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An Analysis of Self-Construals, Motivations, Facebook Use, and User Satisfaction

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Rare studies have focused on how and why people use social networking sites (SNSs) utilizing individual-level variables such as self-construals and social/nonsocial motivations. This study proposes that the self-construal construct provides a good instrument for measuring the relationship between people's understanding of self as a predictor of social computing (Facebook use) and satisfaction. A survey was conducted with students from a large western U.S. university. Results indicate that interdependent self-construal is associated with social-motivations to use SNS, and such motivations lead to satisfaction with SNS use. In contrast, independent self-construal failed to predict SNS use. This finding supports the need to examine the influence of "cultural self" and "social motivations" when interpreting social media use behavior. Suggestions for future research are addressed.

1. INTRODUCTION

Human–computer interaction (HCI) studies have engaged the diverse social challenges posed by social media like Facebook (e.g., overview of the relationship between HCI and societal issues in Hochheiser & Lazar, 2007). Two major areas that HCI studies have attempted to investigate are user identity and social needs issues. Social computing, defined as software systems used for mediating social relations (Schuler, 1994; Sears, Lazar, Ozok, & Meiselwitz, 2008), has evolved greatly from the simple use of websites to more complex social media uses like Facebook and Twitter. The use of social computing for exchanging health care, education, and task-related information and for communicating with online friends or strangers is rapidly increasing (Sears et al., 2008). In this context, user identity becomes more important as globalized social media services call for more

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academic inquiries from the perspective of culture, identity, motivations, and communication (e.g., Hochheiser & Lazar, 2007; Khaslavsky, 1998; Lampe, Ellison, & Steinfield, 2008).

Specifically, there is one important question: What drives people to use social media such as Facebook, MySpace, or Twitter? This question is old as well as new. If social media use is looked at as a part of media use in general, then classical theories such as "uses and gratifications" may be the easy answer, as this approach is one of the most frequently employed frameworks used to understand diverse media use (Lee, Kim, & Rosen, 2009). However, if social media is framed as something "new," then a new model is needed to predict their use. This research capitalizes on both the "new" and "old" nature of Facebook and its users.

First, scholars have posited that media use is related to users' sought gratification, socioeconomic status, and other social factors (Stefanone & Chang, 2007). Among these factors, numerous studies have centered on the uses and gratifications approach (Katz, Blumler, & Gurevitch, 1974; Palmgreen, Wenner, & Rosengren, 1985; Lee et al., 2009), whereas few studies have discussed the influence of personal identity or the understanding of self. One can easily find that past media use studies assume a simple logic: People use media for certain "gratification" purpose(s) including socialization, surveillance, correlation, as a pastime, entertainment, and others (Katz et al., 1974; Palmgreen et al., 1985). These various purposes may be categorized as social/nonsocial or extrinsic/intrinsic (Shin, 2009). Furthermore, this major trend overlooks the question of *what kind of people* are motivated to use a certain medium. Here, "what kind of people" implies the diverse aspects of self (e.g. personality, self-esteem, or self-construal).

Second, the importance of the self-construal construct in media use research is not completely dependent on the fact that past studies have investigated the "self" of users. Rather, self-construal may be crucial in that social mediums being studied have various self features, including an expression of self using profile page, connection with "friends" online, and real-time interaction by updated news of "friends" in the website (Harter, 1999; Valkenburg, Peter, & Schouten, 2006). In other words, Facebook offers a space for a great deal of self-expression and simultaneously multilateral interactions.

Third, self-construal is important in that Facebook is a global site whose members are from the United States, Europe, Asia, Africa, and many other nations. Facebook (2009) recently reported that approximately 70% of Facebook users are located outside of the United States. Users with diverse cultural backgrounds interact through Facebook and this worldwide connection of users calls for an analysis of cultural identities. In this context the following questions offer good examples.

- What do Facebook users who have relatively more buddies ("friends") than other members have in common? Do they have stronger "interdependent" self than others?
- Specifically, does cultural self-identity (self-construal) of users influence the usage of Facebook? For example, do people with strong interdependent self-construal use Facebook more than those who have lower interdependent self-construal?

This study examines existing predictors of social networking site (SNS) use and satisfaction and presents the self-construal as a new predictor. This introductory section is followed by a literature review, which first discusses extant predictors of social media use and then elaborates on the need for self-construal in interpreting social media use. The Method section details the survey process and analytical tools used for this research. The Results section systematically shows the findings of this study, and the Discussion section interprets the previous section with theoretical implications regarding social computing. The final section briefs this research and suggests ideas for future research.

2. LITERATURE REVIEW

Social computing is becoming more prevalent with the emergence of Facebook; however, extant research has not examined user traits, motivations, use patterns, and satisfaction sufficiently. First, this section discusses past studies concerning the use of SNSs and presents diverse theoretical perspectives and their importance. Next, this section examines the existing literature related to the prediction of use and satisfaction of SNSs. Finally, we propose a theoretical model for predicting Facebook use and satisfaction with a series of hypotheses.

2.1. Use of SNSs

According to boyd and Ellison (2007), SNSs are "web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections" (p. 211) within the system. SNSs have attracted hundreds of millions of users. For example, the majority of teens (55%) and college students (85%) in the United States regularly visit SNSs and spend hours keeping in touch with others (Greenhow & Robelia, 2009; Salaway, Borreson, & Nelson, 2008), and many students use more than one network (Greenhow, Kim, & Robelia, 2008). Thus, this emerging phenomenon has triggered research on SNS use ranging from disciplines such as communications, information science, sociology, cultural studies, and computer science. These studies are both conceptual and empirical in nature (boyd & Ellison, 2007; Greenhow & Robelia, 2009).

