

AN INVESTIGATION OF FACTORS INFLUENCING THE USER'S SOCIAL NETWORK  
SITE CONTINUANCE INTENTION

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The social network sites (SNS) industry has recently shown an abnormal development pattern: An SNS could rapidly accumulate a large number of users, and then suffer a serious loss of users in a short time, which subsequently leads to the failure of the Web site in the highly competitive market. The user's social network site continuance is considered the most important factor for an SNS to keep its sustainable development. However, little knowledge of the user's SNS continuance raises the following research question: What factors could significantly influence the user's SNS continuance intention?

To address this research question, I study the question from three lenses of research, including the I-view, the social interactivity view, and the trust based view. The I-view is an extension of the IS continuance model. From this research perspective, I tested the influence of the utilitarian factor (i.e., perceived usefulness) and the hedonic factor (i.e., perceived enjoyment) on the user's satisfaction in the I-view. In addition, I extend the umbrella construct, confirmation, into two sub-constructs, informativeness and self-actualization, and respectively study their influences on the utilitarian factor and the hedonic factor. I find that the user's perceived enjoyment has a significant positive effect on the user's satisfaction, thereby motivating the user to continue using the SNS. The perceived informativeness of an SNS and the user's self-actualization through information sharing with others on the Web site both have significant positive effects on the user's perceived usefulness and perceived enjoyment. From the social interactivity perspective, I suggest that a user's social gains could have a projection effect on the user's satisfaction in an SNS and his or her SNS continuance intention. Most previous

studies emphasized on the influence of social connection outcomes (i.e., social capitals) on the user's behavioral intention, but ignored the fact that an individual would also evaluate social connections according to the quality of the information sharing process (i.e., frequency and volume of information being exchanged) during the social activities. This study indicates that an SNS user's perceived interactivity has a significant positive effect on the user's sense of belonging to a virtual community and perceived social gains. The social gains significantly positively influence the user's satisfaction in the Web site and intention to continue using the SNS. From the trust based view, I find that the user's trust in the social network sites and the user's trust in other members both have significantly positive effects on the user's SNS continuance intention. In addition, both of the trust based factors could also positively influence the user's perceived informativeness, self-actualization, and sense of belonging.

The findings from the current study create a solid foundation for future SNS continuance research, and also provide several practical implications to SNS managers to increase the cohesion between users and the Web sites.

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## CHAPTER 1

### INTRODUCTION

Social network sites (SNS) such as Facebook and Google+ have experienced a rapid growth in recent years. It is reported that the number of active users on Facebook has surpassed 1 billion in the beginning of 2012 (Vance, 2012). Google+, which was introduced to the market in September 2011, has had more than 100 million users signed up on the Web site half year later after its launch (Hitwise, 2011). With the broad acceptance of SNSs, the new type of Web service is bringing several strong influences on people's daily social networking activities (Boyd 2007; Ellison et al., 2007), e-commerce transactions (Lu and Hsiao, 2010), and the organizational management (Lai and Turban, 2008). Giving positive predictions on the future of social network sites, industrial analysts (Gartner, 2011) and academic researchers (Boyd and Ellison, 2007; Hsu and Wu, 2011; Wang, 2010) also show their concerns about the sustainable development of the new type Web service for two reasons:

(1) SNSs could be "born" fast and then rapidly "die" (Boyd and Ellison, 2007). An SNS could accumulate a large number of users overnight, but then loses its users because of the lack of cohesions with members or the emergence of new rivalry SNSs. None of ever-popular SNSs (e.g., Friendster, MySpace) were able to avoid the vicious development pattern. Friendster was dominating the online social service market in the late 1990s and early 2000s. However, the Web site experienced a serious user loss after a short 5-year rapid development. Currently, the Web site is no longer the user's primary choice for online social networking activities. Myspace, substituting Friendster, was able to break two records of the SNS industry in its early development stage: it was the most visited Web site in the U.S. and it was also the most valuable SNS after it was sold to the News Corporation for \$500 million. However, the Web site has been

suffering a serious user loss issue since 2006. The number of active users on Myspace is merely 30 million by the end of year 2011, significantly declining from its peak in 2006. So far, the management team has not found an effective strategy to resurrect the Web site, and Myspace is still struggling with its survival issue (Wang, 2010). The current most visited social network site, Facebook, although has not yet been hit by the user loss issue, starts to see many symptoms such as its user's social media fatigue that cues the advent of unfavorable development conditions as well. The study of the user's continuance intention has become extremely important to SNS development (Gartner, 2011).

(2) The services that multiple SNSs provide to their users become homogeneous, which significantly lower the user locking barrier and an SNS's competitive advantages. Influenced by that, it is more difficult for an SNS to keep its users continue using the Web site. Previous studies (Boyd and Ellison, 2007; Parks, 2011) suggest that, when an SNS only provides generic online social networking service or other IT artifact aiming to facilitate the user's online social activities, substitutes (e.g., another SNS that can provide similar services) will bring fatal threats to the sustainable development of the Web service or the IT artifact. For instance, the emergence of Facebook is considered one of the most influential factors that result in the decay of Myspace. The introductions of Pinterest and Google+ are considered influential threats to the rapid and sustainable growth of Facebook, and lead to the user's confusion of which SNS they should continue to use in the future. In fact, keeping its users is not only critical to an SNS sustainable development, but also significantly influences its business value when the SNS goes public. Wirtz et al. (2010) argue that the number of users and the user retention are two critical factors for the business value of an SNS. However, in practice, because potential investors could not find that SNS managers have created effective strategies to lock customers (i.e., users) or create

competitive advantages over thousands social network sites, these investors do not feel confident toward the business prospect of these Web sites. It became an important reason that explains the dramatic price looms of several SNS stocks in the market. Therefore, an investigation of the factors that could significantly motivate people to keep using an SNS is highly needed by practitioners, so that they are able to obtain constructive information to address the abnormal SNS development patterns, create sustainable development strategies, and found valid and reliable business models.

An in-depth investigation of the user's SNS continuance is urgently needed by information systems researchers as well, because although the IS community has made great effort in studying the user's intention and behaviors in the pre-adoptive stage of SNS (Ellison et al., 2007; Sledgianowski and Kulviwat, 2009; Valenzuela et al., 2009), little knowledge about factors that could influence the user's continuance intention in the post-adoptive stage of the Web service has been obtained. Certainly, the classic information systems (IS) continuance model (Bhattacharjee, 2001) can be "borrowed" to explain the SNS user's continuance intention. However, the theory (Bhattacharjee, 2001) can only partially explain the user's behavioral intention, because it ignored the nature of most SNS as social media, and does not consider the influence of the user's particular psychological factors such as perceived enjoyment and social gains generated from the use of social media on the user's continuance intention. In addition, because of the involvement of other members in the information sharing process on an SNS, a user's trust in other members and a user's trust in the SNS's capability of keeping information accurate, reliable, integrate, and secure could also be the influential factors on the user's experience on an SNS. While the original IS continuance model does not validate the effects of the user's trust factors on the user's continuance intention either. Subsequently, a rigid use of the

original IS continuance model in the social media research context could fail to offer constructive implications to practitioners in order to avoid SNS failures that have been occurring over time (e.g., the decay of SixDegree.com, and then Friendster, and then Myspace). More important, we need to understand the SNS user's particular intention and behavior in order to resolve critical issues (such as social media fatigue, user's trust issues and concerns) that several major SNSs are currently facing, and provide a theoretical foundation for practitioners to resolve these problems.

In the current study, I specifically focus on the following research question: What factors could have significant positive effects on the user's SNS continuance intention? I take the following steps to address the research question of this proposal. First, I have a literature review on three collections of theories that will be adopted as research foundations to support the current model development, including the IS continuance model, social capital theory in computer mediated interpersonal communication research, and the online trust based studies. Also, I have a brief discussion on the respective knowledge gap that exists in the three collections of studies, when they are applied to the user's SNS continuance research. Secondly, to fill the gaps, incorporating the proposed I-view, the social interactivity view, and the trust based view, I introduce and develop a new theoretical model to validate the effects of several influential motivational factors on the user's SNS continuance intention. Thirdly, I briefly discuss the methodology used for data collections. Data analysis, discussions, contributions to SNS research, and implications are presented in the last two chapters.

## CHAPTER 2

### LITERATURE REVIEW

From a general system development perspective, it is normal that a system experienced an initial rapid growth stage, a stable development stage, and a decline stage during the whole system development life cycle (Klepper, 1996). What is aberrant in the current social network site (SNS) system life cycle is the newly observed dramatic growth followed by a steep decline of the number of users in a shorter and shorter time period (Boyd and Ellison, 2007). The phenomenon implies that there is a strong disjunction between what an SNS provides and what a user expects to obtain by using the SNS (Hsu and Wu, 2011). I suggest that it is very important for us to primarily review the key characteristics of SNS users and their usage of the Web service in the post-adoptive stage of SNSs, in order to apply the appropriate theories to investigate the influential factors that could resolve the disjunction issue and motivate SNS members to continue using the Web site after their initial acceptance of the SNS.

#### 2.1 Analysis of SNS Users in the Post-Adoptive Stage

With broad and rapid acceptance of social network sites, the Web service users and their usages have the following three key characteristics:

(1) Social network sites have been adopted by groups of users with more diversified demographic backgrounds, which lead the usage of SNS to become more diversified as well (Subrahmanyam et al., 2008). According to a survey from Pew Internet (2011), the major SNS users are no longer limited to the teenager population or the college student population. Professional users and older users are increasing dramatically on several SNSs (such as Facebook, MySpace, LinkedIn) in recent years. With the participation of these new groups of

users, an SNS, which was primarily designed for the hedonic or utilitarian purpose, could provide a mixed collection of functionalities to its users. For instance, Facebook, which was originally designed for college students to discuss popular topics, share photos and videos, and meet other students, has become an important network for professional users to keep social connections with colleagues, business partners, and customers. The change of use of an SNS implies that both the extrinsic motivational factors (e.g., perceived usefulness) and the intrinsic motivational factors (e.g., perceived enjoyment) can influence an SNS user's continuance intention, no matter what the Web site is originally designed for (i.e., a utilitarian SNS or a hedonic SNS) (Lin and Lu, 2011).

(2) The factors from the online social activities such as whether or not the social contacts in the virtual community are willing to share information with the user, whether or not the user perceives he or she is belonging to the virtual community become more and more important to the user's SNS continuance in the post-adoptive stage of the Web service (Hersberger et al., 2007). A study from Parks (2011) finds that MySpace users believed that the Web site was enjoyable and useful for them to create an online profile and receive novel information, when they just started to use the Web site. However, with the usage of the Web site, users found that they could not have frequent online interactions with each other. The interpersonal isolation among MySpace members subsequently becomes an influential factor that strongly frustrates the users' interest of continuing using the social oriented Web site. Therefore, previous studies (Gangadharbatla, 2008; Royo-Vela and Casamassima, 2011) suggest that, whether a user is willing to continue using a virtual social network is not only determined by how they estimate the information factors, system factors, and Web service factors, but also is strongly influenced by the user's perception of emotional and social connections with other members on an SNS and

how other members behave such as responding to the user's information seeking needs on the Web site.

(3) A user's trust in a social network site and trust in other members of the Web site become more and more important on the user's SNS continuance intention, especially when the user believes that he or she has shared a great deal of privacy information with others on the SNS, the user's protective consciousness and consequent subjective estimation toward the virtual environment could strongly change the user's behavioral intention, even the user might have accepted the SNS (McKnight et al., 2011). Dwyer et al. (2007) conduct a comparative study between Facebook users and MySpace users, and find that Facebook users have a higher degree of trust in the Web site (Facebook.com) and other members on the Facebook than MySpace users have toward MySpace.com and its members in the post-adoptive stage of the Web service. Correspondingly, Facebook users are more willing to reveal and share their privacy information (e.g., telephone numbers, real names, physical addresses, etc.) with other members on the Web site. By contrast, MySpace users are more cautious about the virtual environment (i.e., MySpace.com and its members), and are less willing to share privacy information with other members on the Web site. Boyd and Ellison (2007) find that MySpace users have a strong expectation of creating connections with other people with similar interests (e.g., fans of bands, singers) on the Web site. In the beginning, MySpace users were willing to share privacy information with others based on their positive impressions on the Web site and other members. However, with the usage of MySpace, a large number of users were strongly concerned about their personal safety, when they found out that many of their "friends" only attempted to utilize the Web site to stalk them online, access to their privacy information, and hunt the possible victims for offline sex harassments. Even worse, MySpace failed to take sufficient



countermeasures to stop the vicious users' threatening actions. The indifference toward the user's information and personal security had MySpace users extremely disappointed to the Web site, and lead to an exodus of MySpace users to Facebook. The case studies imply that the user's trust in the social network sites and trust in other members could also significantly influence the user's SNS continuance intention in the user's post-adoptive stage of the Web service.

According to the above discussion, I suggest that the following theoretical foundations can be adopted to investigate a user's SNS continuance intention, including the IS continuance model, the social capital theory, and the trust based studies. The IS continuance model is adopted because an SNS is basically a system that facilitate the information exchange among users. Therefore, the user's perception toward the system such as the user's confirmation of using the system and the user's post-adoption expectation (e.g., perceived usefulness and perceived enjoyment) could have significant effects on the user's intention to continue using an SNS. The social capital theory is adopted because the cohesive effect of interpersonal connections could be a fundamental theoretical support to explain why a user would like to stay in a virtual social network. As previous case studies (Boyd and Ellison, 2007; Parks, 2011) show, trust appears to be important for a user to make decisions whether to continue using an SNS when he or he is uncertain about the institutional protection from the SNS, and is unsure about other members' intention. Therefore, the studies with trust based view are also adopted to support the current research.

## 2.2 Information Systems Continuance Model

A user's continuance usage of an information system has received a great deal of attention from researchers in the information systems (IS) discipline, because the success of an

information system does not depend on the user's initial acceptance, but also heavily relies on the user's continuance usage of the system (Jasperson et al., 2005; Limayem et al., 2007). According to the expectation-confirmation theory (ECT) (Oliver, 1980), Bhattacharjee (2001) proposes a general IS continuance model, which indicates that three general factors could significantly positively influence a user's continuance intention in an information system, including: the user's satisfaction, the user's confirmation of expectation, and the user's post-adoption expectation (i.e., the user's perceived usefulness). Bhattacharjee (2001) argues that the IS continuance model only focuses on the user's post-adoption expectation instead of the pre-adoption expectation, because post-adoption expectations have a more salient effect on continuance intention. In the model, Bhattacharjee (2001) further adopts a user's perceived usefulness of an information system to measure the user's post-adoption expectation because of the robustness and consistent predictive power of perceived usefulness for IS use. Validating the model in an online banking system context, the author (Bhattacharjee, 2001) argues that the user's satisfaction, perceived usefulness, and confirmation all have significant positive effects on the user's continuance intention in an online banking system.

Subsequently, the IS continuance model has been adopted in a broad scope of research contexts (Kim, 2011; Kwon and Wen, 2010; Lin and Lu, 2011), and becomes one of most important theoretical foundations to study the user's continuance intention. However, when applying the model to the user's SNS continuance research, a further extension of the classic model is highly needed for the following three reasons:

(1) Social network sites have broader components than the online banking system based on which the original IS continuance model was founded. SNS are not only general information systems that fulfill the user's needs for searching expected information, but also are typical

applications of the concept of Web 2.0, that integrates individual users into the information systems and has them as information contributors to others in the virtual community (Isaías et al., 2009; Kim et al., 2009). Influenced by the philosophy, SNS do not only enable the user-IT artifact interaction, but also enable the interpersonal interaction among users (Han and Windsor, 2011). Therefore, besides the motivational factors from the original IS continuance model, we should also consider the influence of emotional and social factors generated from the online interpersonal interactions on a user's SNS continuance intention.

