Running head: SOCIAL COMPENSATORY FRIENDING ON FACEBOOK

# **Who Wants to Be “Friend-Rich”?:**

# **Social Compensatory Friending on Facebook and**

# **the Moderating Role of Public Self-Consciousness**

# 

Manuscript submitted to *Computers in Human Behavior*

# **Abstract**

# The present research aimed to provide insight into social compensatory friending on social network sites by investigating the effects of self-esteem and self-consciousness on number of friends in the context of Facebook use. It was hypothesized that Facebook users low in self-esteem, when compared with high-self-esteem individuals, would engage in friending more actively and thereby accumulate a large number of friends to compensate for their self-esteem deficiencies. We also hypothesized that the relationship between self-esteem and number of Facebook friends would vary depending on the levels of public self-consciousness as a moderating variable. Data were collected from a college student sample in the United States (N=234) based on a cross-sectional survey administered online. The results supported the hypothesis on social compensatory friending, demonstrating a negative association between self-esteem and number of Facebook friends. Furthermore, the data yielded support for the hypothesized moderating role of public self-consciousness in social compensatory friending: the negative association between self-esteem and number of Facebook friends was significant only for Facebook users who are high in public self-consciousness but not for those who are low in public self-consciousness. Implications for understanding Facebook users’ friending behavior in light of social compensation motives are discussed.

# (Abstract word count: 197)

# Keywords: Number of Facebook friends; social compensation; friending; self-esteem; public self-consciousness; private self-consciousness

# **1. Introduction**

# The word “friend,” which has primarily been used as a noun in modern English, is increasingly being used as a verb meaning “to add someone as a friend on a social network site”(Angwin, 2009). Particularly on *Facebook*—the world’s most popular social network site (SNS) and second most trafficked website next to *Google.* (Alexa, 2010), friending constitutes one of the core activities performed by the users (Ellison, Steinfield, & Lampe, 2007), providing a foundation for the remarkable growth of the website as an SNS with more than 750 million active members (Facebook, 2011).

# One of the key features of Facebook that can provide important insight into the phenomenon of SNS friending is number of Facebook friends, which is automatically displayed by the system on its user’s profile page (Antheunis & Schouten, 2011). Number of Facebook friends, which reflects the size of a user’s Facebook-based social connections, has received a significant amount of scholarly attention. Some researchers, in their investigation of the role played by Facebook in development of social capital, have examined number of Facebook friends as an important component of SNS use intensity (e.g., Ellison et al., 2007; Steinfield, Ellison, & Lampe, 2008; Valenzuela, Park, & Kee, 2009). Others have demonstrated that number of Facebook friends delivers important sociometric cues that determine how people make social judgments about Facebook profile owners (e.g., Kleck, Reese, Behnken, & Sundar, 2007; Tong, Van Der Heide, Langwell, & Walther, 2008).

# Despite the increasing interest in number of Facebook friends, relatively less attention has been paid to its relevance to self-presentation. Research has suggested that presentation of oneself as popular and active on Facebook could potentially be used as a strategy for boosting one’s self-esteem or gratifying one’s narcissism (Mehdizadeh, 2010). And, while number of Facebook friends has been recognized as a key indicator of profile owners’ sociometric popularity (Tong et al., 2008), its potential “utility” as a strategic means to manage self-presentation has largely been overlooked. Noting the lack of research in this area, we investigate the effects of self-esteem and self-consciousness—two important individual difference variables that shape one’s self-presentation behaviors (Baumeister, 1982; Chang, Hau, & Guo, 2001; Fenigstein, Scheier, & Buss, 1975)—on number of Facebook Friends.

## **1-1. Friending on Facebook**

Friends have traditionally been defined as peers who provide mutual companionship and social support (Santrock, 1987). The notion of Facebook friends, however, differs greatly from the traditional notion of friends in that the former expands much more quickly and broadly through the simple friending process in which a friend relationship becomes established when a user sends a friend request to an individual by clicking the “add” button and the other party accepts the request (Tong et al., 2008). When it comes to the traditional notion of *friends* —“people we know personally, whom we can trust, whom we feel some emotional affinity for,” some argue that the maximum possible number of social connections one can have is no more than 150 (Dunbar, 2010, p. 4). Contrastingly, on Facebook where the “friend” relationship may be more loose and superficial than the traditional notion of friendship, the number of friends often goes well beyond hundreds or even thousands (Dunbar, 2011; Tong et al., 2008).