The use of SNSs can provide benefits to users (boyd & Ellison, 2007; Greenhow & Robelia, 2009; Valenzuela, Park, & Kee, 2009). First, SNSs can help with personal identity construction and affect users' self-esteem either positively or negatively by enabling multiple channels for interpersonal feedback and peer acceptance (Harter, 1999; Lampe et al., 2008; Valkenburg et al., 2006). For example, Barker (2009) reported that people with high positive collective self-esteem were strongly motivated to communicate with their peer group via SNSs. In the study, female participants were more likely to report high positive collective self-esteem, greater overall use, and SNS use to communicate with peers. In contrast, those who had negative collective self-esteem used SNS as an alternative

to communicating with other group members for social compensation and social identity gratifications.

In addition, Ellison, Steinfield, and Lampe (2007) denoted that low Facebook usage was highly associated with users experiencing low self-esteem and life satisfaction. Also, SNSs can help maintain or develop existing offline relationships or enhance existing relationships (Lampe et al., 2008). Through SNSs, users can strengthen weak ties, reinforce existing ties and communities, and promote collective action (Kenski & Stroud, 2006; Shah, Kwak, & Holbert, 2001; Valenzuela et al., 2009). SNSs can accommodate the informational needs of users by keeping them constantly updated about their friends.

SNSs can satisfy users' needs for entertainment, recreation, and education. As user-generated content has rapidly grown, websites focusing on media sharing, including Flickr (Photo), Last.FM (Music), and Flixster and YouTube (Video), have begun implementing SNS features and becoming SNSs themselves. In addition, Greenhow and Robelia (2009) maintained that students used their SNSs to utilize social learning functions from an educational perspective. In particular, people join SNSs due to the need for integration and social interaction. For example, Facebook enables its users to present themselves in an online profile and accumulate "friends" who are able to interact with them. Facebook users can also join virtual groups to see what interests they have in common and to learn about each other's hobbies, political view, and social status. In addition, SNS members use social sites to connect with people from their offline communities, such as their friends and families, so there usually is an overlap between SNS users' online and offline networks. However, Subrahmanyam, Reich, Waechter, and Espinoza (2008) revealed that this overlap was not complete, because the users may be using SNS selectively to strengthen a part of their offline networks.

2.2. Predictors of Social Networking Sites Use

As revealed in the previous section, scholars are currently studying the "who and how" of SNS use and "what" affects SNS use. For instance, studies have examined gender differences in SNS use. Peluchette and Karl (2008) found significant gender differences regarding the type of information posted. In their study, men were more likely to place self-promoting and risqué pictures or comments (involving sex or alcohol) on their profile than women, whereas women were more likely than men to post romantic or "cute" pictures and/or information.

Hargittai (2008) added other variables such as race, ethnicity, and parental educational background to test differences in SNS usage by type of sites (e.g., Facebook, MySpace, Xanga, and Friendster). In her study, results indicated that female students were more likely to use MySpace than male students. In addition, the study found that Hispanic students are significantly less likely to use Facebook but much more likely than others to use MySpace. Finally, students whose parents have no high school degree are significantly less likely to be on Facebook than those who have higher education (Hargittai, 2008).

Studies have explored whether additional psychological predictors can be identified as motivators for SNS use. Young, Dutta, and Dommety (2009) suggested

that information from publicly available online social networking profiles can be used to predict people's motivations for using SNSs. Individuals displaying a religious affiliation in their profile were more likely to list themselves as single than people who did not provide religious information. Christofides, Muise, and Desmarais (2009) reported that SNS users disclosed more information about themselves, such as their birthdays and e-mail addresses, on Facebook than were general website users and were highly likely to post a profile picture, pictures with friends, and pictures at parties drinking with friends. Also, SNSs facilitate knowledge sharing by reducing the cost of finding information and connecting people who have related interests (Yang & Chen, 2008).

Other studies have focused on more personal traits to investigate SNS use. Shim, Lee, and Park (2008) found that "public self-consciousness," the overt aspects of self on public display, was positively associated with the frequency of posting photos, replying to comments of the photos, and scrapping photos on their SNSs. Orr et al. (2009) supported that "shyness" was positively correlated with the time spent on Facebook and negatively correlated with the number of Facebook "friends." Steinfield, Ellison, and Lampe (2008) suggested that "self-esteem" moderates the relationship between Facebook usage intensity and bridging social capital because those with lower self-esteem used Facebook more for the purpose of bridging social capital than higher self-esteem participants.

In addition, Barker (2009) tested the effects of "group belonging" and "collective self-esteem" on SNS use. Pelling and White (2009) suggested that high-level SNS use is influenced by "self-identity" but not so much by "belongingness." Wilson, Fornasier, and White (2010) showed that personality traits, such as "openness," "agreeableness," and "neuroticism," and self-esteem factors significantly predicted both the level of SNS use and addictive tendency. In particular, they suggest that "extrovert" and "unconscientious" individuals show higher levels of both SNS use and addictive tendencies.

2.3. Toward a Systematic Prediction Model of SNS Use and Satisfaction

The extant studies just reviewed show that current SNS research lacks a systematic approach to SNS use and subsequent results, such as satisfaction. Predictors from past studies can be classified as those regarding (a) self (sex, ethnicity, self-esteem, personality, sense of belonging, self-identity) and (b) motivation (or gratification sought). Dependent variables have centered on "use" behavior including frequency of use, profile length and content, and satisfaction from SNS use.

Self-trait predictors. This study conceptualizes self-trait variables as socioeconomic variables and self-descriptive ones. The former is important in that past studies found both the influence of sex on profile page content (Peluchette & Karl, 2008), log-in pattern, and number of friends online (Hargittai, 2008; Raacke & Bonds-Raccke, 2008) and the possibility that culture and ethnicity influence

Facebook use (Hargittai, 2008). The latter is in regard to how an individual perceives oneself (self-identity: Pelling & White, 2009), personality (Stefanone & Chang, 2007; Wilson et al., 2010), and a sense of belonging or *belongingness* (Ellison et al., 2007; Valenzuela et al., 2009; Pelling & White, 2009).