In their study, Lin and Lu (2011) hypothesize that the number of members of an SNS and the number of a user's peers who are also using the SNS could significantly positively influence a user's SNS continuance intention. Nevertheless, none of the proposed hypotheses were supported. I suggest that one possible reason is that Lin and Lu's model (2011) fails to take particular characteristics of user's social activities on an SNS into account. Previous studies (Chang and Zhu, 2012; Sledgianowski and Kulviwat, 2009) argue that the number of members is an important factor that could positively influence a user's adoption of an SNS. However, with the usage of the SNS, the number of a user's frequent contacted SNS members actually decreases over time, but the volume and frequency of information being exchanged between the user and his or her sustained SNS contacts both dramatically increase (Enders et al., 2008; Marlow et al., 2009). Enders et al. (2008) argue that, in the post-adoptive stage of an SNS, to decide whether or not to keep using the SNS, a user will focus more attention on his or her informative and emotional gains from the virtual social network, rather than simply estimate how many virtual social circles he or she has on SNSs, or how large each social circle is on the Web sites. In the following section, I will further discuss the influence of the user's informative and emotional

gains on the formation process of a cohesive virtual social network in the theoretical development section.

(2) The construct, confirmation, in the original IS continuance model is facing challenge when it is adopted to study the user's SNS continuance intention. According to Bhattacharjee (2001), a user's confirmation is defined as the users' perception of the congruence between his or her expectation of a system use and its actual performance. However, as multiple studies (Parks, 2011; Shi et al., 2010) have shown, on an SNS, the user's confirmation can be further studied from several more in-depth perspectives, such as the gap between the user's perceived SNS performance and the user's expectation during his or her information seeking process, the user's confirmation of his or her expected online image on the Web site, etc. Adopting these factors (i.e., informativeness and self-actualization as proposed in the theoretical development section) in an extended IS continuance model could better explain the user's particular behavioral intention on an SNS, and help us advance the knowledge of the Expectation-Confirmation Theory in an SNS research context.

(3) The original IS continuance model did not answer the question of whether a user's continuance intention could have an extended effect on other critical factors such as the user's SNS loyalty that has a long term cohesive effect on keeping an SNS user. Previous studies (Han et al., 2008; Brandtzæg and Heim, 2009) argue that a customer's continuance intention could significantly increase the chance for the customer to repeat using a product or service. However, the effect could be temporal unless the customer has created a long term cognitive and affective loyalty to the product or service. Therefore, I suggest that it is important for us to extend the IS continuance model and validate whether a user's SNS continuance intention could significantly positively influence the user's long term loyalty to an SNS.

### 2.3 Social Capital Theory in the Computer Mediated Communication Research

Social capital theory is an important theoretical foundation in computer mediated communication systems research (e.g., social network sites, virtual community systems, instant messaging systems, etc.). The studies grounded on social capital theory believes that an individual could perceive informative and social gains through the participation of social activities, and the perceived gain consequently becomes a critical factor that keeps the individual to stay in the existing social network and extend the boundary of his or her social network (Helliwell and Putnam, 2004). To further study the influential factors and formation process of social capitals, the graph theory and the game theory are broadly adopted in social capital theory research (Easley and Kleinberg, 2010). The graph theory focuses on the structuration of social networks and its influence on an individual's perception, intention, and behavior (Granovetter, 1973). According to the graph theory, a social network consists of nodes and edges. A node refers to each individual within the social network. An edge refers to the social connection between two nodes. Furthermore, an edge can be separated into a strong tie and a weak tie (Granovetter, 1973). A strong tie represents close and frequent social contacts, which tend to be embedded in tightly-linked regions of the network, while a weak tie represents more casual and distinct social contacts, which tend to cross between these regions (Easley and Kleinberg, 2010). A typical example of strong ties is the connections between an individual and his or her close friends or family members, and the connections between an individual and his or her acquaintances are usually considered a typical example of weak ties (Kilduff and Tsai, 2003). Both strong ties and weak ties are critical to an individual's perceived social capitals, since strong ties tend to provide more emotional support to the individual and weak ties are more likely to provide novel informative resources to the individual (Helliwell and Putnam, 2004).

Extending the graph theory, academics from the IS discipline suggests that a computer mediated communication system plays a critical role in helping users bridge social capitals and bond social capitals. Bridging social capitals refer to the functionality that a computer mediated communication system such as an social network site can provide for users to reach the weak tied contacts in a cheaper and more intensive ways, thereby obtaining more novel information and knowledge gains from the interpersonal information sharing process in the system (Putnam, 2000). Wellman et al. (2001) argue that the Internet based interpersonal communication provides several advantages over offline social activities in accruing and accumulating an individual's perceived social capitals. For instance, breaking through the temporal and geographical limitations, several computer mediated communication systems enable more information exchange between an individual and his or her acquaintances, thereby positively influencing the individual's perception of being informed in his or her social network.

Bonding social capitals refer to the functionality that a computer mediated communication system can provide for users to further tighten the strong ties with his or her close friends or family members, thereby perceiving a stronger social and emotional support from his or her social network (Putnam, 2000). Ryan (2010) argues that a computer mediated communication system can facilitate the interpersonal information and emotional support among strong tied members in a multiple sclerosis therapy community. The author (Ryan, 2010) finds that with the complement of online communications to the face-to-face social interactions, members in the group perceive more social capital gains from three perspectives, including perceived emotional support, instrumental support, and a strong sense of belonging to a community. The social capital gains subsequently become one of the most important motivations

for the members to continue staying in the therapy treatment in the group, rather than quit the group or choose to join in other groups.

The strong influences of bridging social capital and bonding social capital on the user's intention and behaviors are also observed in SNS research. In the pre-adoptive stage of an SNS, Ellison et al. (2007) argue that bridging social capital and bonding social capital are two critical motivations for college students, who were major early adopters of SNS, to join in a social network site. Moreover, previous studies (Ellison et al., 2007; Mehdizadeh, 2010) obtain several interesting findings in the user's social capital building and maintaining process: First, bridging social capital has a stronger effect on the user's behavioral intention such as adoption intention of SNS than bonding social capital. Ellison et al. (2007) argue that bridging social capital is currently the major motivation for a user to adopt an SNS. Secondly, a user's personality could also strongly influence the user's behavioral intention on an SNS. Mehdizadeh (2010) argue that the individuals who have low self-esteems are more likely to adopt an SNS, because the computer mediated communication systems provide the possibility for those individuals to have more online self-promotion activities, in order to achieve the goal of being accepted and being liked by others. In Ellison et al. (2007)'s study, the authors find that Facebook usage was especially beneficial for students reporting a low satisfaction and low self-esteem, as those who reported low self-esteem also reported higher bridging social capital if they used Facebook more intensely.

However, the positive influences of bridging social capital and bonding social capital on the user's SNS behavioral intention start to face more and more challenges in the user's post-adoptive stage of the Web service. Pollet et al. (2010) find that a large number of Facebook users would add other members as "friends" when being requested. However, very few of them have

actually been communicating with each other. Marlow et al. (2009) argue that even for Facebook users who report very large numbers of friends on their profile pages (on the order of 500), the number with whom they actually communicate is merely between 10 and 20, and the number they follow passively is under 50. The new key feature of the SNS user's behavior offers an important implication to IS researchers: If the online interpersonal information sharing is missing, then it is impossible for an SNS user to bridge and bond the expected social capitals. In other word, although the SNS user's behavioral intention (e.g., adoption of the SNS, continuance intention on SNS) will be motivated by their final goals of bridging social capitals and bonding social capitals, if they don't experience quality activities (e.g., frequent information exchange, responsive feedback from other users) during the information exchange process, they may also adjust their perception of the final outcomes by using the SNS. Moreover, the disconfirmation of the expected social capital seeking will frustrate the user's intention to stay connected with other members of an SNS, thereby decreasing the possibility for the user to continue using the SNS.

Since the graph theory and the literature applying the graph theory in the computer mediated communication context face the challenge in fully explaining the user's SNS continuance intention, I suggest we should take another conceptual path, which is developed on the game theory basis, to look for the influential factors of the user's SNS continuance. The game theory can be adopted to study an individual's social capital building process, because the individual's perception, intention, and behaviors are basically decision making processes corresponding to other people's decisions in a social network (Easley and Kleinberg, 2010). Different from the role of an individual in a human-computer interaction process, in which an individual's perceptions (e.g., perceived usefulness, perceived enjoyment) of the computer system play the sole role in the determining the individual's consequent decisions (such as



whether or not to continue using the computer system), the individual's decision making are strongly influenced by other people's behaviors in the human-human social activities. In other words, an individual's subjective estimation and intention to perform a behavior will be made according to how other people act (Easley and Kleinberg, 2010). The conceptual foundation provides a useful perspective for IS researchers to further study the influential factors of a user's intention and behaviors in the computer mediated communication process.

Wu and Chang (2005) argue that the user's continuance intention to stay in a virtual community is not only influenced by outcomes (e.g., usefulness, completeness, reliability, novelty, etc.) of information exchanged among the members of the virtual community, but also is influenced by how frequent and how much the information is exchanged in the virtual community. Because in the Web 2.0 based systems, information is mainly exchanged between a focal user and other users of the system, instead of between the focal user and the systems, the information exchange factors such as the frequency of information sharing among users and the volume of information exchanged among users will primarily form the focal user's perception of whether or not other members are willing to create and maintain quality social connections before the user forms the decision of whether or not to continue using the systems. Hersberger et al. (2007) argue that an individual's continuance of and loyalty to a virtual community is positively associated with other members' higher interactivity in the community, because when a person perceives other members in the online social network indicates rapid responsiveness and intention to frequently respond to the person's needs for information seeking, the person is inclined to believe that the virtual social group has a higher degree of acceptance of him or her. The person's absorption into the social network could consequently create a cohesive effect between the user and the system, and strongly influences the user's behavioral intention such as

willingness to share more information with others, intention to continue staying connected with other members, and intention to keep using the system.

I suggest that these findings could also be applied to a user's SNS continuance research for the following reasons: Although the system design of social network sites could be different from virtual community Web sites (for instance, social network sites provides more personal oriented service such as personal homepages, personal online social contacts lists to users, but virtual community Web sites provide more group oriented service such as bulletin board services to users), both of the computer mediated communication systems have one similar fundamental purpose of facilitating social connections among their members. Thus, a user's perception of online contact's interactivity and his or her consequent sense of belonging to the virtual social group could also strongly support the user's perceived social capital building process, thereby increasing the user's SNS continuance. I will hypothesize these relationships in the model development section.

## 2.4 Online Trust Research

Trust plays an important role in determining a user's behavioral intention in an information system. At the conceptual level, prior studies (McKnight et al., 1998; McKnight et al., 2010) argue that trust consists of two important sub-dimensions, including a person's trusting belief and a person's trusting intention. Trusting belief refers to a person's subjective estimation of that the other party will take responsible actions leading to benevolent results to the person. Trusting intention refers to a person's willingness to take actions that could lead to vulnerability of the person to other parties. Previous studies (McKnight et al., 2002; Li et al. 2008) argue that a person's trusting belief could significantly positively influence the person's trusting intention.

At the operational level, according to the difference of the “other party”, previous studies further separate trust into institutional trust (Gefen et al., 2006) and interpersonal trust in a system (Ba and Pavlou, 2002; Dwyer et al., 2007). Institutional trust refers to a user’s subjective belief that regards an effective mechanism offered by the system provider is in place to assure the achievement of the user’s favorable expectation (Sledgianowski and Kulviwat, 2009). The user’s institutional trust subsequently significantly influences the user’s behavioral intention during the human-computer interaction process. For instance, Kim et al. (2008) find that a person’s trust in a B2C Web site could significantly increase the person’s purchase intention. Li et al. (2006) find that a user’s institutional trust could significantly increase the likelihood for the user to adopt the national identity database (NID) system. Sledgianowski and Kulviwat (2009) argue that a user’s institutional trust has a significant positive effect on the user’s adoption of a social network site.

A user’s interpersonal trust refers to the user’s subjective belief that regards other members of the system are honest, beneficiary and reliable (Han and Windsor, 2011). The construct has become a fundamental influential factor of the user’s online intention and behaviors with the emergence of several Web 2.0 systems. On an SNS, a user’s interpersonal trust is critical to the user’s adoption intention and continuance intention for the following reasons: An SNS user frequently plays dual roles (i.e., as an information receiver and as an information sender) when using the Web site. From the information receiver’s perspective, the user’s trust in other members could determine the user’s perceived value of the received information. According to the philosophy of Web 2.0, social network sites on one hand significantly lower the barrier for people to contribute information and share information in the online community. On the other hand, social network sites raise a credibility issue to a user when

he or she receives information from online contacts with whom the user has never met before. When a user trusts the other members, he or she is more likely to believe the information sent by others are genuine, thereby confirming his or her expectation of seeking quality information on the SNS. From the information sender's perspective, a user expects his or her privacy information should only be shared with those who he or she knows, or with those who will not bring unexpected threats to the user once getting the information. Thus, a user's trust in other members would determine the user's intention to contribute information in an uncertain online environment. Along the relationships between the user's trust factors and their intention, I will validate the direct and indirect effects of the user's trust on the user's SNS continuance in the following section.

## CHAPTER 3

### THEORETICAL MODEL DEVELOPMENT

#### 3.1 Model Overview

As discussed above, the information systems (IS) continuance model, social capital theories in the computer mediated communication, and online trust studies are three major foundation theories that can support the study of a user's social network site (SNS) continuance intention. Incorporating factors from the three lenses of research, I introduce a new research model as shown in Figure 1.

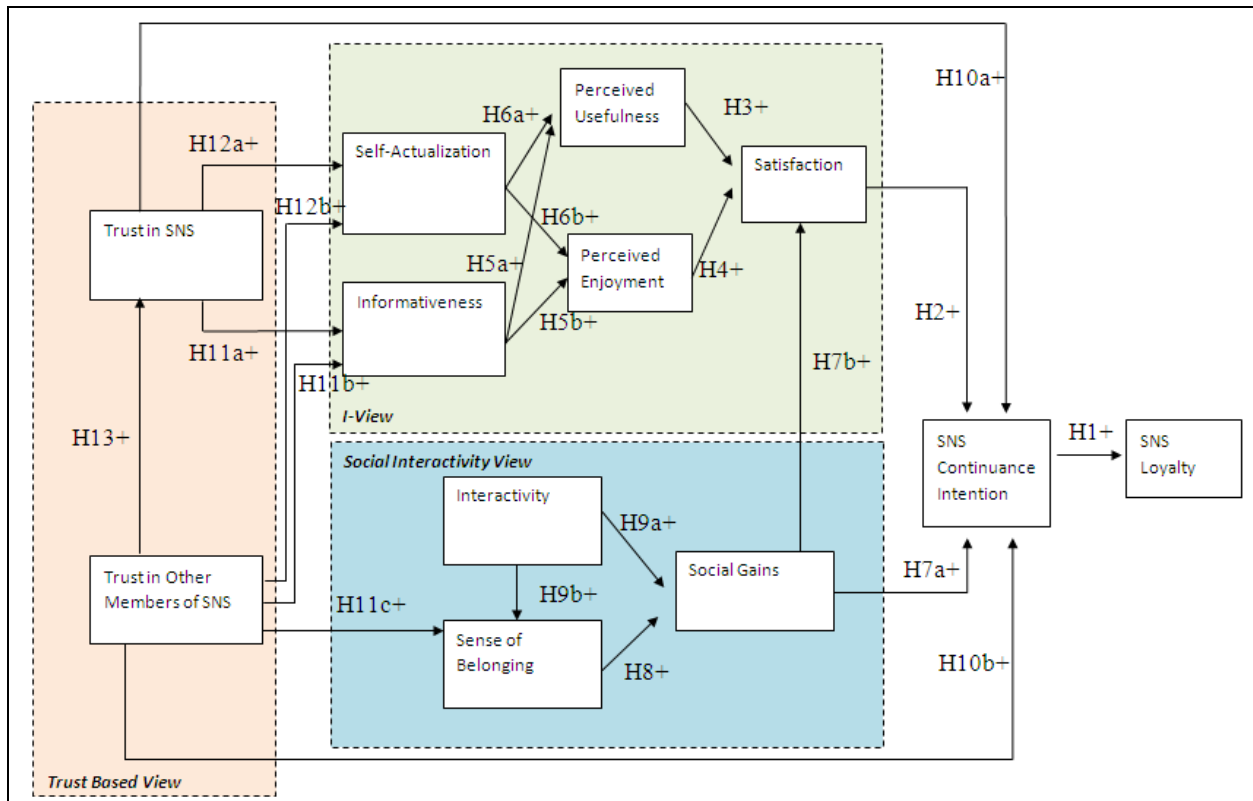


Figure 1. Proposed research model.

