study, it predicted that heavy use of SNS would reduce users' offline social life time (Nyland, Marvez & Beck, 2007). Another study predicted that SNS would

supplement other communication channels to improve social interactions (Donath & Boyd, 2004; Ellison, Steinfield & Lampe, 2007). This study suggested that SNS usage would not decrease individuals' social interactions such as face-to-face interaction by comparing use frequency and satisfaction of SNS and other communication channels for the three social capital needs.

This study sought to answer two questions:

(1) Do students use different types of communication channels including face-to-face, phone calls, text message, emails, blogs, instant messengers and SNS for different types of social capital?

After comparing the frequency of communication channels used for different social capital needs, results showed that individuals communicate face-to-face more frequently than SNS for all three forms of social capital. SNS were used relatively frequently for "bonding" and "bridging" social capital, but not for "linking" social capital. Along with face-to-face and SNS, text messaging was used frequently for "bonding" and "bridging" social capital, while email was used frequently for "bridging" and "linking" social capital. Students adopted different communication methods for different purposes. SNS were not among the first three choices when students needed to fulfill "bridging" and "linking" needs.

(2) Are students satisfied with gratifications obtained from different communication channels regarding their needs for three different types of social capital?

The results illustrated that face-to-face was the most satisfying communication channel to obtain all three types of social capital. This gratification result indicates that no

matter what communication channels students will use, face-to-face is the most used way to communicate with different groups of people. On average, the gratification from SNS for "bonding" social capital was "somewhat satisfied," but for "bridging" and "linking" social capital, the level of gratification was "not satisfied." To summarize, the general comparison results of uses and gratifications among all communication channels suggest that SNS activities have not replaced face-to-face interaction, but complement face-to-face relationships. Also students gained more gratifications from face-to-face interaction than from SNS use.

This general comparison of uses and gratifications among different communication channels and SNS did not simply measure the use frequency and satisfaction under the same circumstance; it was measured for each of the three different types of social capital. The results suggest that students have developed a complex communication strategy for different social capital needs. This study verified the positive relationship of SNS use and social capital as predicted in Ellison, Steinfield, and Lampe (2007)'s study.

5.2 Limitations of the Study

Though interesting results were obtained, it is important to critically evaluate the results and the whole study. There are certain limitations that need to be taken into account.

Social capital, as an independent variable in this study, is very abstract and elastic. It has been coded in various ways and applied to studies in different fields. Though "bonding," "bridging" and "linking" social capital were selected and defined regarding the specific

interests in this study, the creation of comparable measures or scales for the three types of social capital is a challenging task. The "bonding" and "bridging" social capital variables were adopted from Ellison, Steinfield, and Lampe (2007) who studied the relationship between "bonding" and "bridging" capital and SNS. Variables for these two types of social capital were validated and tested in other studies. The "linking" social capital variables were adopted from previous linking literature, but specified from studies that were related to SNS. Twelve statements were adopted to represent the three different types of social capital in this research. A small pre-test and factor analysis was conducted to reduce the number of variables from 30 to 12. A larger sample size for pre-test might have been able to find more accurate and useful statements.

Additionally, this study has focused on a phenomenon that continues to evolve. SNS have been studied from a rather narrow perspective: intensity of SNS use including use frequency, number of connections, and user-created content. These measurements were applied to two SNS—as Facebook and LinkedIn--to test if a site's different features or culture may affect SNS use. User-created content is a new and valuable concept that has not been examined in many empirical studies. This study attempted to test the relationships between social capital and user-created content. However, the data collected only partially supported these relationships. In addition, the intensity of SNS Group use was not comprehensively assessed. SNS Group use may have a significant relationship with social capital, but the utilized measurement scales could not determine the effect.

5.3 Recommendations for Future Study

For further evaluation of how "bonding," "bridging", and "linking" social capital impact students' uses and gratifications on SNS, more studies should be conducted. To address the above concerns, and because social capital is an abstract concept, future studies should first clarify the social capital concept and improve measurement. One suggestion would be to conduct a pre-test with a larger population, asking participants open-ended questions about social capital, gathering all possible statements, and then conducting a factor analysis to figure out the most useful variables. Further experimental investigations are needed to estimate how social capital motivates for individuals' SNS use.