This study evaluates self-construals, sex, and ethnicity as predictors. Although self-construal has been scarcely used to predict media use (Tamam, Wilnot, & Nizam, 2009), it can provide researchers with information on how media users perceive and define themselves, how individuals relate themselves to their surroundings and others, and how people respond to culture as a context for their existence (Kim et al., 1996; Kim, Kim, Aune, Hunter, & Kim, 2001). Markus and Kitayama (1991) used the terms *independent* and *interdependent* to describe people who endorse individualist or collectivist cultural values, respectively. They posited that the two construal types were among the most general and overarching schema of the individual's self-system (Kim et al., 1996; Markus & Kitayama, 1991). Due to this overarching characteristic, self-construal completes conventional psychology and major concepts including "locus of control" (Rotter, 1975), self-monitor (Snyder, 1974), five traits of personality (McCrae & Costa, 1987), public/private self-consciousness (Fenigstein, 1984), and gender differences in behavioral tendency (Gilligan, 1982) by providing an indicator of individual's understanding of the relationships between self, others, and structure (culture or society). Markus and Kitayama (1991) suggested that the self-concept overall is derived not only from cultural self-schemata (self-construals) but from the complete arrangement of self-schemata, including those that are a product of gender, race, religion, social class, and the individual's particular personal history. Overall, studies report that Western nations have more people with a high independent self-construal, whereas East Asian people have high interdependent self-construals (Kim et al., 1996). Of interest, Kim et al. (1996) and Berry and Kim (1988) reported that an individual with high scores on both individual and interdependent self-construals (a so-called bicultural person) or low scores in both dimensions (a "marginalized" person).

Past studies reported that self-construals can predict communication behavior including conversational constraints (Kim et al., 1996), verbal communication (Wittenbaum, 2000), and embarrassability (Singelis & Sharkey, 1995). Tamam et al. (2009) and Oskam and Hudson (1999) indicated that the association between self-construals and media use had not been studied, whereas "the use of media was related to individuals' identity with their communities and neighbors" (Tamam et al., 2009, p. 19). In this context, "uses and gratifications" theory (Katz et al., 1973) argued that Maslow's (1943) "self-actualization" stage, the highest level of human motivation, was important for understanding users and their media use.

Motivations for media use. Uses and gratifications theorists argued that media users are goal-directed, and thus understanding their motivation is critical (Katz et al., 1974; Palmgreen et al., 1985). This viewpoint suggests that people are positive actors who use media for gratifying their needs and motivations

(Katz et al., 1974). In connection with previous studies, this study posits that self-construal may be associated with level and kind of motivation. In this context, Young et al. (2009) found that profile page demonstrated people's motivation for SNS use. Also, Barker (2009) showed that self esteem influenced the intensity of SNS use motivation.

Papacharissi and Rubin (2000) identified and classified website users' motivations: entertainment, information, social interaction, self-expression, passing time, professional advancement, and seeking new trends. Further, Jung, Youn, and McClung (2007) examined Korean SNS users' motivations and reported that entertainment, self-expression, professional advancement, passing time, and communication with family and friends are key elements of motivations. Shin (2009) classified motivations into (a) intrinsic motivations, which denote a seeking for benefit from using the systems themselves such as enjoyment and entertainment, and (b) extrinsic motivations meaning users' need to interact with external entities including other users.

In contrast, Shen and Khalifa (2008) argued that motivation's mediating role in online community participation should be reexamined in comparison with a direct effect of perceived communication traits ("social presence") of a medium. However, they do not deny that motivation has played a key role in the understanding of online community participation (Shen & Khalifa, 2008).

The focus of this article is not limited only to identifying people's motivations. Rather, how individual's self-construals are relevant to motivations and how such motivations are associated with SNS use and satisfaction.

SNS use. To interpret people's SNS use in association with self-construals and motivations, SNS use must be defined properly. Generally, SNS use refers to how often a person reads or posts messages, pictures, or links. These uses can be conducted by diverse channels, including cell phones and personal data assistants as well as personal computers. This study suggests four different indices to understand people's SNS use. First, total amount of time per week each user spends using SNS is commonly used (Hargittai, 2008; Pelling & White, 2009). The second indicator is the average length of time one stays logged in, as one may remain logged in for a long period to read and write many messages (Raacke & Bonds-Raacke, 2008). The third indicator is length of profile page used to describe one's own identity. Several studies show that people use their profile to demonstrate their motivation, identity, and self-promoting information (especially men; Christofides et al., 2009; Peluchette & Karl, 2008; Young et al., 2009). The fourth indicator is the number of "friends" (buddies) listed on a user's profile. Other authors reported that the number of buddies represented the user's accumulated social capital, efforts to link offline friends to cyberspace, and an effort to increase online friends (Orr et al., 2009; Raacke & Bonds-Raacke, 2008; Steinfield et al., 2008; Subrahmanyam et al., 2008).

Satisfaction. Satisfaction from SNS use is important because it is linked to psychological well-being (Ellison et al., 2007). Analyzing user's satisfaction should

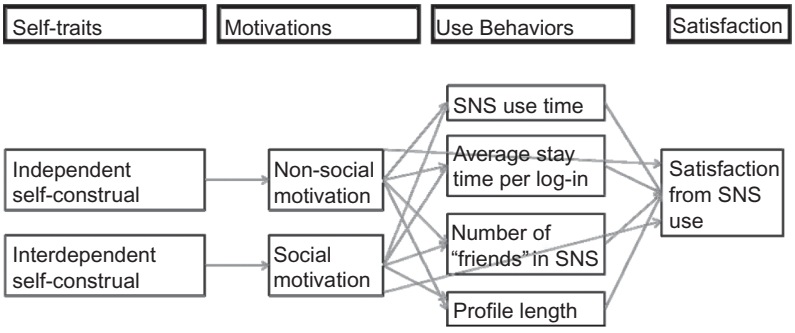

FIGURE 1 A theoretical model: Self-Traits, motivations, uses, and satisfaction.
Note. The number of hypotheses suggested is not commensurate with the arrows in the diagram.

encompass the degree to which Facebook fulfills an individual's social networking needs (Palmgreen & Rayburn, 1985; Patwardhan, 2004). Satisfaction as a function of personal well-being may be the ultimate goal for SNS service providers and users.