In the new research model, I suggest to study the user's SNS continuance intention from two levels: At the research domain level, I introduce three new views, including the I-view, the social interactivity view, and the trust based view, to study the user's SNS continuance intention.

As discussed below, the three views are respectively extensions of the original IS continuance model, the game theory based social capital studies, and online trust studies. Although multiple previous studies use factors from each of the view interchangeably, I suggest the three views have different focuses on the effects of influential factors on the user's SNS continuance intention. The previous literature did not clearly compare the difference among the different theories. Thus, it is important for us to further understand the emphasis of each theoretical domain so that we can continue adding appropriate new construct into each view in the future study. At the construct level, I introduce ten independent factors to study their influence on the user's SNS continuance intention.

### 3.2 I-View Social Interactivity View and Trust Based View

The I-view is an extension of the original IS continuance model. The "I" in the "I-view" represents information. As the name implies, I will focus on the effects of a user's perception of informational factors on the user's SNS continuance intention in the I-view domain. As same as the original IS continuance model, I primarily treat a social network site as a traditional system with its major function to facilitate users to access to the expected information resources. In such a research context, a user will form the perception (e.g., usefulness, enjoyment) toward the information factors and the perception (e.g., ease of use) toward system factors according to his or her experience in the system (Moon and Kim, 2001; van der Heijden, 2004; Venkatesh et al., 2003, 2008). The objective level perception will then positively influence the user's subjective level perception such as the user's attitude toward the information system, satisfaction in the information system, and consequently determine the user's intention and behavior in the system (Battacherejee, 2001; DeLone and McLean, 2003; Wixom and Todd, 2005). As shown in the

conceptual path (the user's objective perception → subjective perception → intention → behavior), the user's perception are strongly influenced by IT artifacts from the information perspective (e.g., if the information is resourceful) and the system perspective (e.g., if the use of a Web site is free of effort). However, in the current study (i.e., the user's post-adoptive stage of SNS), I suggest that the user's objective perception (i.e., ease of use) toward system should not be considered as major factors of the user's SNS continuance intention for two reasons: First, it is valid to argue that a user will stop using an SNS, if the user believes that it takes lots of efforts to use the system in the pre-adoptive stage. Thus, if a user has adopted an SNS, the efforts of using the system should not be a barrier to the user's intention and behavior. Secondly, it is contradictory to logic if a user has consented an SNS is easy to use in the pre-adoptive stage, but starts feeling the system is difficult to use in the post-adoptive stage. Thus, I suggest the user's perceived ease of use of system should be consistent in both the pre-adoptive and the post-adoptive stage. When the user's estimation regarding the system factors becomes a routine, the focus of the user's perception about the SNS will shift from evaluations of system factors to evaluations of informational factors only. Thus, I believe that the user's perception of informational factors is playing an exclusively influential role in determining the user's SNS continuance intention, when the user regards the Web site as a system that assist him or her in finding the expected information.

Furthermore, the I-view consists of two streams of studies. The first stream is the IS continuance model (Battacherejee, 2001; Kim, 2011). According to the model, a user's perception of the informational factor (i.e., perceived usefulness) has strong positive effects on the user's satisfaction in the system and the user's system continuance intention. The model implies that useful information is a critical cohesive factor that connects the user and the system.

In addition, the model finds that the user's confirmation has positive effects on the user's perceived usefulness. In the newly introduced I-view domain, I further separate the construct, confirmation, into the user's perceived informativeness and the user's self-actualization. Both of the two new constructs (i.e., informativeness and self-actualization) are the user's confirmation of informational factors on an SNS in the post-adoptive stage. Informativeness, as discussed below, will focus on the effects of the user's confirmation of information seeking on the user's perception and intention on an SNS. Self-actualization, on the other hand, will focus on the effects of the user's confirmation of the expected online image on the user's perception and intention on the Web site.

The second stream consisting of the I-view is hedonic use theories. According to the studies in the relevant field (Han and Windsor, 2011; Moon and Kim, 2001; van Der Heijden, 2004), when a user is able to achieve the expectation of using a system, the user could also perceive enjoyment during the system usage experience. The hedonic factor (i.e., a user's perceived enjoyment) can strongly influence the user's attitude, especially in applications of Web 2.0 systems such as virtual communities, social network sites, etc. Thus, I also adopt the user's perceived enjoyment into the I-view and investigate its effect on the user's satisfaction in the SNS. In addition, I will investigate the effects of a user's self-actualization and his or her perceived informativeness of the Web site on the user's perceived enjoyment in the I-view.

The social interactivity view is an extension of social capital studies built on the game theories (Beer, 2008; Easley and Kleinberg, 2010). From the social interactivity perspective, I primarily focus on the effects of online interpersonal information exchange behaviors on a user's sense of belonging to the virtual network and his or her perceived social gains. Consequently, I will test the effects of the user's social gains on the user's satisfaction in the Web site and his or



her SNS continuance intention. Although information is the fundamental artifacts in both the I-view and the social interactivity view, the two lenses of research have a significant difference in research focus: In the I-view domain, the user's perception of informational factors such as perceived usefulness and perceived enjoyment are critical factors that could determine the user's SNS continuance intention. By contrast, from the social interactivity view, I plan to investigate how a focal user perceives other members' behaviors reflected from information sharing activities, and how the focal user's interpretations of other SNS members' behaviors and intention influence the focal user's SNS continuance intention.

The newly introduced the social interactivity view could make a great contribution to the SNS research for two critical reasons:

(1) Using the social interactivity view, I not only treat an SNS as a Web site of information, but also treat the SNS as a Web site of people. Several previous studies (Kwon and Wen, 2010; Lin and Lu, 2011) find that a user's perceived usefulness and perceived enjoyment both have positive effects on the user's behavioral intention. However, the authors (Kwon and Wen, 2010; Lin and Lu, 2011) did not get rid of the limitation of the narrow perspective of the original IS continuance model, and only regarded an SNS as a traditional information system. The research perspective did not fully take the nature of an SNS as social media into account. The purpose of social media is to create a virtual platform in order for people to perform social activities. Using the social interactivity view, I regard information being exchanged on the Web site as the "vehicle" of people's behaviors. Although a user is unable to interpret other user's intention on a face-to-face communication basis on an SNS, the user can still create his or her perception of how other social contacts are willing to participate in the social activities with him or her according to other social contacts' information exchange behaviors. As Ender et al. (2008)

find, an SNS user intends to believe the social contacts with whom he or she has frequent information exchanges are his or her “real friends” on social media. The finding implies that a user will determine his or her willingness to stay in touch with others not only by estimating whether he or she can find the expected information, but also by perceiving other social contacts’ behavior reflected from the information exchange process. Moreover, the user’s perception toward social contacts on an SNS has a projection effect on the Web site. When a user has a positive perception toward his or her social contacts on the Web site, the user is more likely to spend more time and effort on using the Web site, and vice versa.

(2) Using the social interactivity view, I will study how the process factors (e.g., interactivity) influence the user’s perceived social gains, thereby influencing the user’s SNS continuance intention. Multiple studies (Ellison et al., 2007; Mehdizadeh, 2010) argue that bridging social capitals and bonding social capitals are two critical motivational factors of the SNS user’s behavioral intention. However, the limitation of these findings is that they only emphasize on the effects of *outcomes* (i.e., bridging social capitals and bonding social capitals) of using SNS on the user’s intention and behaviors, but neglect the fact that the online interpersonal information exchange activity is also a *process* in which how the information is presented or shared could also influence a focal user’s perceived social capitals. In the social interactivity view domain, I will investigate how a user’s perceived interactivity influences the user’s sense of belonging, perceived social gains, thereby influencing the user’s SNS continuance intention and the user’s satisfaction in the Web site.

In the trust based view domain, I plan to investigate the effects of the user’s trust in social network site and the user’s trust in other members on the user’s SNS continuance intention. Moreover, their effects on the user’s self-actualization, informativeness, and the user’s perceived

sense of belonging will also be validated. The trust based view is different from the I-view and social interactivity view in the following manner: An SNS user could determine his or her intention according to the perception of factors that has occurred to him or her during the human-computer or human-human interaction process in the I-view domain and the social interactivity domain. By contrast, the user's intention is strongly influenced by the user's subjective estimation in the trust based view domain. In other words, a user determines whether to stay using an SNS not by the fact that he or she experienced, but by his or her general knowledge based on what he or she saw or heard. For instance, an SNS user may have never experienced an information privacy leakage issue on the Web site, but he or she will use his or her own knowledge to estimate how the Web site performs to protect its member's information safety, thereby determining whether to continue using the SNS. A user may have not communicated with every contact in his or her SNS contact list. However, the user could estimate whether the social group are genuine according to his or her subjective perception based on the general view of other members on the Web site. Thus, I suggest that the user's trust factors could strongly influence their behavioral intention.

### 3.3 SNS Continuance Intention and SNS Loyalty

Extending Bhattacharjee's research (2001), SNS continuance intention is defined as the degree to which a user is willing to continue using a SNS after the user's initial acceptance of the Web service. SNS loyalty is defined as the degree to which a person commits himself or herself to a social network site versus his or her willingness to accept an alternative SNS (Han et al., 2008). The positive effect of a person's intention on the person's actual behavior has been studied by multiple studies. For instance, Ajzen and Fishbein (1981) find that a person's

intention is frequently the predictor of the user's actual behavior. In the IS research, several studies has also shown that a person's intention to use a system could significantly increase the chance for the person to actually use the system (Kim et al., 2008). However, as several literature suggests (Han et al., 2008; Johnson et al., 2006), simply studying the effect of a person's continuance intention on the person's actual behavior is not sufficient, because the person could only have a temporal behavior, and then changes to other options. For instance, a person's continuance intention could still drive the person to use a social network site. However, if a person does not have sufficient loyalty to the SNS, his or her usage of the Web site will decrease over time, and finally lead to the person's abandonment of the Web site. Therefore, it is very important to validate if the user's continuance intention could positively influence the user's SNS loyalty, thereby finding whether the continuance intention could be a cohesive factor that strongly keeps users on the SNS, especially in nowadays when more and more new SNSs emerge and lead users' confusion of which SNS they should keep for a long run.

Extending previous studies (Dick and Basu, 1994), a user's SNS loyalty consists of two sub-dimensions, including a user's cognitive loyalty and a user's affective loyalty. A user's cognitive loyalty is defined as the SNS user's psychological preference for using the Web site which consists of positive beliefs and thoughts about continually using the Web site, and user's affective loyalty is defined as the SNS user's psychological preference for using the Web site which consists of positive feelings about and affective attachment to continually using the Web site (Härtel and Russell-Bennett, 2010). Both sub-dimensions of a user's SNS loyalty require a user's long term commitment to a social network site, and one important prerequisite of building this commitment is that the user is willing to continue using the Web site, because when a user invests more time and effort in using an SNS, he or she is more likely to recognize the potential

benefits from the Web system. The learning process of an SNS therefore could create the cognitive and affective loyalty to the Web site. In the current study, I introduce the following hypothesis:

H1: A user's SNS continuance intention has a significant positive effect on the user's SNS loyalty.

### 3.4 Satisfaction

Satisfaction is defined as the user's fulfillment response, which is an overall evaluation of a product or service (Kim, 2011). Satisfaction has long been recognized as a determinant factor in the person's attitude and behavioral intention toward IT service. Previous studies find the construct could not only lock a user in an IT system or service, but also has a ripple effect on the user's intention to invest more resources (such as spending more time and monetary resources) in the system or for the service. For instance, Deng et al. (2010) find that a user's satisfaction has a significant positive effect on the user's continuance of mobile services. Kuo et al. (2009) argue that the user's satisfaction resulted from feature mobile service (e.g., telephone, texting) could significantly increase the likelihood for the user to spend more money on purchasing other value-added service (i.e., ringtones) offered by the same service provider. In an online gaming system, Yee (2006) finds that a player's satisfaction could motivate the player to stick to the game. Additionally, the player who is satisfied with the experience in the free gaming stage is more likely to spend money on the in-game items. Beaudry and Pinsonneault (2010) find that a user's satisfaction will not only positively influence the user's intention to continue using a system for work and his or her intention to spend more time to learn the features of the system, but also motivate the user to share the satisfying experience with other social contacts (e.g., colleagues, close friends, family members, etc.), and create a positive prediction of future outcomes if

additional investment in the system is needed. Since providing social networking service is a fundamental purpose of an SNS, I suggest that the user's positive overall evaluation of the online service is an influential factor to the user's continuance intention on the Web site. Extending the findings discussed above, I introduce the following hypothesis:

H2: A user's satisfaction has a significant positive effect on the user's SNS continuance intention.

### 3.5 Perceived Usefulness

Extending Limayem et al.'s research (2007), perceived usefulness is defined as the degree to which a person believes that he or she can get benefits from using a social network site in the current research. Perceived usefulness is an important factor that strongly influences a user's attitude, intention, and actual behaviors before and after accepting a system (Venkatesh et al., 2003, 2008). In the pre-adoptive stage of a system, a user's perceived usefulness could significantly influence the user's positive attitude toward the system, thereby positively influencing the user's intention to adopt the system. The positive effect has also been validated in the user's SNS adoption intention research (Kwon and Wen, 2010; Sledgianowski and Kulviwat, 2009). In the post-adoptive stage, Lin and Lu (2011) suggest that an SNS user cares about two usefulness of the Web service: (1) whether the Web site could facilitate him or her to broaden his or her social network boundary; (2) whether the Web site could help him or her to maintain the current social network through Internet. When the user receives the positive results of the two benchmarks of the usefulness, the user is more likely to have an positive overall evaluation of the Web service provided by an SNS. In the current study, I introduce the following hypothesis:

H3: A user's perceived usefulness has a significant positive effect on the user's satisfaction of an SNS.

### 3.6 Perceived Enjoyment

Extending van der Heijden's research (2004), perceived enjoyment is defined as the degree to which a user believes that using an SNS can bring him or her pleasure. In fact, the user's perceived enjoyment, as one of the most important intrinsic factor, plays an important role in determining the user's behavioral intention on an SNS. Dickinger et al. (2008) argue that social network sites, which are different from other types of information systems (e.g., e-office information systems, e-commerce Web sites, e-government information systems, etc.), frequently do not directly generate instrumental outcomes such as improved job performance or productivity to users. For a major purpose, a user adopts and continues using an SNS in order to achieve the intrinsic needs such as seeking an enjoyable experience by receiving and sharing information with peers, and thereby obtaining a positive mental state by using the Web service. Therefore, the following hypothesis is introduced in the current research:

H4: A user's perceived enjoyment has a significant positive effect on the user's satisfaction of an SNS.