Furthermore, future studies should increase the sample size of SNS group users to obtain enough data for a complete analysis. In this study, the sample size of all participants was large, and so was the sample size of Facebook Group users. Unfortunately, the sample size of LinkedIn Group users was relatively small. Therefore, further research regarding SNS group activity or SNS use should take into account that the sample size of a certain potential SNS group user may affect the validity of measurement. In the meantime, a better understanding of SNS group activity needs to be developed. For example, the variables regarding "bridging" and "linking" SNS group categories could be thoroughly explored in further research to be assessed as intensity of SNS group activity.

The relationships between needs for social capital and user-created content are intriguing, and should be explored in further research. Further investigation and experimentation into SNS user-created content is strongly recommended, because it is a key perception of users' social interaction online. Though this study was an excellent precursor,

considerably more work will need to be done to determine the relationship between social capital and SNS user-created content.

SNS continue to play a role in virtual communities, but it continues to evolve. In addition to contributing to the empirical framework of uses and gratifications on SNS, the findings in present study indicate that SNS communication does not necessarily replace individuals' face-to-face interaction but may enhance "bonding," "bridging" and "linking" social capital.

Appendix A: IRB Approval Letter

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

Date: 2/22/2012

To: Zhang Xu
3191 Medical Center Dr. #25101, McKinney, Tx 75069

CC: Dr. Eric Abbott
204C Hamilton Hall

From: Office for Responsible Research

Title: Analysis of Use and Value of Social Networking Sites for Three Types of Social Capital

IRB ID: 12-108

Study Review Date: 2/22/2012

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures with adults or observation of public behavior where
  - Information obtained is recorded in such a manner that human subjects cannot be identified directly or through identifiers linked to the subjects; or
  - Any disclosure of the human subjects' responses outside the research could not reasonably place the subject at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.

The determination of exemption means that:

- **You do not need to submit an application for annual continuing review.**
- **You must carry out the research as described in the IRB application.** Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any modifications to the research procedures (e.g., method of data collection, nature or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the inclusion of participants from vulnerable populations, and/or any change that may increase the risk or discomfort to participants. Changes to key personnel must also be approved. The purpose of review is to determine if the project still meets the federal criteria for exemption.

  Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

  Detailed information about requirements for submission of modifications can be found on the Exempt Study Modification Form. A Personnel Change Form may be submitted when the only modification involves changes in study staff. If it is determined that exemption is no longer warranted, then an Application for Approval of Research Involving Humans Form will need to be submitted and approved before proceeding with data collection.

Please note that you must submit all research involving human participants for review. **Only the IRB or designees may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

Please don't hesitate to contact us if you have questions or concerns at 515-294-4566 or IRB@iastate.edu.

Appendix B: Survey Questionnaires

INFORMED CONSENT DOCUMENT

Title of Study: Analysis of Use and Value of Social Networking Sites for Various Types of Social Capital

Investigators: Zhang Xu

This is a research study. Please feel free to ask questions at any time. The purpose of this survey is to find out the relationship of your social networking sites usage and your three types of social capital.

If you agree to participate in this study, you will be asked to complete a survey concerning your past and current experiences with your social networking sites usage. To insure confidentiality, do not write your name on this survey. You can withdraw from the study at any time. There are no foreseeable risks from participating in this study.

Your participation in this study is completely voluntary and you have the right to refuse to participate or leave the study at any time without any penalty. You can skip some question if you do not feel comfortable answering.

For further information about the study, please contact Zhang Xu, evabling@iastate.edu, 515-708-6880.

1. Age: _____

2. Gender: _____ male _____ female

3. Year in School:

_____ freshman _____ sophomore _____ junior _____ senior

4. Where do you live?

____ on campus____ off campus rental ____ with family

5. In the past six months, how often do you socialize or communicate with your family or close friends in the following ways?

	Never	Every few weeks	1-2 days a week	3-5 days a week	About once a day	Several times a day
Talk on the phone						
Face-to-face						
Text message						
Use SNS						
Send email						
Use blog						
Use online messenger						

6. To keep in touch with your family or close friends, how good is each of the following communication channels?

	Very good	Somewhat good	Neutral	Not too good	Not good at all
Talk on the phone					

Face-to-face					
Text message					
Use SNS					
Send email					
Use blog					
Use online messenger					

7. In the past six months, how often do you socialize or communicate with your classmates or club members in the following ways?