Theoretical model. Given the previous theoretical examination, this study suggests regression-based models regarding self-construals, motivation, SNS use, and satisfaction from SNS use. To examine the effect of nominal variables (ethnicity and gender), this study utilizes analyses of variance (ANOVAs) and *T* tests. See Figure 1 for the theoretical model including all hypothesized relationships.

First, the hypothetical relationships between self-construals and motivations are as follows:

H1: High independent self-construal is positively associated with nonsocial motivation.
H2: High interdependent self-construal is positively associated with social motivation.

Here, social motivation refers to the motivation for communication with family and friends (Jung et al., 2007). Nonsocial motivation includes entertainment, self-expression, professional advancement, and passing time. As the focus of this article is to evaluate the effect of self-construals and relevant motivations, this categorization is valid.

Second, the hypothetical relationships between sex and ethnicity and other variables are as follows:

H3: Motivations are significantly influenced by the difference of sex.
H4: SNS uses are significantly influenced by the difference of sex.

Hargittai (2008), Raacke and Bonds-Raacke (2008), Barker (2009), and Peluchette and Karl (2008) supported the effect of dissimilar genders on SNS use. However,

the directions of association found in these studies were mixed: Some were positive, others were negative. Moreover, Stefanone and Chang (2007) negated the effect of sex on blog use. As gender is nominal variable, this study uses a *T* test to evaluate its effect on motivation, use, and satisfaction.

H5: Motivations are significantly influenced by the difference of ethnic background.
H6a: SNS uses are significantly influenced by the difference of ethnic background.
H6b: Satisfaction from SNS uses is significantly influenced by the difference of ethnic background.

Hargittai (2008) found that Asians and Asian Americans spent more time using Facebook than Hispanics. As a way to compare the results of this study with Hargittai (2008), this study classified respondent ethnicities into three groups—(a) Asian and Asian American group, (b) Caucasian group, and (c) all others including Hawaiians—to investigate potential differences. As ethnicity is a nominal variable, this research uses an ANOVA to examine its effect on motivation, uses, and satisfaction.

H7: Social motivation is in a proportional relationship with SNS uses including number of buddies.
H8: Nonsocial motivation including entertainment, enjoyment, and pastime has a negative relationship with SNS uses.

Subrahmanyam et al. (2008) found that SNS use played a role in reinforcing offline connections by expanding them to online relationships. Also, a recent PEW study (2009) reported that people who used the Internet and social networking service(s) had social networks that were about 20% more diverse than non-users.

H9: Satisfaction from SNS use may be significantly influenced by SNS use.
H10: Satisfaction from SNS use may be significantly influenced by motivations.

Ellison et al. (2007) reported that social capital components including buddy size and satisfaction from SNS affiliation network had a positive relationship with each other. The study also demonstrated that Facebook usage was in a positive association with users' self-esteem and life satisfaction.

3. METHOD

3.1. Samples

A total of 170 students from a large western U.S. university participated in the survey. There were 43.5% male respondents and 55.3% female. Two respondents (1.4%) did not reveal their sex. Most respondents were 18 to 23

years old (89.7%). Ethnic composition was Caucasian (22.4%); Asians, including Korean, Japanese, Filipino, Vietnamese, Okinawan, and Chinese (44.7%); and other minorities, including Hawaiian natives, Black, Mixed, Hispanic, Samoan, Brazilian, and Marshallese (32.9%). In regard to ethnicity, each minority group (e.g., Black, Samoan) constitutes only a small portion of participants. All participants were recoded into three groups: Caucasian (1), Asian (2), and the others (0).

3.2. Measures

First, Leung and Kim's (1997) commonly used self-construal measure was used for this study. This measure is based on Markus and Kitayama (1991)'s conceptualization of self-construals. Responses to the 29 items were measured on a 7-point scale, from 1 (*strongly disagree*) to 7 (*strongly agree*). Items include, "I should be judged on my own merit (independent)," "I feel uncomfortable disagreeing with my group (interdependent)," "I act as fellow group members prefer I act (interdependent)," and "Understanding myself is a major goal in my life (independent)." Cronbach's alpha reliability coefficients of the scale are .83 (independent) and .73 (interdependent), which are acceptable compared to past studies such as Kim et al.'s (1996) .74 (independent) and .64 (interdependent).

Second, motivation measures were slightly modified from Jung et al. (2007), which was used to measure individual SNS motivation to use Cyworld, a Korean SNS site. As a modification, 21 items were classified into two groups: social motivations and nonsocial motivations, including pastime, enjoyment, and job search (professional motivation). Items included, "I am using Facebook because it is entertaining," "I am using Facebook because it is enjoyable," "I am using Facebook because it is the thing to do," and "I am using Facebook in order to keep in touch with friends and family." Reliability coefficients calculated by Cronbach's alpha were .81 (social motivations) and .79 (nonsocial motivations).

Third, satisfaction measures were modified from Palmgreen and Rayburn (1985) and Patwardhan (2004). Items include, "I am satisfied with Facebook's performance," "Facebook comes close to my ideal medium for social networking activities," and "Facebook does not meet my social networking needs." Reliability coefficient (Cronbach's alpha) was .82.

The survey also asked participants to indicate sex, age, and ethnicity. In addition, SNS uses were measured by average Facebook usage time per week, "stay in" time per log-in to Facebook on average, number of buddies in the respondent's profile, and profile length calculated by the number of words.