Although the number Facebook friends is automatically displayed on one’s profile in the form of “system-generated” (Antheunis & Schouten, 2011, p. 395) or “machine-rendered” (Tong et al., 2008, p. 534) information, it is important to note that the number, as a “behavioral residue of the way one accrues one’s associations online” (Tong et al., 2008, p. 537), reflects how actively the profile owner engages in friending. For a “friend” relationship on Facebook to be established and the number of friends to increase, a friend request should be made *and* be accepted; hence, profile owners can “strategically” increase the number by making a large number of friend requests and/or by accepting friend requests from others whenever possible. And because the number of friends is displayed and is constantly updated on one’s profile page, being made visible not only to the profile owner him/herself but also to others who can access the profile, self-presentational concerns may play a key role in Facebook users’ friending behavior. In particular, we examine self-esteem and self-consciousness as important individual difference variables that can shed light on the self-presentational dynamics behind “the number.”

## **1-2. Self-Esteem and Friending for Social Compensation**

The pursuit of self-esteem based on “the desire to believe that one is worthy” (Crocker & Park, 2004, p. 392) has critical influence on how people present themselves to others (Baumeister, 1982). With respect to how people develop and expand online social connections, research examining the social compensation hypothesis (Valkenburg, Schouten, & Peter, 2005) is particularly relevant to understanding the role of self-esteem. The social compensation hypothesis on online behaviors posits that people who have low regard for their offline self and/or are dissatisfied with their offline social environments may strive to compensate for the deficiencies by actively engaging in online activities and/or by making themselves look popular online (Valkenburg et al., 2005; Zywica & Danowski, 2008). Along similar lines, people lower in self-esteem are more likely to strategically increase the number of Facebook friends to compensate for their self-esteem deficiencies and thereby accumulate a larger number of friends, considering that number of Facebook friends could serve as an indicator of sociometric popularity (Tong et al., 2008). Labeling such a behavioral tendency as *social compensatory friending*, we hypothesize:

***H1:*** *Self-esteem will have a negative association with number of Facebook friends.*

## **1-3. The Role of Self-Consciousness (SC): Private versus Public**

While self-esteem concerns evaluation of the self, self-consciousness (SC) entails regulation of the self (Fenigstein et al., 1975). When one’s self-relevant awareness is centered on covert aspects of the self (e.g., beliefs, values, and feelings privately held by the self), such introspection-oriented self-awareness is labeled as private SC (Carducci, 2009). Individuals high in private SC tend to regulate their behavior based on their inner feelings and convictions (Fenigstein et al., 1975; Scheier, Buss, & Buss, 1978); hence, they are more likely to resist social pressure and behave consistently with their own privately held attitudes/beliefs than those who are low in private SC. In contrast, public SC refers to the self-attention centered on “matters of public display” of the self (Scheier & Carver, 1985, p. 687); hence, individuals high in public SC tend to conform to the norm and tend to be more sensitive to how they are viewed by others when compared with those who are low in public SC.

Considering the aforementioned characteristics of private versus public SC, we predict that both types of self-consciousness would play a critical role in determining how actively one engages in friending. As for private SC, people who are higher in private SC – who tend to act according to their privately held feelings/beliefs and be resistant to social norms and pressure – may be less active in friending. Facebook users are often faced with situations in which they find it difficult to refuse a friend request sent by someone they know (boyd & Ellison, 2007), as “social norms inhibit refusals to friend requests” (Tong et al., 2008, p. 538). Given the social norms and pressure associated with friending practices on Facebook (e.g., it is rude to refuse friend requests), it is possible to predict that those who are higher in private SC are more likely to ignore or refuse friend requests from people they do not want to become friends with and thus accumulate a smaller number of friends. By contrast, Facebook users who are higher in public SC are more likely to accept friend requests conforming to the “social norms and pressure” pervasive in the Facebook realm; those who are high in public SC are also more likely to engage in active friending as an attempt to look popular to others as an attempt to construct a positive public self-image. We thus hypothesize:

***H2:*** *Private SC will have a negative association with number of Facebook friends.*

***H3:*** *Public SC will have a positive association with number of Facebook friends.*

## **1-4. Public Self-Consciousness as a Moderator of Social Compensatory Friending**

We further predict that the relationship between self-esteem and number of Facebook friends would vary depending on the levels of public SC. Specifically, we expect that social compensatory friending (as indicated by a negative association between self-esteem and number of Facebook friends) is more likely to be exhibited by Facebook users who are highly concerned with the impression they make on other people. Individuals with high levels of public SC, whose behavior tends to be regulated by their public self-image and by “perceived public demands” (Chang et al., 2001, p. 342), may be more inclined to increase the number of Facebook friends as a means to repair their self-esteem, for the number is constantly and publicly displayed on their Facebook profile. Given this, we predict that self-esteem and public SC would interact, with public SC serving as the moderating variable (Baron & Kenny, 1986) in determining the relationship between self-esteem and number of Facebook friends. We thus posit the following hypothesis to test the moderating role of public SC in social compensatory friending:

***H4:*** *The negative association between self-esteem and number of Facebook Friends is more likely to be pronounced among those who are high in public SC than those who are low in public SC.*

## **2. Method**

### **2-1. Overview**

To investigate the effects of self-esteem and self-consciousness on number of Facebook friends, we conducted a cross-sectional online survey with a convenient sample of college-age Facebook users. Predictor variables included self-esteem, private SC, and public SC; number of Facebook friends was the criterion variable. As control variables that might affect the criterion variable, we considered socio-demographics (age, gender, income, and race) and personality traits (Big-Five traits and affinity-seeking). We also controlled for variables that serve as indicators of Facebook use behavior (Facebook use history and Facebook dependency).

More specifically, the Big-Five personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) were included as controls because the existing research on Facebook use (e.g., Correa, Hinsley, & de Zúñiga, 2010; Ross et al., 2009) presents important links between these personality traits and patterns of Facebook use. In addition, as another personality trait that might significantly influence number of Facebook friends, we controlled for affinity-seeking: an indicator of the extent to which people engage in “the active social-communicative process by which individuals attempt to get others to like and feel positive toward them” (Bell & Daly, 1984, p. 91). We expected that people who are high in affinity-seeking would be more active in expanding their Friends network and thereby have a larger number of Facebook friends when compared with those low in affinity-seeking.

We also took into consideration that Facebook use history (i.e., how long the participant has been a member of Facebook) and Facebook dependency (i.e., how dependent the participant is on Facebook) would reflect behavioral aspects of Facebook use that might affect number of Facebook friends. Specifically, people who have used Facebook for a longer period of time are more likely to have a large number of Facebook friends. And people who show greater dependency on Facebook – spending more time on Facebook and considering Facebook to be central to their everyday lives – are more likely to have a large number of Facebook friends than those who are less dependent on Facebook. Therefore, Facebook use history and Facebook dependency were included as additional control variables.

### **2-2. Participants and Procedure**

A total of 234 undergraduate students (30.8% male, 69.2% female) attending a four-year undergraduate institution located in the Midwestern region of the United States participated in this study (*Mage*= 19.68, *SDage*= 1.14). Participants were recruited by e-mail invitations circulated through various campus emailing lists, and the invitation message contained the URL of the survey questionnaire for data collection. The data collection was administered in December 2009 with a response rate of 52%. Participants received five dollars for completing the online questionnaire.

### **2-3. Measurement of Variables**

*Self-esteem* was measured by the Rosenberg self-esteem scale (Rosenberg, 1989), which contains 10 items that assess trait self-esteem (e.g., “On the whole I am satisfied with myself”; “I take a positive attitude toward myself”). Following the original scale, participants rated their agreement to the items on a four-point scale ranging from *strongly disagree* (1) to *strongly agree* (4). One of the 10 items (i.e., “I wish I could have more respect for myself”) lowered the reliability; therefore, this item was excluded. The reliability of the remaining nine items (*α* = .82) was comparable to the alpha values previously reported (e.g., Gonzales & Hancock, 2011). The scores were averaged across the nine items.