### 3.7 Informativeness

Informativeness is defined as the degree to which a person perceives that he or she can find resourceful and useful information on a social network site. The construct, informativeness, was first proposed by Pavlou et al. (2007) in the e-commerce research context. According to the author (Pavlou et al., 2007), before a person makes the purchase decision on an e-commerce Web site, one important pre-decision step for the person is to find sufficient information in order to support the decision. When the person perceives that the Web site can provide information as or beyond he or she expected, the person is more likely to believe that the Web site is useful. As

several other studies suggest, the relationship between informativeness and the user's perceived usefulness of the Web site could also exist on an SNS research context. Extending the information adoption model (Sussman and Siegal, 2003), Jin et al. (2009) argue that a user's subjective comparison between the user's expectation of information and the actual outcomes of information provided by a computer-mediated SNS has a significantly positive effect on the user's perceived usefulness of the SNS. The perceived usefulness of the SNS thereby positively increases the likelihood of the user's intention to continue using the SNS. Shi et al. (2010) suggest that, besides actively sending and sharing information with others, an SNS user has a strong expectation of receiving the information that he or she is looking for. These expected information consists of a variety of topics such as the online contacts' updates, interesting news, special topics, fashion trends, etc. When the user perceives that an SNS can facilitate him or her to find the expected information, the user is inclined to believe that the social network site system is useful to him or her. In addition, when a user is able to obtain new information and knowledge, maintain his or her social connections, and extend his or her social network by using an SNS, the user is likely to perceive an enjoyable experience on the Web site as well. Thus, According to the discussion above, I introduce the following hypothesis:

H5: Informativeness has a significant positive effect on (a) the user's perceived usefulness of an SNS and (b) the user's perceived enjoyment on an SNS.

### 3.8 Self-Actualization

In the current study, a user's self-actualization is defined as the degree to which a person believes that he or she has achieved his or her expected online image on a social network site. As discussed above, a user plays dual roles on an SNS: On one hand, an SNS user expects to obtain useful information and enjoyable experience on the Web site. On the other hand, the user is also



an active information contributor and deliverer to his or her online social group on an SNS (Barnes and Böhriner, 2011). The user's motivation of sharing information with other strongly interests academics to study the user's particular online behaviors from various lenses. Extending the taste performance theory, Parks (2011) suggests that the reason a user is willing to share information with other members of an SNS is that the user has a strong need to conduct online self-presentation activities in order to create his or her expected social identity in the virtual social group by presenting the information that cues the identity. However, previous studies (Boyd, 2007; Mehdizadeh, 2008; Zhao et al., 2008) suggest that creating a social identity in a virtual social group is not necessary for an individual, because the online social group is either a complement of the individual's offline social group or a loosely connected social group with more freedom to join and quit. The individual does not have to create another social identity in such a virtual network besides his or her offline social identity. By contrast, these studies (Boyd, 2007; Mehdizadeh, 2008; Zhao et al., 2008) suggest that the user's information sharing behaviors is actually a self-actualization process. The fundamental motivation for a user to send information to others on a social network site is that the user has a strong need to achieve his or her "hoped-for possible self". The self-concept is a sub-dimension of an individual's "possible self", which is defined as the individual's expected persona or image. Social network sites provide a novel way for users to achieve the expected personal goal. Different from an offline context, social network sites allows users to present their partial characteristics by selecting the information that could represent these features, while hiding the attributes that the users are unwilling to present. When a user believes that he or she achieved the expected persona by showing information to the virtual social group on an SNS, the user is incline to believe that the Web site is useful and enjoyable, thereby having higher intention to continue using the Web site.

Ellison et al. (2007) find that an individual could perceive different personal image on a dating social network site and an offline environment. Dating social network site user is willing to continue using the Web site because they believe the Web site helps them to create a satisfying online image, which are more attractive to others. Boyd (2007) argues that one critical reason that motivates teenagers to be early adopters and loyal users of SNSs is that they believe social network sites such as MySpace and Facebook provide the possibility for them to achieve the “cool” image that they expected. The self-actualization is useful because teenage users could achieve several goals by having the “cool” image, such as higher degrees of acceptance from his or her offline social network. The self-actualization is enjoyable as well because the teenage users could have a pleasant mental state when they believe they have created the “cool” image. Thus, I suggest a user’s self-actualization could strongly influence the user’s evaluation of a social network site system. In the current study, I introduce the following hypotheses:

H6: A user’s self-actualization has significant positive effects on (a) the user’s perceived usefulness of an SNS, and on (b) the user perceived enjoyment on the SNS.

### 3.9 Social Gains

Extending previous social capital research (Ellison et al., 2007; Easley and Kleinberg, 2010; Lampe et al., 2006; Ryan, 2010), I define social gains as the degree to which a person measures the perceived benefits by extending and maintaining social connections with others on a social network site. Although social gains could be obtained by a person through various perspectives, previous studies suggest that they can be measured from two aspects, including new knowledge gains (i.e., the informative gains) (Lampe et al., 2006) and perceived social support (i.e., the emotional gains) (Ryan, 2010). Both types of social gains have been found to have strong cohesive effects on a person to continue using an SNS. New knowledge gains refer

to the user's access to the useful information through SNS. Lampe et al. (2006) argue that an SNS is similar to an online pool where the vehicles (i.e., individual users) with new knowledge meet and share the knowledge with each other. In addition, the coverage of the new knowledge on the Internet is frequently broader than the user's expectation. When a user receives the new knowledge, although the information might not be used immediately after being received, the user is inclined to believe that the knowledge could be used as a useful resource in the future (Lampe et al., 2006). The more new knowledge a user obtains from SNS, the more likely it is for the user to continue using the Web site.

Perceived social support is another type of social gains which is considered having the most cohesive effect on a person's intention to stay in a social network (Ryan, 2010). Social support is defined as interpersonal transactions that include affect, affirmation, and/or aid. Ryan (2010) argues that although the perceived social support could not directly bring visible instrumental values to a person, the perceived emotional support has a strong positive effect on a SNS user's reliance on the virtual social network, especially when the person is in a stressful or depressed mental state. In the current study, I introduce the following hypotheses:

H7a: A user's social gains have a significant positive effect on (a) the user's SNS continuance intention and (b) the user's satisfaction with the Web site.

### 3.10 Sense of Belonging

Sense of belonging is defined as the degree to which a person perceives the acceptance of him or her by the virtual social group. I suggest that sense of belonging focuses on a person's perception of emotional reliance on the virtual social network. Gangadharbatla (2010) argues that a person's sense of belonging to a social network is the person's fundamental need, both in offline social networks and in virtual social networks. In an offline social network, the cohesive

effect of a person's belongingness on the person's social connection continuance with others is strong, because the social network is frequently consisted of friends or family members. Feeling belonging to the social network could have a person feel that he or she is supported by the contacts in the social network, thereby having more intention to stay connected with the contacts. In a virtual social network, although a person's social group could include a large number of newly created friendship, when the person perceives the strong belongingness to the virtual social network, the person could also perceive that the virtual network could be used as a potential resource in the future. Thus, I suggest that:

H8: Sense of belonging has a significant positive effect on an SNS user's social gains.

### 3.11 Interactivity

Although bridging social capital and bonding social capital are two critical factors of the user's adoption of SNSs, multiple studies have found that, in the user's post-adoptive stage of an SNS, the effects of these two factors on the user's continuous use of the Web service appear ambiguous. In a study over 7 week period, Parks (2011) finds that almost half of the new users stop using MySpace when they found few members communicate on the Web site. Miyata and Kobayashi (2008) argue that bridging social capital and bonding social capital are two motivational factors that attract a person to adopt a SNS. However, once the person has adopted the Web service, his or her intention to continue using the SNS is highly associated with the person's perception of being interactive with the online social groups, no matter these groups are consisted of the person's strong-tie or weak-tie contacts. Therefore, a person's interactivity in a computer mediated social network is a factor that could influence the person's behavioral intention.

Interactivity has been studied through various lenses of research. Wu and Chang (2005) argue that interactivity consists of two sub dimensions, including the machine-interactivity and person-interactivity. In the current study, I focus on the person-interactivity, and define the construct as the degree to which a person perceives he or she and other members on a social network site respond to each other's communication need. Wang and Fesenmaier (2002) argue that, in an online social community, a person's interactivity with social contacts can be measured by how much information the person perceives that the community members share with each other, how frequent the information is shared with each other, and the time interval of responses. The authors (Wang and Fesenmaier, 2002) separated an online community into the low-interactive network and the high-interactive network. A low-interactive network could be formed for two reasons: First, users simply get information without contributing any information or contributing very little information. Secondly, the frequency of the member's usage of the online network is relatively low, thereby leading to the member's low expectation of future informative gains and having a strong psychological distancing with the online community. By contrast, in a high-interactive network, the member's usage frequency and volume of information sharing cohesively attach each members with the online community, no matter they have known each other or not. I introduce the following hypothesis:

H9a: Higher interactivity has a significant positive effect on the user's social gains.

Baumeister and Leary (1995) argue that, to create to a sense of belonging, a person must form and maintain certain degree of lasting, positive, and significant interpersonal relationships with others in a social network. Thus, I suggest that

H9b: Higher interactivity has a significant positive effect on a SNS user's sense of belonging to the virtual social network.

### 3.12 Trust

The user's trust in SNS is defined as the degree to which a person believes the SNS is capable of keeping the information that user shared and received accurate, reliable, and secure (Han and Windsor 2011). The user's trust in other members of SNS is defined as the degree to which a person believes that general members on a social network site are genuine (e.g., real SNS users, not spammers, etc.) and honest (e.g., share real information with others) (Han and Windsor 2011).

The effects of the user's trust factors on the user's SNS continuance intention can be studied from direct influence and indirect influence. The user's trust on an SNS could directly influence the user's SNS continuance intention because although the user has accepted an SNS, he or she is still uncertain about the virtual environment when the user shares more privacy information and when the user starts adding more strangers into his or her social cycles. Therefore, a user's behavioral intention could be strongly influenced by the user's subjective belief of whether or not the SNS could provide an effective mechanism to keep the information that the user receives and shares accurate, reliable, and secure, whether or not the SNS user population is trustworthy. In the current study, I introduce the following hypotheses:

H10: A user's (a) trust in SNS and (b) trust in other members have significant positive effects on the user's SNS continuance intention.

Another reason why a user's trust is important for the user's SNS continuance is because the user's trust could indirectly influence the user's behavioral intention by influencing the user's other perceptions. Jin et al. (2009) argue that the source credibility is critical for a user to estimate the Web service quality in a computer-mediated SNS, because when a user believes that the information received is genuine, the user could have more positive perception toward the information quality, thereby influencing the user's perceived usefulness of an SNS and

increasing his or her likelihood of continuing using the SNS. Source credibility refers to the extent to which a person trusts the information provider in a system. On an SNS, the source credibility results from the user's trust in the SNS and the user's trust in other members of the SNS. When the user believes that the information that they receives is genuine, they are more likely to believe that the SNS could provide quality information to users. Thus,

H11: A user's (a) trust in SNS and (b) trust in other members have significant positive effects on the user's perceived informativeness of the SNS.

The user's trust factor could also influence the user's self-actualization process, because the environmental feedback, especially the other member's feedback is an important component to the user's confirmation of his or her expected persona (Boyd, 2007; Mehdizadeh, 2010). When the user trusts the SNS and other members on the Web site, the user is inclined to believe that the feedback is genuine, thereby having higher degree of confirmation of the online image that he or she presented on the Web site. Thus, I suggest that:

H12: A user's (a) trust in SNS and (b) trust in other members have significant positive effects on the user's self-actualization.

According to the trust transference perspective (Lim et al., 2006), when an unknown party is endorsed by an well known party, the third party's trust toward the well known party could positively influence the third party's trust toward the unknown party. The perspective has been widely applied to explain a person's online behaviors in several research contexts. For instance, Lim et al. (2006) argue that when a customer is unsure about the seller's identity in a consumer to consumer e-transaction, the customer is more likely to choose the seller affiliated with a well known Web site such as eBay.com, because the customer's trust in eBay could transfer to the trust in the unknown seller. In an SNS research context, previous study also finds that, a user's trust in the SNS could have a positive effect on the user's trust in other members

(Han and Windsor, 2011). I suggest that the previous trust transference perspective should be applied to certain research context, that is, the pre-adoptive stage of a SNS. In the post-adoptive stage, I suggest the SNS user's trust could also be transferred, but the direction is from the trust in SNS contact to the trust in SNS for two reasons: First, when a user perceives that the other members on an SNS are trustworthy, the user is inclined to believe that the Web site has an effective mechanism to identify the genuine users and protect the user's privacy information from being accessed by unauthorized users. Secondly, when a user trusts in other members of an SNS, the user is inclined to believe the credibility of the Web site has been validated by the group, thereby having a trust perception toward the Web site as well. I introduce the following hypothesis:

H13: A user's trust in other members of a SNS has a significant positive effect on the user's trust in the SNS.



## CHAPTER 4

### METHODOLOGY

A survey based methodology was adopted to collect data for hypothesis testing in the current study. The subjects were recruited from two sources, including the major students sample from a U.S. university and a minor sample from the author's personal social contacts in his social media and email accounts. College students are appropriate subjects to this study, because they are not only the primary users of SNS, but also are current major population of several popular SNS in the U.S. I also solicited responses from personal social contacts through social network sites and emails, in order to reflect the fact that SNS user group becomes more diversified in practice.

The subject recruitment consists of two stages: First, I sent invitation messages to 85 doctoral students in a U.S. university, and sent 115 emails to in my personal email contact list to ask their participation in the survey. A total of 83 responses were collected. The purpose of the pilot study is to test the face validity and content validity of the survey instrument. A revision was followed up after the first stage test. The responses in the pilot were excluded from the final data analyses.

Second, I got permissions from 10 instructors who were teaching undergraduate classes in the same university. The instructors informed students about the online survey through Blackboard postings, emails, and in-class announcements. At this time, a total of 531 students were enrolled in these classes. Students could get extra credit after completing the survey. During the same time, I also posted the link of the survey in my Facebook account. At this time, I had 153 Facebook "friends" in that account. In the email list, the contacts were my friends, family members, and social contacts that I knew from previous works and schools. In the

Facebook account, the contacts were social contacts I knew from the current works and schools. Thus, the two groups of samples did not have overlap. 500 complete and valid responses were received during the formal survey stage, resulting a 73.1% response rate. The subject's demographic information is listed in Table 1. As Table 1 shows, the major group of the subjects aged from 18 to 28 years old, which formed a representative sample of current SNS users (Shi et al., 2010). However, the convenience sampling methodology could bring limitation to the current study. I will further discuss the limitation in the last section.

Table 1

*The Subject's Background Information*

Item	Category	Frequency	Percentage
Gender	Male	249	49.8%
	Female	251	50.2%
Current Education Level	Freshman	31	6.2%
	Sophomore	103	20.6%
	Junior	170	34.0%
	Senior	136	27.2%
	Graduate	60	12.0%
Age	33 and above	52	10.4%
	28-33	77	15.4%
	23-28	134	26.8%
	18-23	237	47.4%
Years of Using SNSs	More than 4	239	47.8%
	3-4	74	14.8%
	2-3	93	18.6%
	1-2	74	14.8%
	Less than 1	20	4.0%
Average Time Spent on SNSs Daily	More than 2 hours	72	14.4%
	1-2 hours	130	26.0%
	30 minutes -1 hour	149	29.8%
	Less than 1 hour	149	29.8%
Number of SNS contacts	More than 1000	51	10.2%
	500-1000	141	28.2%
	100-500	230	46.0%
	Less than 100	78	15.6%

All of the questionnaire items were rated on a Likert scale of 1 = *strongly agree* to 7 = *strongly disagree*. The questionnaire items used for data analysis are listed in Table 2. I will further discuss the process of the questionnaire design in section 5.1.