3.3. SEM Path Analysis

The theoretical model in this article was examined using Structural Equation Modeling (SEM) path analysis with AMOS 7.0 software. Unlike ordinary least squares regression, SEM path analysis input all variables concurrently. SEM path analysis is more appropriate with exploratory research like this study than

ordinary least squares as it is able to evaluate many combinations of independent and dependent variables efficiently.

4. RESULTS

4.1. Correlation Coefficients

Table 1 provides zero-order correlations among all the variables included in the SEM path model along with descriptive statistics.

Correlation coefficients showed several trends. First, interdependent self-construal is positively associated with social motivations ($r = .205$, $p < .01$) and nonsocial motivations ($r = .151$, $p < .05$), but the correlation coefficients difference between the two was not great. Second, social motivations indicated a highly positive relationship with nonsocial motivations ($r = .688$, $p < .01$) and satisfaction ($r = .576$, $p < .01$), whereas nonsocial motivations are in proportion to SNS usage time ($r = .181$, $p < .05$), average usage hours per log-in ($r = .154$, $p < .05$), number of Facebook friends ($r = .160$, $p < .05$), and satisfaction from Facebook use ($r = .508$, $p < .01$). This indicates that social motivations, nonsocial motivations, and satisfaction levels are positively associated among themselves. However, this finding does not imply that social and nonsocial motivations are homogeneous in nature. The items used for measuring the two motivations were different. Third, usage time per week was positively related to nonsocial motivations and remarkably to profile length ($r = .521$, $p < .01$). Number of Facebook buddies ("friends") had a proportional relationship with satisfaction ($r = .224$, $p < .01$). In addition, satisfaction was positively related to social motivations ($r = .576$, $p < .01$), nonsocial motivations ($r = .508$, $p < .01$), and number of buddies.

4.2. T Test and ANOVA

Table 2 indicates that gender does not influence motivation and SNS usage other than absolute length of Facebook use per log-in. In other words, the T test failed to support Hypotheses 3 and 4, with an exception of the effect on average usage length for each log-in. Female participants' longer usage was also found by Barker (2009). Gender influence had no significant effects on satisfaction.

Table 3 shows that there is only limited difference among ethnicities in effect on motivation, SNS use, and satisfaction. Caucasian respondents ($M = 463.03$, $SD = 267.16$) had significantly more Facebook friends ($F = 10.470$, $p = .000$) than Asians ($M = 287.21$, $SD = 203.16$) and the other ethnicities ($M = 273.98$, $SD = 183.88$). Asians heavy reliance on their own SNSs (e.g., Cyworld in Korean case) and Caucasians higher social motivation (although marginally insignificant; Table 3) may explain this difference. Also, Asian respondents spend more time once they log in to Facebook than other groups ($M = 1.74$, $SD = 3.97$, $F = 3.742$, $p = .026$), which is congruent with Hargittai (2008). However, other motivation, SNS use, and satisfaction items did not find significant differences among the three groups.

Table 1: Zero-Order Pearson Correlation Coefficients

	ISC	*IntSC*	*Soc Mot*	*Non-Soc Mot*	*SNS Time*	*Hours*	*"Friends"*	*Prof Leng*	*Satis*	*Mean*	*Std. Deviation*	*N*
Independent Self-Construal (ISC)	1	.045	.028	−.079	−.025	.062	.036	−.119	.148	82.53	12.008	170
Interdependent Self-Construal (IntSC)	.045	1	.205**	.151*	.083	.013	.052	.097	.122	62.00	11.430	170
Social Motivation (Soc Mot)	.028	.205**	1	.688**	.110	.085	.288**	.108	.576**	58.95	14.071	170
Non-social Motivation (Non-Soc Mot)	−.079	.151*	.688**	1	.181*	.154*	.160*	.125	.508**	27.72	6.220	170
SNS Use Time (SNS Time)	−.025	.083	.110	.181*	1	.142	.078	.521**	.005	31.31	75.100	170
Hours per Log-In (Hours - average)	.062	.013	.085	.154*	.142	1	−.029	.017	.052	1.12	2.911	170
Number of "Friends" in SNS (Friends)	.036	.052	.288**	.160*	.078	−.029	1	.062	.224**	322.15	227.770	170
Profile Length (Prof Leng)	−.119	.097	.108	.125	.521**	.017	.062	1	−.138	247.22	956.662	170
Satisfaction from FB Use (Satis)	.148	.122	.576**	.508**	.005	.052	.224**	−.138	1	9.92	2.274	170

Note. FB = Facebook.
*$p < .05$, **$p < .01$.

Table 2: T-test of Gender Effect on Motivation, SNS Use, and Satisfaction

	SEX	*N*	*Mean*	*Std. Deviation*	*Std. Error Mean*	*T-test*	*T*	*Df*	*sig. (2-tailed)*	*Levene's Test for Equality of Variances (F)*	*Sig.*
Soc Mot	Male	74	58.9730	12.20933	1.41931	Equal variances assumed	−.283	166	.777	1.892	.171
	Female	94	59.5638	14.31862	1.47685	Equal variances not assumed	−.288	164.909	.773		
Non Soc Mot	Male	74	27.3649	4.68333	.54443	Equal variances assumed	−1.010	166	.314	7.716	.116
	Female	94	28.2872	6.66175	.68711	Equal variances not assumed	−1.052	164.052	.294		
Use Time	Male	74	39.99	106.713	12.405	Equal variances assumed	1.274	166	.204	8.415	.074
	Female	94	25.06	34.557	3.564	Equal variances not assumed	1.156	85.095	.251		
Hours	Male	74	.61	1.403	.163	Equal variances assumed	−2.028	166	.044	5.298	.120
	Female	94	1.52	3.665	.378	Equal variances not assumed	−2.218	125.297	.028		
Friends	Male	74	291.14	177.543	20.639	Equal variances assumed	−1.663	166	.098	4.582	.338
	Female	94	349.70	258.604	26.673	Equal variances not assumed	−1.737	163.180	.084		
Prof Leng	Male	74	281.93	1066.188	123.942	Equal variances assumed	.382	166	.703	.634	.427
	Female	94	224.62	876.507	90.405	Equal variances not assumed	.374	140.192	.709		
Satis	Male	74	9.73	2.036	.237	Equal variances assumed	−1.235	166	.218	.005	.942
	Female	94	10.14	2.198	.227	Equal variances not assumed	−1.247	161.611	.214		