	Never	Every few weeks	1-2 days a week	3-5 days a week	About once a day	Several times a day
Talk on the phone						
Face-to-face						
Text message						
Use SNS						
Send email						
Use blog						
Use online messenger						

8. To keep in touch with your classmates or club members, how good is each of the following communication channels?

	Very good	Somewhat good	Neutral	Not too good	Not good at all
Talk on the phone					
Face-to-face					

Text message					
Use SNS					
Send email					
Use blog					
Use online messenger					

9. In the past six months, how often do you socialize or communicate with your professional representatives or future employers in the following ways?

	Never	Every few weeks	1-2 days a week	3-5 days a week	About once a day	Several times a day
Talk on the phone						
Face-to-face						
Text message						
Use SNS						
Send email						
Use blog						
Use online messenger						

10. To keep in touch with your professional representatives or future employers, how good is each of the following communication channels?

	Very good	Somewhat good	Neutral	Not too good	Not good at all
Talk on the phone					
Face-to-face					
Text message					

Use SNS					
Send email					
Use blog					
Use online messenger					

Now I am going to ask some questions of your Facebook usage.

11. Do you have a Facebook account?

____yes ____no

12. Do you have a profile on Facebook?

____yes _____no ____don't know

13. Is your Facebook profile visible to others?

____yes, visible to everyone ____yes, visible only to friends _____no ____don't know

14. Altogether, approximately how many "friends" do you have on Facebook?

____ none ____less than 50 ____ 50-100 ____ 101-199 ____ 200-499 ____ 500 or more ____don't know

15. In the past week, how often do you visit Facebook?

____ never ____1-2 days a week ____3-5 days a week ____about once a day ____several times a day ____don't know

16. In the past week, how often, if ever, will you do the following things on Facebook?

	Never	1-2 days a week	3-5 days a week	About once a day	Several times a day	Don't know
Comment on						

other's status						
Write on other's wall						
Comment on other's picture or video						
Send a private message						
Send an event invitation						

Now here are some questions about your Facebook group usage. This includes Facebook Pages and Facebook groups for public figures, businesses, organizations and other entities that are authentic and public present on Facebook.

17. Are you in an online group on Facebook?

____yes ____ no

18. Did you ever "like" a Facebook Page?

____yes ____no ____don't know

19. In the past week, how often do you visit your Facebook Groups or Pages?

____ never ____1-2 days a week ____3-5 days a week ____about once a day ____several times a day ____don't know

20. Are you active in the following groups on Facebook?

	Never	Yes, but not active	Yes, active	Don't know

community group/ neighborhood association				
sport or athletics league				
hobby group or club				
professional or trade association				
charitable or volunteer organization				
political parties or organizations				
ethnic or cultural groups				
fan groups for a particular TV show, movie, celebrity, or musical performer				
environmental groups				
bank institution				

21. In the past week, how often, if ever, will you do the following things on Facebook Groups or Pages?

	Never	1-2 days a week	3-5 days a week	About once a day	Several times a day	Don't know
Read the profiles of any Groups or Pages						
Comment on a topic						
Share a topic						
Send a group message						
Post a picture or video						

Next here are some questions of your LinkedIn use.

22. Do you have a LinkedIn account?

____yes ____no

23. Do you have a profile on LinkedIn?

____yes _____no ____don't know

24. Is your LinkedIn profile visible to others?

____yes, visible to anyone ____yes, visible only to friends _____no

25. Altogether, approximately how many "connections" do you have on LinkedIn?

____ none ____less than 50 ____ 50-100 ____ 101-199 ____ 200-499 ____ 500 or more ____don't know

26. In the past week, how often do you visit LinkedIn?

____ never ____1-2 days a week ____3-5 days a week ____about once a day ____several times a day ____don't know

27. In the past week, how often, if ever, will you do the following things on LinkedIn?

	Never	1-2 days a week	3-5 days a week	About once a day	Several times a day	Don't know
Comment on other's update						
Send a private message						
Recommend someone						

Suggest a profile update for someone						
Follow up on a company						

Next are some questions about LinkedIn Group. LinkedIn Groups are professional community formed on LinkedIn based on common interest, experience, affiliation, and goals.