Table 2

*List of Questionnaire Items by Constructs*

Questionnaire Items	Factor Loading
<b>User's SNS Continuance Intention (CON)</b>	
Adapted from Bhattacharjee (2001)	
CON01: I intend to continue using the social network site rather than discontinue its use.	0.958
CON02: I will keep using the social network site in the future.	0.956
CON03: I have a strong intention to continue using the social network site.	0.930
<i>Variance Explained: 0.091</i>	
<b>Satisfaction (SAT)</b>	
Adapted from Bhattacharjee (2001)	
How do you feel about your overall experience on the social network site:	
SAT 01: Very satisfied/ Very dissatisfied.	0.915
SAT02: Very pleased/ Very displeased.	0.942
SAT 03: Very contented/ Very frustrated.	0.933
SAT 04: Absolutely delighted/Absolutely terrible.	0.891
<i>Variance Explained:0.086</i>	
<b>Perceived Enjoyment (PE)</b>	
Adapted from van der Heijden (2004)	
PE 01: The social network site is interesting to me.	0.935
PE 02: Using the social network site is enjoyable.	0.935
PE 03: I have a lot of fun on the social network site.	0.934
PE 04: Using the social network site brings me a pleasant experience.	0.760
<i>Variance Explained:0.077</i>	
<b>Perceived Usefulness (PU)</b>	
Adapted from Limayem et al. (2007)	
PU01: Using the social network site is of benefit to me.	0.870
PU02: Using the social network site is advantageous.	0.898
PU03: The advantage of using the social network site outweighs the disadvantage.	0.911
PU04: The social network site is useful to me.	0.723
<i>Variance Explained:0.076</i>	

*(table continues)*

Table 2 (continued).

Questionnaire Items	Factor Loading
<b>Informativeness (INFO)</b>	
Adapted from Shi et al. (2010)	
INFO 03: I am able to find interesting topics on the social network site.	0.896
INFO 04: I am able to check my family members' status updates on the social network site.	0.845
INFO 05: I am able to follow popular topics in the society on the social network site.	0.803
<i>Variance Explained:0.076</i>	
<b>Self-Actualization (SELF)</b>	
New Item	
SELF 01: I believe I have created an amiable online image on the social network site according to people's feedback.	0.894
SELF 02: I believe people have a positive impression on my online image created on the social network site.	0.891
SELF 03: I receive more positive feedback from other people on the social network site than in my offline social network.	0.972
SELF 04: People like the online image that I intend to create on the social network site.	0.912
<i>Variance Explained:0.071</i>	
<b>Interactivity (INTA)</b>	
Adapted from Wu and Chang (2005)	
INTA 01: Other people and I frequently share information on this social network site.	0.917
INTA 02: Other people and I rapidly respond to each other's status update on this social network site.	0.914
INTA 03: Other people and I share a lot of information on this social network site.	0.914
INTA 04: Other people and I frequently make comments on each other's shared topics on this social network site.	0.847
<i>Variance Explained:0.070</i>	
<b>Sense of Belonging (SBEL)</b>	
Adapted from Koh and Kim (2003)	
SBEL 02: The contacts on this social network site want to keep in touch with me.	0.857
SBEL 03: I am one of critical members in my online social network.	0.836
SBEL 04: I am one of indispensable members in my online social network.	0.875
SBEL 05: I feel that I belong to the virtual community on this social network site.	0.700
<i>Variance Explained:0.062</i>	

(table continues)

Table 2 (continued).

Questionnaire Items	Factor Loading
<b>Social Gains (<i>GAIN</i>)</b>	
Adapted from Lochner et al. (1999)	
GAIN 01: Interactions with other people on the social network site make me feel socially supported.	0.891
GAIN 02: Interactions with other people on the social network site bring me the possibility of getting new knowledge.	0.890
GAIN 03: Interactions with other people on the social network site increase the boundary of my social activities.	0.908
GAIN 04: Interactions with other people on this social network site extends the scope of my knowledge.	0.808
<i>Variance Explained:0.059</i>	
<b>Trust in a Social Network Site (<i>TSNS</i>)</b>	
Adapted from Han and Windsor (2011)	
TSNS 01: I believe the social network site has the safety of my privacy information in mind.	0.808
TSNS 02: The social network site only allows authorized users to access to my information.	0.857
TSNS 03: The social network site keeps the information I received and shared accurate.	0.845
TSNS 04: The social network site keeps the information I received and shared reliable.	0.873
TSNS 05: The social network site is trustworthy.	0.781
<i>Variance Explained:0.051</i>	
<b>Trust in Other Members of a SNS (<i>TMEM</i>)</b>	
Adapted from Han and Windsor (2011)	
TMEM 01: I feel other members of the social network site are generally honest.	0.917
TMEM 02: I feel other members of the social network site are generally reliable.	0.903
TMEM 03: I feel the identities that other members profiled on the social network site are genuine.	0.909
TMEM 04: Overall, other members of the social network site are trustworthy.	0.754
<i>Variance Explained:0.051</i>	
<b>SNS Loyalty (<i>Second Order Factor</i>, Adapted from Han et al., 2008)</b>	
<i>Cognitive Loyalty (CLOY, First Order Factor):</i>	
CLOY 01: I consider this Web site my first choice when I want to create an online social network.	0.887
CLOY 02: I consider this Web site my first choice when I want to create an online personal profile.	0.923
CLOY 03: The service of this social network site is better than others.	0.891
<i>Variance Explained:0.034</i>	

(table continues)

Table 2 (continued).

Questionnaire Items	Factor Loading
<i>Affective Loyalty (ALOY, First Order Factor):</i>	
ALOY 01: I like spending time on this social network site very much.	0.900
ALOY 02: To me, this social network site is the one I enjoy the most.	0.942
ALOY 03: Compared to other social network sites, I prefer this social network site more.	0.909
<i>Variance Explained:0.033</i>	

## CHAPTER 5

### DATA ANALYSES

I used the partial least squares (PLS) modeling methodology to conduct data analyses in the current study. I choose PLS for two critical reasons: First, PLS provides a powerful method for assessing a structural model and measurement model because of the minimal demands on sample size, residual distributions and measurement scales (Goodhue et al., 2006). Secondly, handling both formative and reflective indicators PLS can be used not only for theory confirmation, but also for suggesting where relationships might or might not exist and for suggesting propositions for later testing (Kim et al., 2008). Thus, I suggest that PLS could help me not only achieve the goal of confirming several relationships (e.g., perceived usefulness → satisfaction, etc.) within the theoretical model, but also validate several newly introduced hypotheses (e.g., self-actualization → perceived enjoyment, etc.).

#### 5.1 Content Validity

To ensure the content validity of questionnaire items, I conducted a thorough literature review of the relevant subjects. Subsequently, the questionnaire was proofread by four experienced IS researchers and one researcher from mass media study. The questionnaire was pilot tested by 83 subjects consisting of doctoral students from a broad range of research disciplines such as information systems, marketing, and psychology, and the author's personal contacts with a diversified education, career, and financial background. The pilot test respondents were excluded from the final data analyses.

## 5.2 Confirmatory Factor Analysis

The data analyses of this study include two stages: (1) the confirmatory factor analysis (CFA) in order to test the reliability and validity of constructs; (2) the test of the structural model. The following steps were taken to achieve the two data analysis goals:

Because I adapted questionnaires from previous studies to investigate the user's SNS continuance intention in the new research context, a confirmatory factor analysis is needed to ensure the validity and reliability of the instrument. In the CFA stage, the assessment of the measurement model includes the estimation of internal consistency for reliability and tests of convergent and discriminant validity for construct validity (Chin et al., 1997). Cronbach's  $\alpha$  and Fornell's composite reliability (CR) will be calculated to test the internal consistency. The value of  $\alpha$  that is greater than 0.7 was adopted to ensure the reliability of constructs (Hair et al., 2005). The values of  $\alpha$  and CR listed in Table 3 indicate the sufficient reliability of the constructs.

Table 3

### *Descriptive Statistics and Construct Reliability*

	$\alpha$	CR	AVE
INT	0.944	0.964	0.899
SAT	0.940	0.957	0.848
PE	0.914	0.940	0.800
PU	0.873	0.914	0.729
INFO	0.805	0.885	0.720
SELF	0.927	0.948	0.821
INTA	0.920	0.944	0.807
SBEL	0.833	0.890	0.670
GAIN	0.897	0.929	0.766
TMEM	0.894	0.928	0.763
TSNS	0.890	0.919	0.695
LOY	0.848	0.887	0.620
ALOY	0.905	0.941	0.841
CLOY	0.883	0.928	0.811



The validity test includes convergent validity test and discriminant validity test (Chin et al., 1997). Convergent validity is to evaluate if the related items converge on the appropriate constructs, and discriminant validity is to examine if the constructs can be differentiated from related constructs (Chin et al., 1997). Convergent validity is measured by factor loadings. As Table 2 shows, the coefficients of factor loadings are all greater than 0.7, indicating sufficient convergent validity (Wixom and Watson, 2001). The average variance extracted (AVE) was adopted to evaluate discriminant validity. As Table 5 shows, the square roots of AVE from the construct are higher than the variance shared between the construct and other variable in the model, indicating sufficient discriminant validity.

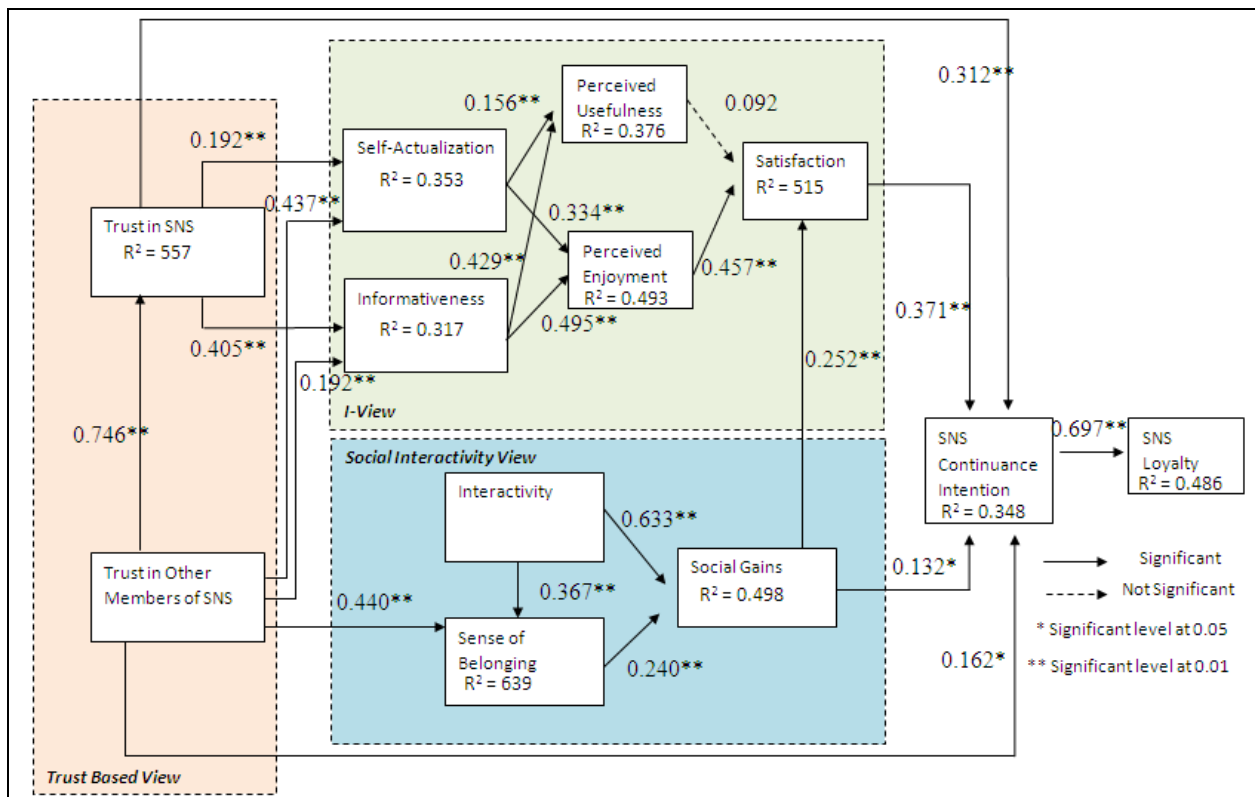


Figure 2. Results of structural model.

Table 4

*Hypothesis Testing*

Hypothesis	Path coefficient	t-test	Significance	Supported?
H1	0.697	26.243	0.01	Yes
H2	0.371	5.644	0.01	Yes
H3	0.092	1.839	N/A	No
H4	0.457	6.053	0.01	Yes
H5a	0.429	8.854	0.01	Yes
H5b	0.495	8.674	0.01	Yes
H6a	0.156	3.482	0.01	Yes
H6b	0.334	7.865	0.01	Yes
H7a	0.132	2.319	0.05	Yes
H7b	0.252	3.979	0.01	Yes
H8	0.24	6.388	0.01	Yes
H9a	0.633	16.78	0.01	Yes
H9b	0.367	8.877	0.01	Yes
H10a	0.312	8.854	0.01	Yes
H10b	0.162	2.545	0.05	Yes
H11a	0.405	6.14	0.01	Yes
H11b	0.192	3.08	0.01	Yes
H11c	0.44	11.684	0.01	Yes
H12a	0.192	3.298	0.01	Yes
H12b	0.437	8.137	0.01	Yes
H13	0.746	29.413	0.01	Yes

Table 5

*Correlations of Latent Variables*

	CON	INFO	LOY	PE	PU	SAT	SELF	GAIN	TMEM	TSNS	INAC	SBEL
CON	<b>0.948</b>											
INFO	0.561	<b>0.849</b>										
LOY	0.697	0.650	<b>0.787</b>									
PE	0.689	0.658	0.748	<b>0.894</b>								
PU	0.594	0.603	0.671	0.634	<b>0.854</b>							
SAT	0.535	0.549	0.597	0.678	0.557	<b>0.921</b>						
SELF	0.392	0.687	0.550	0.629	0.497	0.533	<b>0.906</b>					
GAIN	0.446	0.611	0.683	0.643	0.693	0.610	0.622	<b>0.875</b>				
TMEM	0.357	0.494	0.491	0.597	0.666	0.558	0.580	0.598	<b>0.873</b>			
TSNS	0.476	0.549	0.591	0.601	0.611	0.557	0.518	0.591	0.746	<b>0.834</b>		
INAC	0.503	0.582	0.624	0.609	0.703	0.575	0.523	0.776	0.526	0.560	<b>0.898</b>	
SBEL	0.383	0.537	0.511	0.612	0.500	0.541	0.651	0.618	0.633	0.644	0.598	<b>0.819</b>

### 5.3 Structural Model Analysis

I use path coefficient and  $R^2$  to assess the structural model. Both path coefficient and  $R^2$  indicate model fit, e.g., how well the model is performing (Kim et al. 2008). The results of structural modeling are shown in Figure 2. The  $R^2$  for SNS loyalty, SNS continuance intention, satisfaction, perceived usefulness, perceived enjoyment, self-actualization, informativeness, social gains, sense of belonging, trust in SNS are 0.486, 0.348, 0.515, 0.376, 0.493, 0.353, 0.317, 0.498, 0.639, and 0.557. The hypothesis testing results are listed in Table 4.

### 5.4 Common Method Variance

To test whether common method bias is an issue in data analyses, I first assessed Harman's one-factor test by entering all the principal constructs into a principal components factor analysis (Podsakoff and Organ, 1986). In this analysis, each principal construct explains roughly equal variance (ranging from 5% to 9% as shown in Table 2), indicating no substantial common method bias. In addition, common method bias usually results in extremely high correlations between two constructs (correlation coefficient  $r > 0.90$ ) (Bagozzi et al., 1991). However, as shown in Table 5, the absence of the high correlations also supports that the common method bias does not account for the study's results.

### 5.5 Structural Models for Three Views

As discussed in section 3.1 and 3.2, each theoretical domain has its own key features. To investigate their respective influence on the user's SNS continuance intention, I also tested the following structural models by using PLS.

Figure 3 indicates the results of the I-view structural model. As shown in Figure 3, I find

that all of the hypotheses are supported. Even a user's perceived usefulness of an SNS that has no significant effect on the user's SNS continuance intention in the holistic model has a significant positive effect on the dependent factor.