*Self-consciousness* (private versus public) was measured with the revised version of the self-consciousness (SC) Scale presented by Scheier and Carver (1985), which made the scale items easier to understand for general populations than those of the original scale by Fenigstein, Scheier, and Buss (1975). From this 22-item scale, seven items reported to have the highest factor loading for private SC (*α* = .78) and seven items for public SC (*α* = .80), respectively, were used in our study. The items measuring private SC included, “I generally pay attention to my inner feelings” and “I’m constantly thinking about my reasons for doing things”; the items measuring public SC included, “I care a lot about how I present myself to others” and “I’m concerned about what other people think of me.” Participants rated these items on a five-point Likert scale, which ranged from *not at all like me* (1) to *a lot like me* (5). The scores were averaged across the items.

*Number of Facebook friends* was an open-ended item that measured the actual number of one’s Facebook friends as listed in his/her Facebook profile. To increase accuracy of participants’ responses, we specifically instructed participants to access their Facebook profiles by opening another web browser window and logging onto *Facebook.com* to access their account; participants were then asked to provide the exact number of Facebook friends displayed on their profile page at the time of the survey.

*Socio-demographics.* In addition to the age and gender variables (reported in the Participants subsection), participants’ household income and racial/ethnic background were measured. The five answering categories used for measurement of household income were “under $20,000 (1),” “$20,000–$34,999 (2),” “$35,000–$49,999 (3),” “$50,000–$74,999 (4),” and “$75,000 or more (5).” The categories for race/ethnicity were “American Indian/Alaska Native,” “Asian/Pacific Islander,” “Black/African American,” “Hispanic,” “Caucasian/White,” and “Multiracial.”[[1]](#footnote-1)

*Big-five personality traits* were assessed by the 10-item Personality Inventory by Gosling, Rentfrow, and Swann (2003), which has been demonstrated to reach adequate levels of validity and reliability in measuring openness, conscientiousness, extraversion, agreeableness, and neuroticism (Gosling et al., 2003). Openness was measured with “open to new experiences- complex” and “conventional-uncreative (reversed)” (*r* = .18, *p* < .01); conscientiousness with “dependable-self-disciplined” and “disorganized-careless (reversed)” (*r* = .50, *p* < .001); extraversion with “extraverted-enthusiastic” and “reserved-quiet (reversed)” (*r* = .54, *p* < .001); agreeableness with “sympathetic-warm” and “critical-quarrelsome (reversed)” (*r* = .25, *p* < .001); and neuroticism (i.e. the opposite of emotional stability) with “anxious-easily upset” and “calm-emotionally stable (reversed)” (*r* = .53, *p* < .001). Participants rated how these traits applied to them on a seven-point Likert scale, which ranged from *very strongly disagree* (1) to *very strongly agree* (7). For each category of the five personality traits, the scores were averaged across the items.

*Affinity-seeking* was measured by 13 items developed by Bell, Tremblay, and Buerkel –Rothfuss (1987). Participants rated the items (e.g., “I can put on excellent social performances to get others to approve of me”; “I am good at getting others to want to hang around with me”) on a seven-point Likert scale, which ranged from *very strongly disagree* (1) to *very strongly agree* (7). The reliability of this measure (Cronbach’s *α* = .84) was comparable to the alphas previously reported (e.g., Bell et al., 1987). The scores were averaged across the items.

*Facebook use history* was measured by the question, “Approximately, how long have you had your Facebook profile?” Participants were provided with seven answer choices, which ranged with a 6-month interval from *less than 6 months* (1) to *more than 3 years* (7).

*Facebook dependency* was assessed by five items adopted from the Facebook intensity scales created by Ellison et al. (2007) and expanded by Ross et al. (2009), which were originally ddesigned to assess the extent to which users feel connected to Facebook; the adopted items included “I would be sad if Facebook shut down” and “I feel out of touch when I haven't logged on to Facebook for a while.” Participants rated the items on a five-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5). This measure was reliable (*α* = .71), and the scores were averaged across the five items.