28. Are you in an online group on LinkedIn?

____yes ____ no ____

29. In the past week, how often do you visit any LinkedIn Groups?

____ never ____1-2 days a week ____3-5 days a week ____about once a day ____several times a day ____don't know

30. Are you active in the following groups on LinkedIn?

	Never	Yes, but not active	Yes, active	Don't know
community group/ neighborhood association				
sport or athletics league				
hobby group or club				
charitable or volunteer organization				
political parties or organizations				
fan groups for a particular TV show, movie, celebrity, or musical performer				
environmental groups				
bank institution				

31. In the past week, how often, if ever, will you do the following things on LinkedIn Groups?

	Never	1-2 days a week	3-5 days a week	About once a day	Several times a day	Don't know
Read the profiles of any Groups						
Comment on a topic						
Share a topic						
Send a group message						

The following question inquires about your thoughts and feelings in a variety of situation.

32. Which of the following statements do you agree or disagree?

	Yes, I agree	No, I disagree	Don't know
There are people who would take me to the doctor if needed			
I want to meet new people who share my interests			
My credit score and relationship with my bank are important to me			
I like to be involved in organized sports and/or clubs			
I like to participate in social events and parties			
There are people I interact with who would be good job references for me			
There are people I can turn to for advice about making very important decisions			
There are people who care about me and listen to my problems			
I enjoy participating in politics, campaigns, protests and/or demonstrations			

Appendix C: Coding sheet

1. Age: numeric
2. Gender: 1=male, 2=female
3. Year in school (year): 1=freshman, 2=sophomore, 3=junior, 4=senior
4. Where do you live (live): 1=on campus, 2=off campus rental, 3=with family

How often do you socialize or communicate with your family or close friends in the following ways? 0=never, 1=every few weeks, 2=1-2 days a week, 3=3-5 days a week, 4=about once a day, 5=several times a day

5. Talk on the phone (freq1a)
6. Face-to-face (freq1b)
7. Text message (freq1c)
8. Use SNS (freq1d)
9. Send email (freq1e)
10. Use blog (freq1f)
11. Use online messenger (freq1g)

In keeping touch with your family or close friends, how good is each of the following communication channels? 5=very good, 4=somewhat good, 3=neutral, 2=not too good, 1=not good at all

12. Talk on the phone (sat1a)
13. Face-to-face (sat1b)
14. Text message (sat1c)
15. Use SNS (sat1d)
16. Send email (sat1e)
17. Use blog (sat1f)
18. Use online messenger (sat1g)

How often do you socialize or communicate with your classmates or club members in the following ways? 0=never, 1=every few weeks, 2=1-2 days a week, 3=3-5 days a week, 4=about once a day, 5=several times a day

19. Talk on the phone (freq2a)
20. Face-to-face (freq2b)
21. Text message (freq2c)
22. Use SNS (freq2d)
23. Send email (freq2e)
24. Use blog (freq2f)

25. Use online messenger (freq2g)

In keeping touch with your classmates or club members, how good is each of the following communication channels? 5=very good, 4=somewhat good, 3=neutral, 2=not too good, 1=not good at all

26. Talk on the phone (sat2a)
27. Face-to-face (sat2b)
28. Text message (sat2c)
29. Use SNS (sat2d)
30. Send email (sat2e)
31. Use blog (sat2f)
32. Use online messenger (sat2g)

How often do you socialize or communicate with professional representatives or potential future employers in the following ways? 0=never, 1=every few weeks, 2=1-2 days a week, 3=3-5 days a week, 4=about once a day, 5=several times a day

33. Talk on the phone (freq3a)
34. Face-to-face (freq3b)
35. Text message (freq3c)
36. Use SNS (freq3d)
37. Send email (freq3e)
38. Use blog (freq3f)
39. Use online messenger (freq3g)

In keeping touch with professional representatives or potential future employers, how good is each of the following communication channels? 5=very good, 4=somewhat good, 3=neutral, 2=not too good, 1=not good at all

40. Talk on the phone (sat3a)
41. Face-to-face (sat3b)
42. Text message (sat3c)
43. Use SNS (sat3d)
44. Send email (sat3e)
45. Use blog (sat3f)
46. Use online messenger (sat3g)

47. Facebook account (fbaccount): 1=yes, 2=no
48. Number of Facebook friends (fbconnection): 0=none, 1=less than 50, 2=50-100, 3=101-199, 4=200-499, 5=500 or more, 6=don't know

49. Frequency of visiting Facebook (fbfreq): 0=never, 1=1-2 days a week, 2=3-5 days a week, 3=about once a day, 4=several times a day, 5=don't know