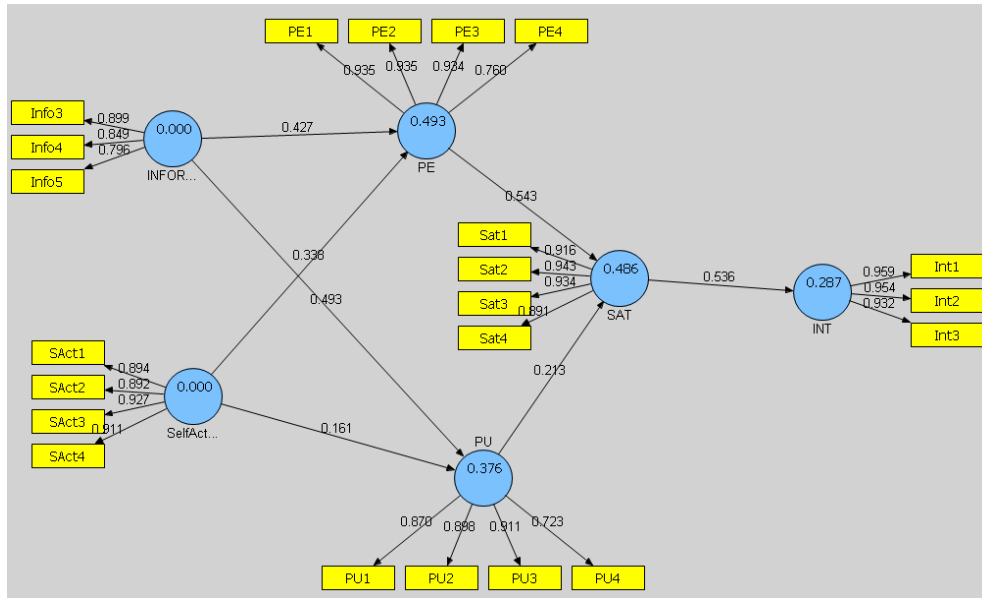


Figure 3. Results of structural model for the I-view.

Figure 4 indicates the results of the social activity view structural model. As shown in Figure 4, I find that all of the hypotheses are supported. The findings further reinforce the importance of a user's perceived interactivity on the cohesion creation between the user and a social network site.

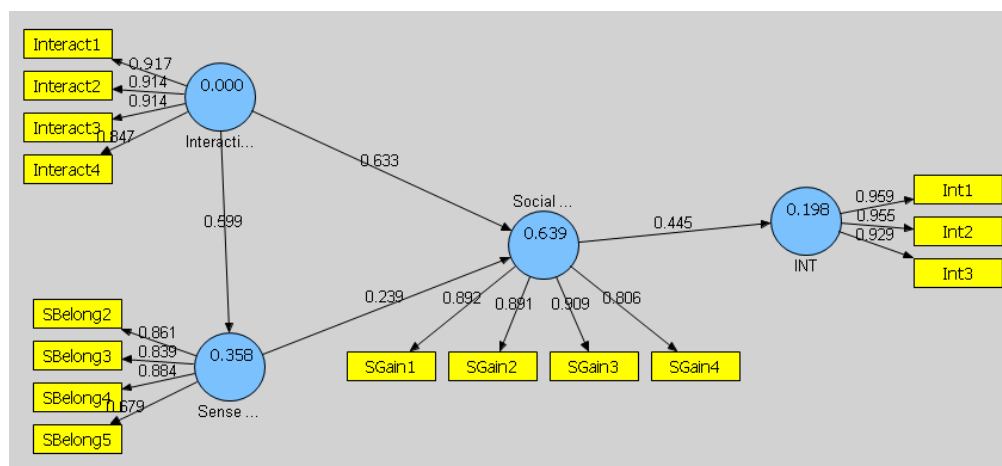


Figure 4. Results of structural model for the social interactivity view.

Figure 5 indicates the results of the trust based view structural model. As shown in Figure 5, the hypothesis H10a and H13 are supported in the current study. However, the hypothesis H10b is not supported in the structural model of the independent trust based view.

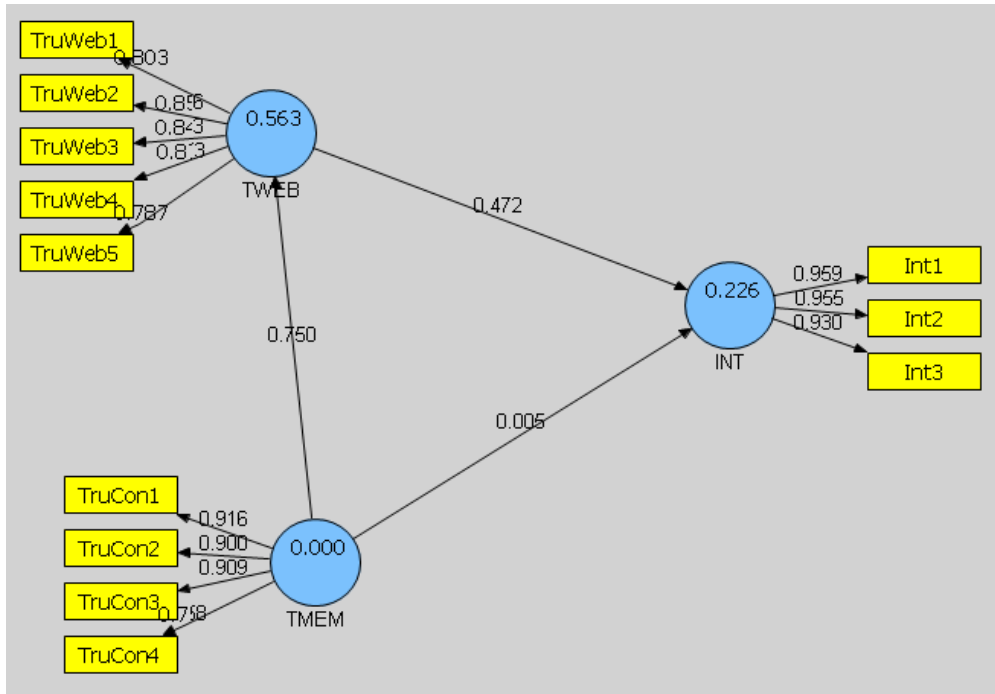


Figure 5. Results of structural model for the trust based view.

## CHAPTER 6

### DISCUSSIONS

The data analysis results indicate the following findings in the current study: (1) A user's SNS continuance intention has a significant positive effect on the user's long term loyalty to the Web site. (2) The user's perceived enjoyment has a significant positive effect on the user's SNS continuance intention, while the user's perceived usefulness has no such effect. I will further discuss the possible implication of this finding. (3) Extending the original IS continuance model, I further introduce the user's self-actualization and informativeness under the umbrella construct confirmation, and find that both of two constructs have significant positive effects on the user's perceived enjoyment and perceive usefulness of an SNS. (4) The effects of social gains on the user's SNS continuance were also observed from data analyses. I find that a user's perceived social gains have significant positive effects on both the user's satisfaction and the user's SNS continuance intention. (5) A user's perceived interactivity with others on an SNS has significant positive effects on both the user's sense of belonging to the virtual network and the user's perceived social gains. (6) As hypothesized, a user's trust plays fundamental roles in determining the user's SNS continuance intention. I find that the user's trust in the social network site has significant positive effects on the user's perceived informativeness of the Web site, the user's self-actualization, and the user's SNS continuance intention. The user's trust in other members of the SNS has significant positive effects on the user's trust in the Web site and the user's sense of belonging to the virtual network as well as the user's perceived informativeness of the Web site, the user's self-actualization, and the user's SNS continuance intention. I suggest that the current research could contribute to IS research and SNS management in the following way:

## 6.1 Contributions to SNS Research

First, the current research model proposes three lenses of research to study the user's SNS continuance intention, including the I-view (i.e., the extended IS continuance model from the human-computer interaction perspective), the social interactivity view (i.e., the extended social capital theory from the human-human interaction perspective), and the trust based view. The research lenses do not only take a broader collection of factors into consideration, but also better reflect the actual context of a user's SNS continuance intention research, in which the user's specific intention could be influenced by their perceptions toward the Web system, other user's behaviors, and the online information exchange environment. In the I-view domain, from the human-computer interaction perspective, the current study suggests that an SNS user plays a critical role in making his or her own decisions according to the performance of the social network site in offering information resources and facilitating information delivery. The user's perception of the informational factors on an SNS consequently influences the user's satisfaction in the Web site, perceived usefulness, perceived enjoyment, and the user's SNS continuance intention. In addition, the current study further introduces two factors under the umbrella term, confirmation, from the user's information seeking perspective (i.e., the user's perceived informativeness of the Web site) and the user's information sharing perspective (i.e., the user's self-actualization through information sharing), and finds the both factors could significantly positive influence the user's perceived usefulness and perceived enjoyment on an SNS. The validation helps IS researchers further understand the working factors of the user's SNS continuance intention.

Interestingly, in the I-view domain, the current study finds that the user's perceived usefulness has no significant positive effect on the user's satisfaction in the SNS. The finding

seems counterintuitive, but reveals that the formation of the user's satisfaction in the SNS web service is influenced by the process factors rather than the goal based factors. Moon and Kim (2001) suggest that a user frequently has a clear measurement of the usefulness of the system, such as reaching certain information seeking goals, job performance improvement, etc. In practice, the user could perceive the usefulness of the system by comparing the outcomes from using the system with their pre-usage expectations (Venkatesh et al., 2008). When the user's perceived performance of the system goes beyond his or her expectation, the user tends to believe that the system is useful, thereby perceiving satisfaction in the system and being willing to continue using the system (Parasuraman et al., 2005). By contrast, the user's perceived enjoyment is not a goal oriented but is measured through the flow or experience that the user perceives during the service process (Moon and Kim, 2001). The user intends to build his or her satisfaction toward the system according to his or her overall experience when using the system (Ha et al., 2007). As the current study finds, even though a user believes that an SNS could assist him or her to achieve the expected goal, the perceived usefulness does not necessarily lead to the user's satisfaction in the Web site. Rather, the user will create the satisfaction with the Web service according to his or her enjoyable experience on the Web site. The new feature in fact proposes a greater challenge to SNS management: Since an SNS user is not goal oriented, but only creates satisfaction according to an enjoyable overall experience, the Web site needs to take every trivial service units into consideration, in order to create a flowing experience for the user and create the user's satisfaction in the SNS, thereby positively influencing the user's continuance intention.

Another possible reason for the non-significant relationship is that the user's social gains, which are the user's perceived informative and emotional benefits from using an SNS, could



outplay the effects of the user's perceived usefulness on the user's satisfaction in the Web site. Although the user's social gains are influenced by his or her interpersonal communication with social contacts, not directly influenced by the factors of a social network site, I suggest that the user's "perceived usefulness" of the *social network* could have a projection effect on the user's satisfaction in the *social network site*. The finding further supports the argument that an SNS is a Web site of people, not only a Web site of information.

Second, extending the social capital studies based on game theory (Easley and Kleinberg, 2010; Marlow et al., 2009), the current research model suggests that we should not only focus on the positive effect of a user's perceived social gains on the user's continuance intention, but also explore the influence of the presentation of the social gains on the user's behavioral intention when the user adopts an SNS to broaden and maintain his or her social activities. The studies based on the graph theory has found that bonding social capitals and bridging social capitals are two determinant factors of the user's behavioral intention on an SNS (Ellison et al., 2007; Mehdizadeh, 2010; Putnam, 2000). However, I suggest the research perspective overly emphasizes on the influence of social activities *outcomes* on the user's behavioral intention, while ignoring the fact that social capital building is a dynamic *process* which is evaluated not only by the social contact's perception of outcomes, but also by the format of the informative and emotional exchanges. In the current study, I bring the construct, interactivity, which is used to measure the SNS user's information exchange frequency and volume, into the theoretical model, and find that the user's perceived interactivity with other members of an SNS has a significant positive effect on the user's sense of belonging to the virtual network and the user's perceived social gains. The findings suggest that a user could perceive more cohesion with his or her online social contacts and the SNS Web site, when the information is exchanged more

frequently and in a larger volume. The findings also imply that an SNS Web site management does not only need to focus on how to provide quality information to the users, but also need to create an effective strategy to motivate the information exchanges among users, thereby increasing the user's sense of belonging and perceived social gains by improving the quality of the online information exchange process.

Third, the research model draws a conceptual map, which integrates trust with several proposition of keeping individuals using an SNS. I find the user's trust influences the user's SNS continuance intention in the following ways: (1) A user's trust directly influences the user's continuance intention. According to the difference of trusting objectives, previous studies separate a user's trust on SNS into the user's trust in the Web site and the user's trust in other members of the SNS (Dwyer et al., 2007). A great deal of efforts was consequently made in exploring the effects of user's SNS trust on the user's behavioral intention. However, most of the studies (Sledgianowski and Kulviwat, 2009) focus on the possible effects in the user's pre-adoptive stage of SNSs, while the knowledge of trust on the user's continuance intention was obtained little. As the current study found, the user's trust in the Web site and trust in other members could significantly positively influence the user's continuance intention. The findings complement the study of trust in the user's post-adoptive stage of the SNS. (2) A user's trust indirectly influences the user's SNS continuance intention. As the current research model suggests, the user's trust in the Web site and in other members could primarily influence the user's perception of the Web system and the connections with social contacts on the SNSs, thereby motivating the user's SNS continuance intention. The findings do not only reinforce the importance of the user's trust on the user's behavioral intentions on an SNS, but also propose to the SNS managers that they should focus on creating a credible online environment for the

virtual community. Otherwise, a less trustworthy SNS could strongly diminish the user's intention of continuing using the Web site. It is reported that Facebook users started concerning their privacy information security, and stopped using the website, after they found out certain applications that they used were malwares sponsored by third party websites (Takahashi, 2010). Even Facebook management admitted that more and more fake profiles are threatening to the fundamental interpersonal trust of the Web site. The current study indicates that the Web site managers should make a continuous effort in building and sustaining their user's trust in their Web site and other members of SNSs, in order to avoid the exodus of users resulted from the user's distrust.

Fourth, the research model further explores the effect of the user's continuance intention on their loyalty to an SNS. We find that the user's continuance intention has a significant positive effect on the user's long term loyalty to the Web site, which consists of two dimensional factors (i.e., affective loyalty and cognitive loyalty). The findings complemented Zhou et al's research regarding the user's loyalty to an SNS, and also provides a new research perspective to investigate the important construct. According to Zhou et al. (2010), a great deal of efforts has been made in studying the user's SNS loyalty. However, there is a gap between the SNS continuance and people's actual use of the SNS. Thus, Zhou et al. (2010) argues that the studying the user's continuance intention alone is not sufficient for providing practical implications to resolve practical issues. Academics should also further explore the influential factors that could motivate the user's connection with the SNS for a long term. In fact, the current research model provides several implications to the practitioners: An SNS management could take differentiation strategy to consolidate their user's loyalty. For the users who have been using the Web site for a long time, an SNS should focus on how to increase the affective

cohesion between the Web site and users. Therefore, the user group will not only have simple continuance intention, but also keep using the Web site in a long run. For the users who just start using the Web site, the SNS management should focus on introducing the unique functions of the Web site to keep the new users. The purpose of this strategy is to highlight an SNS from thousands rivalry Web site in the current market, and motivate users to repeat their usage of the Web service.