Note. ISC = independent self-construal; IntSC = interdependent self-construal; Soc Mot = social motivation; Non-Soc Mot = nonsocial motivation; SNS Use Time = social networking site time; Hours = hours per log-in; Friends = number of "friends" in social networking site; Prof Leng = profile length; Satis = satisfaction from Facebook use.

Table 3: ANOVA: Ethnicity Effect on Motivation, SNS Use, and Satisfaction

	N	*Mean*	*Std.Deviation*	*ANOVA*	*Sum of Squares*	*Df*	*Mean Square*	*F*	*Sig.*	*Levene Statistic*	*Df1*	*Df2*	*Sig.*
Soc Mot													
All Other Ethnicities	56	57.2679	18.25426	Between Groups	1107.910	2	553.955	2.859	.060	8.465	2	167	.150
Caucasian	38	63.6842	9.86697	Within Groups	32352.614	167	193.728						
Asian	76	57.8158	11.78893	Total	33460.524	169							
Non-Soc Mot													
All Other Ethnicities	56	27.4464	8.15959	Between Groups	23.272	2	11.636	.298	.742	6.703	2	167	.055
Caucasian	38	27.3158	5.45302	Within Groups	6514.734	167	39.010						
Asian	76	28.1316	4.83416	Total	6538.006	169							
SNS Time													
All Other Ethnicities	56	38.61	99.040	Between Groups	6368.040	2	3184.020	.562	.571	2.076	2	167	.129
Caucasian	38	21.92	34.936	Within Groups	946798.055	167	5669.449						
Asian	76	30.62	69.489	Total	953166.094	169							
Hours													
All Other Ethnicities	56	.89	1.826	Between Groups	61.443	2	30.722	3.742	.026	4.795	2	167	.194
Caucasian	38	.24	.431	Within Groups	1370.962	167	8.209						
Asian	76	1.74	3.968	Total	1432.406	169							
“Friends”													
All Other Ethnicities	56	273.98	183.875	Between Groups	976859.436	2	488429.718	10.470	.000	4.378	2	167	.100
Caucasian	38	463.03	276.162	Within Groups	7790754.587	167	46651.225						
Asian	76	287.21	203.613	Total	8767614.024	169							
Prof Leng													
All Other Ethnicities	56	152.63	210.171	Between Groups	1460881.822	2	730440.911	.796	.453	1.948	2	167	.146
Caucasian	38	405.58	1364.053	Within Groups	153208211.125	167	917414.438						
Asian	76	237.74	1045.212	Total	154669092.947	169							
Satis													
All Other Ethnicities	56	10.34	2.517	Between Groups	26.755	2	13.377	2.637	.075	3.982	2	167	.120
Caucasian	38	10.18	1.430	Within Groups	847.251	167	5.073						
Asian	76	9.49	2.375	Total	874.006	169							

Note. ISC = independent self-construal; IntSC = interdependent self-construal; Soc Mot = social motivation; Non-Soc Mot = nonsocial motivation; SNS Use Time = social networking site time; Hours = hours per log-in; Friends = number of “friends” in social networking site; Prof Leng = profile length; Satis = satisfaction from Facebook use.

4.3. SEM Path Analysis

Table 1 includes correlation coefficients of all variables other than sex and ethnicity, and as such they are not discussed again in this section. In this model, the causal flow is unidirectional. Accordingly, it is a recursive model. Minimization was achieved with seven iterations. Chi-square of this model is 20.034 ($p = .273$, $df = 17$), which shows this model is valid. Many scholars argue that at least three fit tests should be considered to evaluate a model (e.g., Jaccard & Wan, 1996). The authors of this research decided to use comparative fit index (CFI) for baseline comparison and root mean square error of approximation (RMSEA) as a parsimony-adjusted measure from AMOS result, because both measures are known to be robust to small sample size (Fan, Thompson, & Wang, 1999). The RMSEA of this model was .032, which is acceptable (criterion = .2 or below). Also, a CFI of .989 meets acceptance criterion (criterion = .9 or above). These three indicators demonstrate that the theoretical model of this research is valid.

Table 4 represents standardized and unstandardized regression weights, standard error, *p* value, and independent and dependent variables.

Table 4: SEM Path Model: Results

	Indepdent Variable	*Dependent Variable*	*Sig.*	*Std.Error*	*Std. Reg. Coefficient*	*Unstd. Reg. Coefficient*
H1	Independent Self-Construal (ISC)	Non-social Motivation (Non-Soc Mot)	n.s.			
H2	Interdependent Self-Construal (IntSC)	Social Motivation (Soc Mot)	0.021	0.134	0.128	0.309
H7	Social Motivation (Soc Mot)	Number of "Friends" in SNS (Friends)	0.000	1.631	0.335	5.467
	Social Motivation (Soc Mot)	Other three "use" variables	n.s.			
H8	Non-social Motivation (Non-Soc Mot)	SNS Use Time (SNS Time)	0.051	1.248	0.200	2.432
	Non-social Motivation (Non-Soc Mot)	Other three "use" variables	n.s.			
H9	Profile Length (Prof Leng)	Satisfaction from FB Use (Satis)	0.000	0.000	−0.235	−0.001
	Other three "use" variables	Satisfaction from FB Use (Satis)	n.s.			
H10	Social Motivation (Soc Mot)	Satisfaction from FB Use (Satis)	0.000	0.014	0.412	0.067
	Non-social Motivation (Non-Soc Mot)	Satisfaction from FB Use (Satis)	0.004	0.030	0.235	0.086

Note. FB = Facebook.