In the past week, how often, if ever, have you done the following things on Facebook? 0=never, 1=1-2 days a week, 2=3-5 days a week, 3=about once a day, 4=several times a day, 5=don't know

50. Comment on other's status (fbcontent1)
51. Write on other's wall (fbcontent2)
52. Comment on other's picture or video (fbcontent3)
53. Send a private message (fbcontent4)
54. Send an event invitation (fbcontent5)
55. Facebook Group/Page account (fbgroupaccount): 0=don't know, 1=yes, 2=no
56. Frequency of visiting Facebook Groups/Pages (fbgroupfreq): 0=never, 1=1-2 days a week, 2=3-5 days a week, 3=about once a day, 4=several times a day, 5=don't know

Are you active in the following groups on Facebook? 0=never, 1=yes, but not active, 2=yes, active, 3=don't know

57. Community group/neighborhood association (fbgrouptype1)
58. sport or athletics league (fbgrouptype2)
59. hobby group or club (fbgrouptype3)
60. charitable or volunteer organization (fbgrouptype4)
61. political parties or organizations (fbgrouptype5)
62. fan groups for a particular TV show, movie, celebrity, or musical performer (fbgrouptype6)
63. professional or trade association (fbgrouptype7)
64. bank institution (fbgrouptype8)

In the past week, how often, if ever, have you done the following things on Facebook Groups or Pages? 0=never, 1=1-2 days a week, 2=3-5 days a week, 3=about once a day, 4=several times a day, 5=don't know

65. read the profiles of any groups or pages (fbgroupfreq1)
66. comment on a topic (fbgroupfreq2)
67. share a topic (fbgroupfreq3)
68. send a group message (fbgroupfreq4)
69. post a picture or video (fbgroupfreq5)
70. LinkedIn account (linkaccount): 1=yes, 2=no
71. Number of connections on LinkedIn (linkconnection): 0=none, 1=less than 50, 2=50-100, 3=101-199, 4=200-499, 5=500 or more, 6=don't know

72. Frequency of visiting LinkedIn (linkfreq): 0=never, 1=1-2 days a week, 2=3-5 days a week, 3=about once a day, 4=several times a day, 5=don't know

In the past week, how often, if ever, have you done the following things on LinkedIn? 0=never, 1=1-2 days a week, 2=3-5 days a week, 3=about once a day, 4=several times a day, 5=don't know

73. Comment on other's update (linkcontent1)
74. Send a private message (linkcontent2)
75. Recommend someone (linkcontent3)
76. Suggest a profile update for someone (linkcontent4)
77. Follow up on a company (linkcontent5)

78. LinkedIn group account (linkgroupaccount): 0=don't know, 1=yes, 2=no
79. Frequency of visiting LinkedIn groups (linkgroupfreq): 0=never, 1=1-2 days a week, 2=3-5 days a week, 3=about once a day, 4=several times a day, 5=don't know

Are you active in the following groups on LinkedIn? 0=never, 1=yes, but not active, 2=yes, active, 3=don't know

80. Community group/neighborhood association (linkgrouptype1)
81. sport or athletics league (linkgrouptype2)
82. hobby group or club (linkgrouptype3)
83. charitable or volunteer organization (linkgrouptype4)
84. political parties or organizations (linkgrouptype5)
85. fan groups for a particular TV show, movie, celebrity, or musical performer (linkgrouptype6)
86. professional or trade association (linkgrouptype7)
87. bank institution (linkgrouptype8)

Frequency of different user-created content: 0=never, 1=1-2 days a week, 2=3-5 days a week, 3=about once a day, 4=several times a day, 5=don't know

88. read the profiles of any groups (linkgroupcontent1)
89. comment on a topic (linkgroupcontent2)
90. share a topic (linkgroupcontent3)
91. send a group message (linkgroupcontent4)

Motivations of three types of social capital: 0=no, I disagree, 1=don't know, 2=yes, I agree.

92. There are people who would take me to the doctor if needed (bond1)

93. I want to meet new people who share my interests (bridge1)
94. My credit score and relationship with my bank are important to me (link1)
95. I like to participate in social events and parties (bridge2)
96. There are people I interact with who would be good job references for me (link2)
97. There are people I can turn to for advice about making very important decisions (bond2)
98. There are people who care about me and listen to my problems (bond3)
99. I like to be involved in organized sports and/or clubs (bridge3)
100. I enjoy participating in politics, campaigns, protests and/or demonstrations (link3)

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