## 6.2 Implications to Practitioners

The findings from the current study also provide several implications to practitioners. First, in the I-view domain, I find that the user's self-actualization has strong positive effects on the user's perceived usefulness and perceived enjoyment, thereby positively influencing the user's satisfaction in the Web site and SNS continuance intention. However, the user's self-actualization requires his or her social contacts' feedback, which further requires the interpersonal information exchanges. Thus, how to motivate the interpersonal communication becomes a critical mission for current SNS to take. In practice, although multiple methodologies are used to motivate the interpersonal communication (e.g., Facebook and Twitter use push email to promote a user's new post or tweet to the user's social contacts), these methodologies may have potential issues in their effectiveness. For instance, the push emails may be considered spams by email servers. A user's social contacts may not respond to the user's post or tweet, if they are not interested in the topic, or they don't have close relationship with the user. Thus, SNS managers should not assume that two members will have interpersonal information communication only because they are in the same social circle. Instead, I suggest that an SNS should focus on how to use interest groups to motive the member's interpersonal information

exchange. Interest groups consist of a number of SNS members who are interested in one specific topic. Because members in the interest groups have common topics, it is more likely for interest group members to respond to each other's SNS posting. In addition, the same interest could eliminate the social distance barrier, and motivate the user's intention to have interpersonal information exchange activities.

The user's trust is a critical factor of the user's perception toward the social network site and virtual social circle, and the user's SNS continuance intention. However, an SNS manager should not assume that the user's trust is consistent even though the user has adopted the Web site. In other words, even though a user has created an initial trust in his or her pre-adoptive stage of the SNS, the user's trusting belief could change with their gradual usage of the Web site. The reason is that the user's virtual social circle is not static, but increases when he or she adds new contacts into the circle. Moreover, the user's trust in existing social contacts will not transfer to the user's trust in new social contacts. Nevertheless, the user's trusting belief toward the new social contacts will influence the user's belief of whether an SNS are capable of providing a working mechanism to only allow genuine and host users to have social activities on the Web site. According to the key feature of the SNS user's trust building and sustention behaviors, the SNS management should focus on how to create effective policies in order to provide a trustworthy online environment for the member's social activities.

### 6.3 Limitations and Future Research

The current study is subject to a possible limitation in terms of the convenient sampling methodology. Although the sample is representative according to the user's self-reported age range, the findings from the convenient sample may face a generability issue.

The structural model analysis for each independent domain indicates that certain constructs may have different effects on the user's SNS continuance intention, when the effect of each domain is studied alone. Therefore, I suggest that a stepwise PLS modeling technique will be developed in order to further understand how the external factors of each domain could influence the internal relationship inside of the domain, thereby influencing the user's SNS continuance intention.

APPENDIX A  
SURVEY INSTRUMENT

University of North Texas Institutional Review Board

Informed Consent Form

Please read the following explanation of the purpose, benefits, risk of this study and how it will be used, before you agree to participate in this survey.

Title of Study: An Investigation of Factors Influencing the User's Social Network Site Continuance Intention

Principal Investigator: Dr. John Windsor, College of Business, University of North Texas (UNT).

Student Investigator: Bo Han, College of Business, University of North Texas (UNT).

Purpose of the Study: The objective of this research is to understand what factors influences the social network site user's continuance intention.

Study Procedure: Before taking the survey, please make sure that you have used or are currently using a social network site such as Facebook, Google+, and MySpace, etc. If you haven't used any social network site, please do not take the survey. You will be asked to fill out a questionnaire that will take approximately 20 minutes of your time.

Foreseeable Risks: No foreseeable risks are involved in this study.

Compensation to Participants: After you complete the questionnaire, you may choose to submit your information in order to get extra credit for your class. Please note your name, class number and instructor's name are collected only for extra credit. Your personal information is not collected to identify or track your answers to the questions in this survey. If you do not want to participate in this survey, your instructor may provide a non-research alternative way for you to earn the extra credit points that is equivalent to the same amount of time and effort as participating in the study.



Benefits to the Subjects or Others: There is no direct benefit to subjects. However, the study is very important for information systems researchers to investigate the factors that could influence the social network site user's continuance intention. Currently, little knowledge has been obtained in the relevant field, which leads to a knowledge gap that could clearly explain why social network sites could only experience a short rapid development, and then fail in the competitive market. To fully understand the factors could also provide practical implications to social network site managers to create sustainable development strategies.

Procedures for Maintaining Confidentiality of Research Records: The questions are anonymous. There is no question related to your name, UNT ID, Social Security Number, or credit card number in this survey. Your answers will be entirely confidential and are not associated with your identity.

Questions about the Study: If you have any questions about this research, please contact John Windsor at (940) 565-4147 or by [windor@unt.edu](mailto:windor@unt.edu) ,

Review for the Protection of Participants:

This research has been reviewed and approved by the UNT Institutional Review Board (IRB). If you have any questions regarding the rights of research subjects, please contact the UNT IRB at (940) 565-3940.

Research Participants' Rights:

Your signature below indicates that you have read or have had read all of the above information and that you confirm all of the following:

- The principal investigator has explained the study to you and has answered all of your questions. You have been told the possible benefits and the potential risks of the study.

- You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits.
- You understand why the study is being conducted and how it will be performed.
- You understand your rights as a research participant and you voluntarily consent to participate in this study.
- You have been told that you will receive a copy of this form.
- Your decision to participate or to withdraw from the study will have no effect on your standing in this course or your course grade.

I have read and understood the informed consent form. I agree to take the survey.

Current Education Level \_\_\_\_\_

- Freshman
- Sophomore
- Junior
- Senior
- Graduate

Age \_\_\_\_\_

- 18-23
- 23-28
- 28-33
- 33 or above

Gender \_\_\_\_\_

- Male
- Female

Are you a veteran?

- Yes
- No

Are you working \_\_\_\_\_?

- Yes. Full time
- Yes. Part time
- No

How long have you worked for your company?

- More than 10 years
- 6-10 years
- 1-5 years
- Less than 1 year

How long have you been using social network sites?

- More than 4 years
- 3-4 years
- 2-3 years
- 1-2 years
- Less than 1 year
- Never

How long do you spend on average using social network sites every day?

- More than 2 hours
- 1-2 hours
- 30 minute - 1 hour
- Less than 30 minutes

How many contacts do you have on social network sites?

- More than 1000
- 500-1000
- 100-500
- Less than 100

Which social network sites are you currently using? (Select all that apply)

- |                                   |                                     |
|-----------------------------------|-------------------------------------|
| <input type="checkbox"/> Facebook | <input type="checkbox"/> Google+    |
| <input type="checkbox"/> MySpace  | <input type="checkbox"/> Twitter    |
| <input type="checkbox"/> Tumblr   | <input type="checkbox"/> Pinterest  |
| <input type="checkbox"/> QQ.com   | <input type="checkbox"/> Renren.com |
| <input type="checkbox"/> Other    |                                     |

Which social network site are you currently using most frequently?

How do you feel about your overall experience on this social network site:

1	Very Pleased	Pleased	Somewhat Pleased	Neutral	Somewhat Displeased	Displeased	Very Displeased
	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
2	Very Satisfied	Satisfied	Somewhat Satisfied	Neutral	Somewhat Dissatisfied	Dissatisfied	Very Dissatisfied
	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
3	Very Contented	Contented	Somewhat Contented	Neutral	Somewhat Frustrated	Frustrated	Very Frustrated
	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
4	Absolutely Delighted	Delighted	Somewhat Delighted	Neutral	Somewhat Terrible	Terrible	Absolutely Terrible
	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Please answer the following questions regarding the most frequently used social network site that you just selected.

	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
I intend to continue using this social network site rather than discontinue its use.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will keep using this social network site in the future.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a strong intention to continue using this social network site.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am reluctant to continue using this social network site.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This social network site is interesting to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using this social network site is enjoyable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a lot of fun on this social network site.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using this social network site brings me a pleasant experience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I consider this Web site my first choice when I want to create an online social network.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I consider this Web site my first choice when I want to create an online personal profile.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The service of this social network site is better than others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to spend more time on this social network site than on others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please answer the following questions regarding the most frequently used social network site that you just selected.

	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
I am able to check my friends' status updates on this social network sites.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to check my family members' status updates on this social network sites.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using this social network site is a good way to keep myself updated about things going on in school/ at work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to find interesting topics on this social network site.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to follow popular topics on this social network sites.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to create a social image that I expect on this social network site.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to create my ideal social image on this social network site.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People have a certain impression about me by looking at my social network site page.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have built a social image that I intend to create on this social network site.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My social image on the social network site highlights my particular characteristics to the public.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The contacts on this social network site are my close friends.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The contacts on this social network site want to keep in touch with me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am one of critical members in my online social network.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am one of indispensable members in my online social network.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that I belong to the virtual community on this social network site.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please answer the following questions regarding the most frequently used social network site that you just selected.

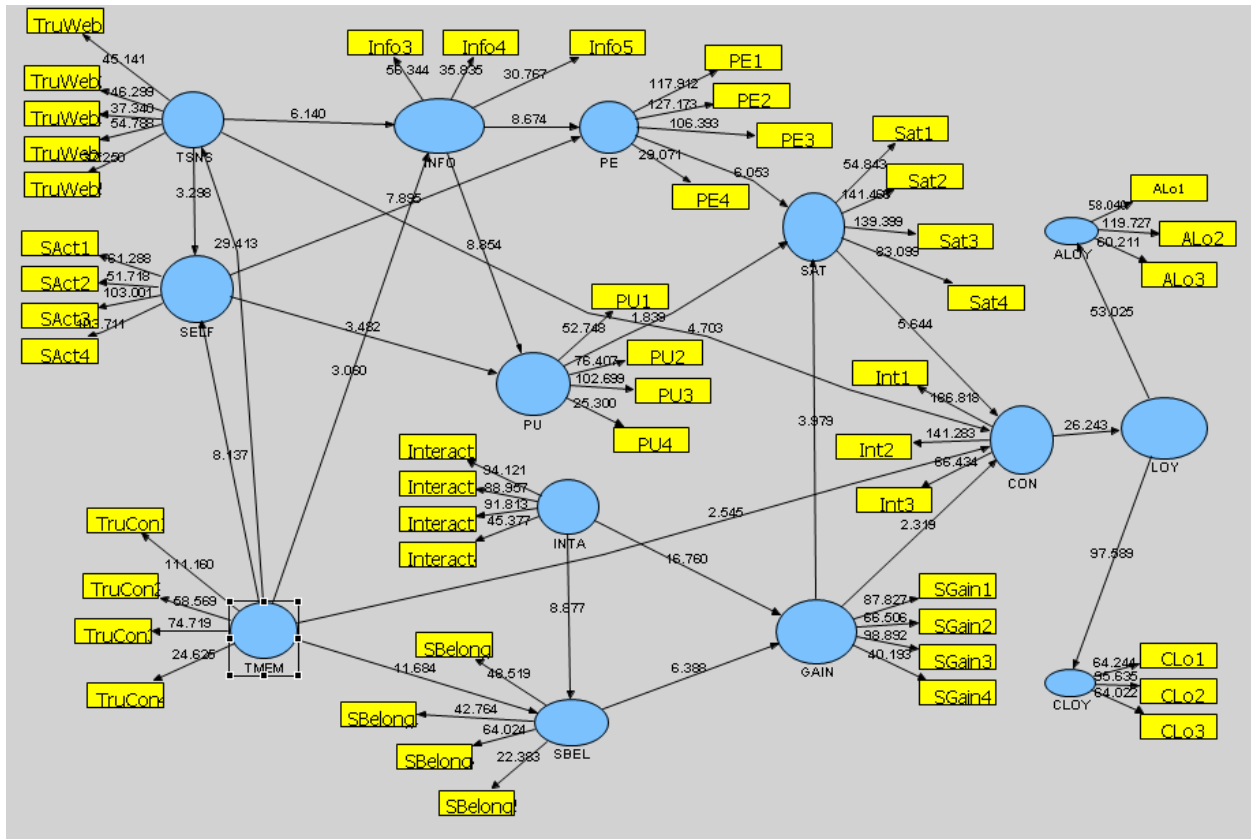
	Strongly Agree	Agree	Somewhat Agree	neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
I believe this social network site has the safety of my privacy information in mind.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This social network site only allows authorized users to access to my information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This social network site keeps the information I received and shared accurate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This social network site keeps the information I received and shared reliable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This social network site is trustworthy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel other members of this social network site are generally honest.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel other members of this social network site are generally reliable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel the identities that other members profiled on this social network site are genuine.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall, other members of this social network site are trustworthy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using this social network site is of benefit to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using this social network site is advantageous.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The advantage of using this social network site outweighs the disadvantage.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This social network site is useful to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please answer the following questions regarding the most frequently used social network site that you just selected.

	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Disagree	Strongly Disagree
Other people and I frequently share information on this social network site.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other people and I rapidly respond to each other's status updates on this social network site.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other people and I share a lot of information with each other on this social network site.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other people and I frequently make comments on each other's shared topics on this social network site.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interactions with other people on the social network site make me feel socially supported.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interactions with other people on the social network site bring me the possibility of getting new knowledge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interactions with other people on the social network site increase the boundary of my social activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interactions with other people on this social network site extends the scope of my knowledge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like spending time on this social network site very much.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To me, this social network site is the one I enjoy the most.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared to other social network sites, I prefer this social network site more.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



APPENDIX B  
T-TEST IN SMART PLS



## REFERENCES

- Ajzen, I., and Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Ba, S. and Pavlou, P. A. (2002). Evidence of the effect of trust building technology in electronic markets: Price premiums and buyer behavior. *MIS Quarterly*, 26(3), 243-268.
- Bagozzi, R. P., Yi, Y. and Phillips, L. W. (1991). Assessing Construct Validity in Organizational Research. *Administrative Science Quarterly*, 36(3), 421-458.
- Barnes, S. J. and Böhriner, M. (2011). Modeling use continuance behavior in microblogging services: The case of Twitter. *Journal of Computer Information Systems*, 51(4), 1-11.
- Baumeister, R. F. and Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497-529.
- Beaudry, A. and Pinsonneault, A. (2010). The other side of acceptance: Studying the direct and indirect effects of emotions on information technology use. *MIS Quarterly*, 34(4), 689-710.
- Beer, D. D. (2008). Social network(ing) sites...revisiting the story so far: A response to Danah Boyd & Nicole Ellison. *Journal of Computer-Mediated Communication*, 13(2), 516-529.
- Bhattacharjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *MIS Quarterly*, 25(3), 351-370.
- Boyd, D. M. (2007). Why youth (heart) social network sites: The role of networked publics in teenage social life. In D. Buckingham (Ed.), *MacArthur Foundation series on digital learning - Youth, identity, and digital media volume* (pp. 119-142). Cambridge, MA: MIT Press.
- Boyd, D. M. and Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13(1), Article 11.
- Brandtzæg, P. B. and Heim, J. (2009). Why people use social networking sites. *Online Communities*, 5621, 143-152.
- Chang, Y.-P. and Zhu, D.-H. (2012). The role of perceived social capital and flow experience in building users' continuance intention to social networking sites in China. *Computers in Human Behavior*, 28(3), 995-1001.
- Chin, W. W., Gopal, A. and Salisbury, W. D. (1997). Advancing the theory of adaptive structuration: The development of a scale to measure faithfulness of appropriation. *Information Systems Research*, 8(4), 342-367.