**3. Results**

Table 1 shows the means, standard deviations, and bivariate correlation coefficients (along with their *p*-values) of the predictor, criterion, and control variables. Some notable patterns of significant associations emerged in the bivariate correlation among the control variables. As for the Big-Five personality traits, openness had a positive association with extraversion, agreeableness, and affinity-seeking; conscientiousness had a positive association with agreeableness while showing a negative association with neuroticism; and extraversion showed a positive association with affinity-seeking. With respect to Facebook use behavior, Facebook history showed a positive association with participants’ age, extraversion, affinity-seeking; Facebook dependency showed a positive association with neuroticism.

Among the variables specific to hypothesis testing, self-esteem was positively associated with openness, conscientiousness, extraversion, agreeableness, and affinity-seeking; however, self-esteem was not significantly correlated either with private SC or with public SC. Private SC showed a positive association with the dichotomized gender variable (1= female), indicating that females exhibited higher levels of private SC than males; private SC was also positively correlated with openness, affinity-seeking, and Facebook dependency. Public SC also showed a positive association with the dichotomized gender variable, indicating that females showed higher levels of public SC than males; public SC was also positively correlated with conscientiousness, agreeableness, and Facebook dependency.

[Table 1 about here]

In order to test our hypotheses while controlling for socio-demographics, personality traits, and Facebook use behavior,[[2]](#footnote-2) we conducted a hierarchical multiple regression analysis: number of Facebook friends was regressed on self-esteem, private SC, public SC, and the interaction term between self-esteem and public SC, along with the aforementioned control variables.

To begin with, Model 1 contained only socio-demographic variables (with gender and race/ethnicity variables dichotomized). Next, personality trait variables were included in Model 2. Model 3 introduced Facebook use variables (history and dependency). Finally, self-esteem, self-consciousness (private vs. public SC), and the self-esteem x public SC interaction term were added to Model 4 (See Table 2).[[3]](#footnote-3)

The final model, accounting for 40% of the variance in number of Facebook friends (*p* < .001), yielded interesting information about the control variables. Among the socio-demographic variables, gender was the only variable that had a significant relationship with number of Facebook friends (*β* = −.14, *p* < .05): male participants had a larger number of Facebook friends than female participants. And, among the personality trait controls, extraversion (*β* = .28, *p* < .001) and affinity-seeking (*β* = .13, *p* < .05) had a significant positive relationship with number of Facebook friends; no other personality trait variables showed a significant relationship with number of Facebook friends. As for Facebook use behavior, both Facebook history (*β* = .37, *p* < .001) and Facebook dependency (*β* = .12, *p* < .05) showed a significant positive association with number of Facebook friends.

[Table 2 about here]

Our hypotheses were tested based on the final model. After controlling for socio-demographic variables, personality trait variables, and Facebook use variables (history and dependency), self-esteem showed a significant negative association with number of Facebook friends (*β* = −.21, *p* < .01), indicating that people with lower levels of self-esteem tended to have a larger number of Facebook friends; therefore, the data supported H1. On the other hand, H2, which posited that private SC would be negatively related with number of Facebook friends, was not supported: although the direction was consistent with our prediction, the association did not reach significance (*β* = −.06, *ns*). Next, public SC showed a significant positive association with number of Facebook friends (*β* = .15, *p* < .03); therefore, H3 was supported by the data.