Unstandardized regression coefficients indicated that the positive relationships between (a) social motivations and satisfaction from SNS ($\beta = .412$, $p = .000$) and between (b) social motivations and number of Facebook friends ($\beta = .335$, $p = .000$) had the greatest prediction power among all hypotheses. This result supports the proposition that popularity of social networking sites are based on users' social motivation to use. Also, it confirms the hypothesis that making many "friends" in SNS is related to motivations to connect with others. Although independent self-construal (H1) failed to predict nonsocial motivations ($\beta = -.079$, $B = -0.069$, $p = .159$, $SE = .049$), interdependent self-construal (H2) predicted social motivations ($\beta = .128$, $B = .309$, $p = .021$, $SE = .134$). Hypothesis 9 concerns the relationship between SNS uses and satisfaction, but only the inverse linkage between profile length and satisfaction level was significant. As its unstandardized regression weight is $-.001$, this result may not be taken seriously. Further, the other three SNS use measures were not significant in predicting satisfaction from SNS use.

Figure 2 demonstrates statistically significant path coefficients with the notation of hypothesis numbers. Among all hypothetical relationships, H2, H7, H8, H9, and H10 were partially supported.

Differentiating total, indirect, and direct effects. Tables 5, 6, and 7 indicate total, direct, and indirect effects of independent variables, respectively.

Tables 6 and 7 show that there is a set-off between direct and indirect effects in predicting satisfaction from SNS use. For instance, the sum of indirect effects of nonsocial motivations on satisfaction from SNS use is $-.024$, whereas its direct effect is .236. Therefore, the total effect is positive, .211.

The combined effect of interdependent self-construal on satisfaction is positive (.055), and if compared with that of the independent self-construal (–.017), its magnitude is much higher in the opposite direction. Also, the combined effect of interdependent self-construal on social motivations (.128) is dependent on a direct relationship (.128). In sum, "interdependent self-construal → social motivations → satisfaction" has been supported with these results. It should be

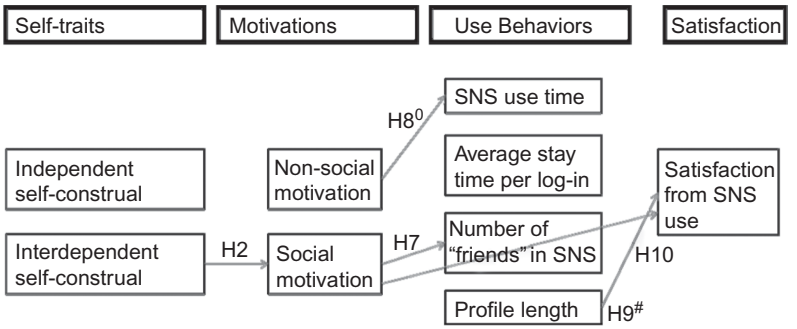

FIGURE 2 Hypotheses supported (in part or all) in the suggested model.
Note. H9#: Significant, but its direction was opposite to the hypothesized. H8⁰: Near-significant ($p = .051$).

Table 5: Total Effects (Standardized): Default Model

	IntSC	*ISC*	*Non-Soc Mot*	*Soc Mot*	*Prof Leng*	*Hours*	*SNS Time*	*"Friends"*
Non-Soc Mot	0.000	−0.079	0.000	0.000	0.000	0.000	0.000	0.000
Soc Mot	0.128	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Prof Leng	0.005	−0.008	0.095	0.041	0.000	0.000	0.000	0.000
Hours	−0.005	−0.014	0.181	−0.040	0.000	0.000	0.000	0.000
SNS Time	−0.004	−0.016	0.200	−0.029	0.000	0.000	0.000	0.000
"Friends"	0.043	0.006	−0.072	0.335	0.000	0.000	0.000	0.000
Satis	0.055	−0.017	0.211	0.429	−0.236	−0.018	0.036	0.079

Note. ISC = independent self-construal; IntSC = interdependent self-construal; Soc Mot = social motivation; Non-Soc Mot = nonsocial motivation; SNS Use Time = social networking site time; Hours = hours per log-in; Friends = number of "friends" in social networking site; Prof Leng = profile length; Satis = satisfaction from Facebook use.

Table 6: Direct Effects (Standardized): Default Model

	IntSC	*ISC*	*Non-Soc Mot*	*Soc Mot*	*Prof Leng*	*Hours*	*SNS Time*	*"Friends"*
Non-Soc Mot	0.000	−0.079	0.000	0.000	0.000	0.000	0.000	0.000
Soc Mot	0.128	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Prof Leng	0.000	0.000	0.095	0.041	0.000	0.000	0.000	0.000
Hours	0.000	0.000	0.181	−0.040	0.000	0.000	0.000	0.000
SNS Time	0.000	0.000	0.200	−0.029	0.000	0.000	0.000	0.000
"Friends"	0.000	0.000	−0.072	0.335	0.000	0.000	0.000	0.000
Satis	0.000	0.000	0.236	0.412	−0.236	−0.018	0.036	0.079

Note. ISC = independent self-construal; IntSC = interdependent self-construal; Soc Mot = social motivation; Non-Soc Mot = nonsocial motivation; SNS Use Time = social networking site time; Hours = hours per log-in; Friends = number of "friends" in social networking site; Prof Leng = profile length; Satis = satisfaction from Facebook use.