- DeLone, W. and McLean, E. R. (2003). The Delone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, 19(4), 9-30.
- Deng, Z., Lu, Y., Wei, K. K. and Zhang, J. (2010). Understanding customer satisfaction and loyalty: An empirical study of mobile instant messages in China. *International Journal of Information Management*, 30(4), 289-300.
- Dick, A. S. and Basu, K. (1994). Customer loyalty: Toward an integrated conceptual framework. *Journal of the Academy of Marketing Science*, 22(2), 99-113.
- Dickinger, A., Arami, M. and Meyer, D. (2008). The role of perceived enjoyment and social norm in the adoption of technology with network externalities. *European Journal of Information Systems*, 17(1), 4-11.
- Dwyer, C. and Hiltz, S. R. (2007). *Trust and privacy concern within social networking sites: A comparison of Facebook and Myspace*. Proceedings of the Thirteenth Americas Conference on Information Systems, Keystone, Colorado August 09 - 12 2007.
- Easley, D. and Kleinberg, J. (2010). *Networks, crowds, and markets*. Boston, MA: Cambridge University Press.
- Ellison, N. B., Steinfield, C. and Lampe, C. (2007). The benefits of Facebook “friends”: Social capital and college students’ use of online social network sites. *Journal of Computer - Mediated Communication*, 12(4), 1143-1168.
- Enders, A., Hungenberg, H., Denker, H. and Mauch, S. (2008). The long tail of social networking: Revenue models of social networking sites. *European Management Journal*, 26(3), 199-211.
- Gangadharbatla, H. (2008). Facebook me: Collective self-esteem, need to belong, and internet self-efficacy as predictors of the i-generation’s attitudes toward social network sites. *Journal of Interactive Advertising*, 8(2), 5-15.
- Gartner (2011). Gartner survey highlights consumer fatigue with social media. Retrieved from <http://www.gartner.com/it/page.jsp?id=1766814> on December 22, 2011.
- Gefen D., Pavlou, P. A., Benbasat, I., McKnight, H., Stewart, K. and Straub, D. W. (2006). ICIS panel summary: Should institutional trust matter in information system research? *Communications of the Association for Information Systems*, 17, 205-222.
- Goodhue, D., Lewis, W., and Thompson, R. (2006). PLS, small sample size, and statistical power in MIS research. In *Proceedings of the 39th annual Hawaii International Conference on System Sciences*. Los Alamitos, CA: IEEE Computer Society Press.
- Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, 78(6), 1360-1380.

- Ha, I., Yoon, Y. and Choi, M. (2007). Determinants of adoption of mobile games under mobile broadband wireless access environment. *Information & Management*, 44, 276-286.
- Hair, J. F., Black, B., Babin, B., and Anderson, R. E. (2005). *Multivariate data analysis* (6<sup>th</sup> ed.). Upper Saddle River, NJ: Prentice Hall.
- Han, B. and Windsor, J. (2011). User's willingness to pay on social network sites. *Journal of Computer Information Systems*, 51(4), 31-40.
- Han, X., Kwortnik Jr., J. R. and Wang, C. (2008). Service loyalty: An integrative model and examination across service contexts. *Journal of Service Research*, 11(1), 22-42.
- Härtel, C. E. J., and Russell-Bennett, R. (2010). Heart versus mind: The functions of emotional and cognitive loyalty. *Australasian Marketing Journal*, 18, 1-7.
- Helliwell, J. F. and Putnam, R. D. (2004). The social context of well-being. *Philosophical Transactions of the Royal Society*, 359(1449), 1435-1446.
- Hersberger, J. A., Murray, A. L. and Rioux, K. S. (2007). Examining information exchange and virtual communities: An emergent framework. *Online Information Review*, 31(2), 135-147.
- Hitwise (2011). *Google+ records 3rd biggest week since launch*. Retrieved 22 Dec 2011 from [http://weblogs.hitwise.com/heather-dougherty/2011/11/google\\_records\\_3rd\\_biggest\\_wee\\_1.html?utm\\_source=feedburner&utm\\_medium=feed&utm\\_campaign=Feed%3A+hitwise%2Fus+%28Hitwise+Intelligence+US%29](http://weblogs.hitwise.com/heather-dougherty/2011/11/google_records_3rd_biggest_wee_1.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+hitwise%2Fus+%28Hitwise+Intelligence+US%29)
- Hsu, C.-L. and Wu, C.-C. (2011). Understanding users' continuance of facebook: an integrated model with the unified theory of acceptance and use of technology, expectation disconfirmation model, and flow theory. *International Journal of Virtual Communities and Social Networking*, 3(2), 1-16.
- Isaías, P., Miranda, P. and Pifano, S. (2009). Critical success factors for web 2.0: A reference framework. *Online Communities*, 354-363.
- Jasperson, J., Carter, P. E. and Zmud, R. W. (2005). A comprehensive conceptualization of post-adoptive behaviors associated with information technology enabled work systems. *MIS Quarterly*, 29(3), 525-557.
- Jin, X.-L., Cheung, C. M. K., Lee, M. K. O. and Chen, H.-P. (2009). How to keep members using the information in a computer-supported social network. *Computers in Human Behavior*, 25(5), 1172-1181.
- Johnson, M. D., Herrmann, A. and Huber, F. (2006). The evolution of loyalty intentions. *Journal of Marketing*, 70(2), 122-132.
- Kilduff, M. and Tsai, W. (2003). *Social networks and organizations*. Thousand Oaks, CA: Sage.

- Kim, B. (2011). Understanding antecedents of continuance intention in social-networking services. *Cyberpsychology, Behavior, and Social Networking*, 14(4), 199-205.
- Kim, D. and Hwang, Y. (2006). A study of mobile internet usage from utilitarian and hedonic user tendency perspectives. *AMCIS 2006 Proceedings*. Paper 251.  
<http://aisel.aisnet.org/amcis2006/251>
- Kim, D. J., Donald, F. L. and Rao, H. R. (2008). A trust-based consumer decision making model in electronic commerce: the role of trust, perceived risk, and their antecedents. *Decision Support Systems*, 44(1), 544-564.
- Kim, D. J., Yue, K.-B., Hall, S. P. and Gates, T. (2009). Global diffusion of the Internet XV: Web 2.0 technologies, principles, and applications: A conceptual framework from technology push and demand pull perspective. *Communications of the Association for Information Systems*, 24, Article 38.
- Klepper, S. (1996). Entry, exit, growth, and innovation over the product life cycle. *American Economic Review*, 86(3), 562-583.
- Koh, J., and Kim, Y.-G. (2003). Sense of virtual community: A conceptual framework and empirical validation. *International Journal of Electronic Commerce*, 8(2), 75-93.
- Kuo, Y.-F., Wu, C.-M. and Deng, W.-J. (2009). The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services. *Computers in Human Behavior*, 25(4), 887-896.
- Kwon, O. and Wen, Y. (2010). An empirical study of the factors affecting social network service use. *Computers in Human Behavior*, 26(2), 254-263.
- Lai, L. S. L. and Turban, E. (2008). Groups formation and operations in the Web 2.0 Environment and social networks. *Group Decision and Negotiation*, 17, 387-402.
- Lampe, C., Ellison, N., & Steinfield, C., (2006). A Face(book) in the crowd: Social searching vs. social browsing. In *Proceedings of the 2006 20th Anniversary Conference on Computer Supported Cooperative Work* (pp. 167-170). New York: ACM Press.
- Leary, M. R. (1994). *Self-presentation: Impression management and interpersonal behavior*. Dubuque, IA: Brown & Benchmark.
- Li, X., Hess, T. J. and Valacich, J. S. (2006). Using attitude and social influence to develop an extended trust model for information systems. *DATA BASE for Advances in Information Systems*, 37(2-3), 108-124.
- Li, X., Hess, T. J. and Valacich, J. S. (2008). Why do we trust new technology? A study of initial trust formation with organizational information systems. *Journal of Strategic Information Systems*, 17(1), 39-71.

- Lim, K., Sia, C., Lee, M. and Benbasat, I. (2006). Do I trust you online, and if so, will I buy? An empirical study of two trust-building strategies. *Journal of Management Information Systems*, 23(2), 233-266.
- Limayem, M., Hirt, S. G. and Cheung, C. M. K. (2007). How habit limits the predictive power of intention: The case of information systems continuance. *MIS Quarterly*, 31(4), 705-737.
- Lin, K.-Y. and Lu, H.-P. (2011). Why people use social networking sites: An empirical study integrating network externalities and motivation theory. *Computers in Human Behavior*, 27(3), 1152–1161
- Liu, H. (2007). Social network profiles as taste performances. *Journal of Computer-Mediated Communication*, 13(1), 252-275.
- Liu, H., Maes, P. and Davenport, G. (2006). Unraveling the taste fabric of social networks. *International Journal on Semantic Web and Information Systems*, 2(1), 42-71.
- Lochner, K., Kawachi, I., Kennedy, B. (1999). Social capital: A guide to its measurement. *Health & Place*, 5(4), 259–270
- Lu, H. and Hsiao, K. (2010). The influence of extro/introversion on the intention to pay for social networking sites. *Information & Management*, 47(4), 150-157.
- Marlow, C., Byron, L., Lento, T. and Rosenn, I. (2009). *Maintained relationships on Facebook*. Retrieved 22 Dec 2012 from <http://overstated.net/2009/03/09/maintainedrelationships-on-facebook>
- McKnight, D. H., Choudhury, V. and Kacmar, C. (2010). Developing and validating trust measures for e-commerce: An integrative typology. *Information Systems Research*, 13(3), 334-359.
- McKnight, D. H., Cummings, L. L. and Chervany, N. L. (1998). Initial trust formation in new organizational relationships. *Academy of Management Review*, 23(3), 473-490.
- McKnight, D. H., Lankton, N. and Tripp, J. (2011). Social networking information disclosure and continuance intention: A disconnect. In *Proceedings of the 44th Hawaii International Conference on System Sciences* (pp. 1-10). Los Alamitos, CA: IEEE Computer Society.
- McMurtrey, M. E. and Downey, J. P. (2011). Seniors and technology: Results from a field study. *Journal of Computer Information Systems*, 51(4), 22-51.
- Mehdizadeh, S. (2010). Self-presentation 2.0: Narcissism and self-esteem on Facebook. *Cyberpsychology, Behavior, and Social Networking*, 13(4), 357-364.
- Miyata, K. and Kobayashi, T. (2008). Causal relationship between internet use and social capital in Japan. *Asian Journal of Social Psychology*, 11(1), 42–52.

- Moon, J. and Kim, Y. (2001). Extending the TAM for a World-Wide-Web context. *Information & Management*, 38, 217-230.
- Nie, N. H. (2001). Sociability, interpersonal relations, and the Internet: Reconciling conflicting findings. *American Behavioral Scientist*, 45(3), 420-435.
- Oliver, R. L. (1981). Measurement and evaluation of satisfaction processes in retail settings. *Journal of Retailing*, 57(3), 25-48.
- Parasuraman, A., Zeithaml, M. A. and Malhotra, A. (2005). E-S-QUAL: A multiple-item scale for assessing electronic service quality. *Journal of Service Research*, 7(1), 1-21.
- Parks, M. R. (2011). Boundary conditions for the application of three theories of computer-mediated communication to MySpace. *Journal of Communication*, 61, 557-574.
- Pavlou, P. A., Liang, H. and Xue, Y. (2007). Understanding and mitigating uncertainty in online exchange relationships: A principal-agent perspective. *MIS Quarterly*, 31(1), 105-136.
- Pew Institute. (2011). *Twitter, Facebook and LinkedIn: Age, ethnicity and gender of the major social networks*. Retrieved 22 Dec 2011 from [http://www.mediabistro.com/alltwitter/pew-social-network-age-ethnicity-gender\\_b11681](http://www.mediabistro.com/alltwitter/pew-social-network-age-ethnicity-gender_b11681)
- Podsakoff, P. M., and Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12, 531-544.
- Pollet, T. V., Roberts, S. G. B. and Dunbar, R. I. M. (2011). Use of social network sites and instant messaging does not lead to increased social network size, or to emotionally closer relationships with offline network members. *Cyberpsychology Behavior and Social Networking*, 14(4), 253-258.
- Putnam, R. D. (2000). *Bowling alone*. New York, NY: Simon & Schuster.
- Royo-Vela, M. and Casamassima, P. (2011). The Influence of belonging to virtual brand communities on consumers' affective commitment, satisfaction and word-of-mouth advertising: The ZARA case. *Online Information Review*, 35(4), 517-542.
- Ryan, S. D. (2010). Information systems and healthcare XXXVI: Building and maintaining social capital - evidence from the field. *Communications of the Association for Information Systems*, 27, Article 18.
- Shi, N., Lee, M. K. O., Cheung C. M. K. and Chen, H. (2010). The continuance of online social networks: How to keep people using Facebook? In *Proceedings of the 43rd Annual Hawaii International Conference on System Sciences*. Los Alamitos, CA: IEEE Computer Society.
- Sledgianowski, D. and Kulviwat, S. (2009). Using social network sites: The effects of playfulness, critical mass and trust in a hedonic context. *Journal of Computer Information Systems*, 49(4), 74-83.



- Subrahmanyam, K., Reich, S. M., Waechter, N. and Espinoza, G. (2008). Online and offline social networks: Use of social networking sites by emerging adults. *Journal of Applied Developmental Psychology*, 29, 420-433.
- Sussman, S.W., Siegal, W.S. (2003). Informational influence in organizations: An integrated approach to knowledge adoption. *Information Systems Research*, 14(1), 47-65.
- Takahashi, D., (2010). Facebook and android face dangers from cyber attackers. *Venture Beat*. Retrieved 22 Aug 2010 from <http://venturebeat.com/2010/08/11/facebook-and-android-face-dangers-from-cyber-attackers/>
- Turel, O., Serenko, A. and Bontis, N. (2010). User acceptance of hedonic digital artifacts: A theory of consumption values perspective. *Information & Management*, 47(1), 53-59.
- Van der Heijden, H. (2004). User acceptance of hedonic information systems. *MIS Quarterly*, 28(4), 695-704.
- Vance, A. (2012). *Facebook: The making of 1 billion users*. Retrieved 10 Oct 2012 from <http://www.businessweek.com/articles/2012-10-04/facebook-the-making-of-1-billion-users>
- Valenzuela, S., Park, N. and Kee, K. F. (2009). Is there social capital in a social network site? Facebook use and college students' life satisfaction, trust, and participation. *Journal of Computer-Mediated Communication*, 14(4), 875-901.
- Venkatesh, V., Brown, S.A., Maruping, L.M. and Bala, H. (2008). Predicting different conceptualizations of system use: The competing roles of behavioral intention, facilitating conditions, and behavioral expectation. *MIS Quarterly*, 32(3), 483-502.
- Venkatesh, V., Morris, M.G., Davis, F.D. and Davis, G.B. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478.
- Walter, J. B. (2007). Selective self-presentation in computer-mediated communication: hyperpersonal dimensions of technology, language, and cognition. *Computers in Human Behavior*, 23, 2538-2557.
- Wang, B. (2010). Survival and competition among social networking websites a research commentary on 'Critical mass and willingness to pay for social networks' by J. Christopher Westland. *Electronic Commerce Research and Applications*, 9, 20-22.
- Wang, Y. and Fesenmaier, D. R. (2002). Defining the virtual tourist community implications for tourism marketing. *Touring Management*, 23(4), 407-417.
- Wellman, B., Haase, A. Q., Witte, J. and Hampton, K. (2001). Does the Internet increase, decrease, or supplement social capital? Social networks, participation, and community commitment. *American Behavioral Scientist*, 45(3), 436.

- Wirtz, B. W., Schilke, O. and Ullrich, S. (2010). Strategic development of business models: Implications of the Web 2.0 for creating value on the Internet. *Long Range Planning*, 43(2-3), 272-290.
- Wixom, B. H. and Todd, P. A. (2005) A theoretical integration of user satisfaction and technology acceptance. *Information Systems Research*, 16(1), 85-102.
- Wixom, B. H. and Watson, H. J. (2001). An empirical investigation of the factors affecting data warehousing. *MIS Quarterly*, 25(1), 17-41.
- Wu, J.- J. and Chang, Y.-S. (2005). Towards understanding members' interactivity, trust, and flow in online travel community. *Industrial Management & Data Systems*, 105(7), 937-954.
- Yee, N. (2006). Motivations of play in online games. *Journal of CyberPsychology and Behavior*, 9(6), 772-775.
- Zhao, S., Grasmuck, S. and Martin, J. (2008). Identity construction on Facebook: Digital empowerment in anchored relationships. *Computers in Human Behavior*, 24(5), 1816-1836.
- Zhou, T., Li, H. and Liu. Y. (2010). The effect of flow experience on mobile SNS users' loyalty. *Industrial Management & Data Systems*, 110(6), 930-46.