Finally, we examined the hypothesized interaction between self-esteem and public SC in H4, which posited that the negative association between self-esteem and number of Facebook friends would be more pronounced among individuals with high levels of public SC than those with low levels of public SC. The analysis showed that the self-esteem x public SC interaction term was significant after control (*β* = −.12, *p* < .04). As a way to illustrate the interaction effect, an equation for predicting number of Facebook friends (transformed) was constructed based on the unstandardized regression coefficients derived from the final regression model.[[4]](#footnote-4) In order to plot the interaction and to test H4, we set three values (“low” vs. “medium” vs. “high”) for self-esteem and two values (“low” vs. “high”) for public SC based on the recommendation by Cohen et al. (2003): the “low” value was set at one standard deviation below the mean, the “medium” value at the mean, and the “high” value at one standard deviation above the mean. Based on these set values, simple regression lines were plotted with all other variables held constant at their means (Figure 1). To further probe the interaction effect as predicted in H4, we conducted a series of simple slope tests, following the procedure recommended by Cohen et al. (2003). Whereas the negative slope for high public SC (*t* = −3.72, *p* < .001) was significantly different from zero, the slope for low public SC (*t* = −1.10, *p* = .27) did not significantly differ from zero. The data thus supported H4.

## **4. Discussion**

***4-1. Summary of the Findings***

The present research investigated the influence of Facebook users’ sense of self on number of Facebook friends, which is often perceived as a key indicator of sociometric popularity (Antheunis & Schouten, 2011; Tong et al., 2008). In particular, we examined the role of self-esteem and self-consciousness (private vs. public). First, as predicted, our data showed that self-esteem had a significant negative association with number of Facebook friends, suggesting that people with lower levels of self-esteem may actively engage in friending, possibly with the intention to use number of Facebook friends to repair or compensate for their low self-esteem (Zywica & Danowski, 2008). With regard to the findings concerning self-consciousness, private SC and number of Facebook friends did not reveal a significant association while its direction (negative) was consistent with our hypothesis. On the other hand, we found that public SC had a significant positive association with number of Facebook friends, which suggest that people who are greatly concerned about their public self-image are likely to have a larger of number of Facebook friends than those with low levels of public SC.

More interestingly, our data revealed a significant interaction between self-esteem and public SC. As predicted, the significant negative association between self-esteem and number of Facebook friends was found only among people with higher levels of public SC. This finding suggests that those who are highly concerned about their public self-image are more likely to engage in the act of friending driven by the desire or need for social compensation. It is possible that the individuals whose behavior tends to be regulated by self-presentational concerns (Chang et al., 2001) may regard number of Facebook friends as an immediate and effective popularity indicator and thereby actively expand their Facebook friend connections in order to compensate for their self-esteem deficiencies.

***4-2. Limitations***

The present research has several limitations that should be noted. First, the data were obtained based on a cross-sectional survey; therefore, caution is warranted in drawing causal claims based on the findings reported here. In order to minimize this problem, we controlled for a wide range of variables including socio-demographics, personality traits, and Facebook use behaviors including Facebook use history and dependency. In addition, the predictor variables examined in the present study—self-esteem and self-consciousness—are *trait* variables that are in general considered to remain relatively stable over time (Robins & Trzesniewski, 2005). Nonetheless, future research should pursue longitudinal approaches (e.g., Steinfield et al., 2008) to properly address the causality issue and take into consideration how Facebook users’ sense of self shapes the growth of their Facebook friend networks over time.

Also problematic is that we did not control for participants’ offline friend networks and popularity, which prevents us from accounting for the role of offline friendships in the construction of Facebook friend networks (Zywica & Danowski, 2008). This issue is particularly critical to address given that Facebook friend relationships often implicate the users’ social connections based on offline relationships and interactions (boyd & Ellison, 2007; Tong et al., 2008).

In addition, our convenience sample lacks racial/ethnic diversity. In our data, White/Caucasian participants accounted for 91.5% of the total sample. Although the proportion of each racial/ethnic category included in the sample was representative of the student population of the institution where the data were collected, extending the current findings to the general college student population in the U.S. may be limited because of the predominantly White/Caucasian sample employed in our research.