Table 7: Indirect Effects (Standardized): Default Model

	IntSC	*ISC*	*Non-Soc Mot*	*Soc Mot*	*Prof Leng*	*Hours*	*SNS Time*	*"Friends"*
Non-Soc Mot	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Soc Mot	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Prof Leng	0.005	−0.008	0.000	0.000	0.000	0.000	0.000	0.000
Hours	−0.005	−0.014	0.000	0.000	0.000	0.000	0.000	0.000
SNS Time	−0.004	−0.016	0.000	0.000	0.000	0.000	0.000	0.000
"Friends"	0.043	0.006	0.000	0.000	0.000	0.000	0.000	0.000
Satis	0.055	−0.017	−0.024	0.016	0.000	0.000	0.000	0.000

Note. ISC = independent self-construal; IntSC = interdependent self-construal; Soc Mot = social motivation; Non-Soc Mot = nonsocial motivation; SNS Use Time = social networking site time; Hours = hours per log-in; Friends = number of "friends" in social networking site; Prof Leng = profile length; Satis = satisfaction from Facebook use.

noted that causal linkage was significant only in one series of the path although there were positive correlations among social and nonsocial motivations, and satisfaction.

5. DISCUSSION: IMPLICATIONS FOR SOCIAL COMPUTING

5.1. The Effect of Self-Construals

This study reports that those who are highly concerned with relationships with others and their surroundings (i.e., strong interdependent self-construal) are motivated to enhance their social relationships, and by using SNSs, they are enjoying greater satisfaction from the use of the medium. On the other hand, there is no evidence that those who stress their own autonomy and independence (i.e., strong independent self-construal) have strong nonsocial motivations.

Results show that higher nonsocial motivations may lead to greater time spent for Facebook use per week. This result is interesting because it shows the possibility that computing for "social" purposes can explain only a part of an individual's motivation to use SNS. As uses and gratification theory suggest, there are still diverse and valid motivations for SNS use.

Meanwhile, satisfaction from SNS use is not directly related to how people use it; rather, it is linked to motivation to socialize through SNS. Behind this social motivation, interdependent self-construal exerts influence.

5.2. Sources of Satisfaction

The result of this study shows a salient linkage pattern: (Interdependent) self-construals → social motivations to use SNS → and satisfaction from SNS use. First, although there were significant and positive correlation coefficients between the two types of motivation and satisfaction from SNS use, the causal path starting from independent self-construal leading to satisfaction was not supported by this research. In contrast, the interdependent self-construal showed strong association with social motivation for SNS use and the motivation was directly linked to the satisfaction level. SNS use indicators other than profile length failed to support a causal path to satisfaction.

Extant theories such as uses and gratifications theory argue that people get *gratification* of their *needs* through media *use* (Katz et al., 1973; Palmgreen & Rayburn, 1985). However, what the current research indicated was that people get their gratification of needs if they have strong interdependent construal with social motivations to use it. How they use it did not make a significant difference according to the current research.

Although past studies have discussed the effect of gender on SNS use and satisfaction (e.g. Hargittai, 2008; Peluchetter & Karl, 2008; Raacke & Bonds-Raacke, 2008), this study did not find the same clear support for its effect. Similarly, Stefanone and Chang (2007) did not find such evidence, either. Only the average usage hours per log-in of females was found higher than males, which is same as Barker (2009). Females' greater connection-orientedness than males (Tannen, 1990) may justify this difference, but more studies still need to be conducted in order to better understand this finding, because gender differences may be less influential in communication in cyberspace than social contexts offline (Yates, 2001). Ethnicity also indicated only limited impact on Facebook use and satisfaction such as Asians

longer connection per log-in as Hargittai (2008) demonstrated. Further, although this study reports, "the shorter your profile is, the higher your satisfaction," this result should be reexamined in future research.

5.3. Implication for Social Computing

The findings of this research can help in developing enhanced models for social computing. First, this study demonstrates that usability can be enhanced by considering several individual level trait dimensions including self-concept, motivations, use patterns, and satisfaction (Hochheiser & Lazar, 2007; Khaslavsky, 1998; Schuler, 1994). As Facebook users with high interdependent construals are found to have greater social motivations, a new service for users with high interdependent self-construals that facilitates more social activities is suggested. Also, as people with nonsocial purposes such as entertainment use SNS more often than the other group, services that help people enjoy games can be developed. Second, if one applies the past research finding that East Asians are more interdependent than Western people to SNS use, a service for Asian people can be designed differently from one for Western people. For instance, Korean Cyworld service includes photo and content sharing by the clicking of another person's profile page. In addition, it provides easier interface to find people with similar hobbies, from the same birthplace, or with the same Chinese zodiac sign. Using self-construals for SNS design may increase cultural sensitivity, so that international users can enjoy customized service.

6. CONCLUSION AND SUGGESTIONS FOR FUTURE RESEARCH

This study proposed a new index of self-identity, self-construal, as a predictor of motivation to use SNSs and subsequent satisfaction from it. Largely, a causal link, "self-traits → motivation → (use of SNS) → satisfaction from SNS use," has been supported. People with strong interdependent self-construal have greater motivations to use SNS, and high motivation level is linked to higher satisfaction level. However, independent self-construal was found not relevant to motivations of using SNS, and low motivations may lead to low usage of SNSs. Also, the findings from this research suggest that the enhanced usability of SNS services may be possible by considering identity traits, motivations, cultural difference, and usage pattern.

This study presented a new approach for interpreting people's SNS use and their underlying motivations. Future research should compare the four categories of people depending on the intensity of independent/interdependent self-construals, "independent," "interdependent," "bicultural" (both self-construals high), and "marginal" (both low), in their use of social network media. Also, subsequent studies should compare SNS use internationally by comparing the use of Cyworld, Facebook, Xanga, MySpace, Twitter, and other similar media. In terms of sampling, future research may acquire more and diverse participants to elaborate what was found in the current study.

Also, habitual media use should be differentiated from intentional media use in future research. LaRose (2010) pointed out that motivation-based or planning-based models of media use cannot account for the mechanism behind unconscious or habitual media use.

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