Another limitation concerns our participant sample. As in many other studies on SNSs including Facebook (Ellison, Heino, & Gibbs, 2006; Ellison et al., 2007; Ross et al., 2009), our sample consisted of college students. Although college-age users constitute the core user population when it comes to Facebook use, future research should be conducted with non-college-age samples such as older adults and adolescents. Whereas Facebook was primarily used by college students in its early phase (boyd & Ellison, 2007), the door for Facebook membership has been open to the general public since 2006. From then on, the number of users who are non- college-age users has shown a dramatic increase (e.g., Smith, 2009). Given this trend, it will be important to investigate how non-college-age users’ sense of self shapes their friending behavior and the size of their social connections on Facebook. As pointed out by Zywica and Danowski (2008), adolescent samples—high school students in particular—would be particularly intriguing to study in consideration that popularity among peers is considered such an important aspect of social life for these individuals. Even so, SNS users are rapidly expanding to a higher mean age of the late 30s (Hampton, 2011). No longer is Facebook strictly the SNS born out of the university culture. One must question whether the use of Facebook has changed in more mature user circles. For example, are the digital exchanges elevated intellectual discussion; or is the rhetoric from 30 ad 40 year olds on the platform construct an online persona comparable to a college student? Certainly, further research would be very revealing. But the research done at the college age, begs the question, has Facebook changed to the culture of an older age group or has a highly educated, older age group been enraptured by the pressure of public SC?

***4-3. Implications and Suggestion for Future Research***

Despite the aforementioned limitations, the present research presents an intriguing picture on the meaning of “friending” in the context of Facebook use by identifying key predictors of number of Facebook friends, particularly with an emphasis on Facebook users’ sense of self. Past research on Facebook has largely viewed number of Facebook friends as an element of a composite measure that assesses intensity of Facebook use (e.g., Ellison et al., 2007; Steinfield et al., 2008; Valenzuela et al., 2009), or as a source of social information that shapes Facebook profile viewers’ impression formation of profile holders (e.g., Kleck et al., 2007; Tong et al., 2008). Extending the existing research on online social connections in the context of Facebook use, our study provides important insight into the motives behind the practice of friending on Facebook by demonstrating that Facebook users who are low in self-esteem and/or high in public SC may actively accumulate Facebook friends. In particular, our findings with respect to the moderating role of public SC in social compensatory friending (i.e., the negative association between self-esteem and number of Facebook friends being more pronounced among the high-public-SC than among the low-public-SC individuals), suggest that the motivation to “consume” the symbolic meaning and sociometric value derived of the number of Facebook friends may be central to social compensatory friending.

One important question that should be addressed in future research is the social and psychological consequences of social compensatory friending. In their research on the relationship among Facebook use intensity, life satisfaction (of which measures included self-esteem), and social capital, Ellison et al. (2007) and Steinfield et al. (2008) demonstrate that individuals with low self-esteem tend to benefit significantly from being “friend-rich” and Facebook-active (as indicated by their Facebook use intensity measure), which allows them to gaining access to bridging social capital, namely, loose social connections that could provide valuable information and insights (Putnam, 2001). On the other hand, it should be noted that excessive friending may also be detrimental. For example, Tong et al. (2008) demonstrated in their experiment that number of Facebook friends can serve as a signal to sociometic popularity only up to a certain point; beyond the optimal point, “friending reaches a point of incredulity or foolishness” (2008, p. 538). Hence, excessive friending can possibly lead others to form negative evaluation of the friend-rich SNS users.

This becomes especially relevant as users begin to petition Facebook for their privacy protection and as non-technical users learn more and more about internet security, the topic of rapid or careless friending will be a discussion of public focus. This tipping point will be interesting to study as Facebook departs from its own interconnected web of connections towards an open effort to socialize the web. Facebook now boasts Application Programming Interfaces (APIs) allowing developer communities access to its immense social graph – exposing user information. This power manifests itself to users in website widgets, plug-ins, push notifications, mobile applications, “sign on with Facebook” buttons, and status updates read by the newest Chevy vehicle. Facebook is slowly extending its reach into every part of life. Zuckerberg himself says in an interview with Charlie Rose,

“the next five years is about – ok now you are connected to all these people… you have have a better movie watching experience… what news you should read first… all of these things are going to get better. I think five years from now, I think people are really going to look back and say ‘Wow, over the last five years all of these products have now gotten better because I’m not doing this stuff alone, I’m doing it with friends’” (Macale, 2011).

This growth in functionality, though impressive, is now raising questions. The *Wall Street Journal* printed a story about how Facebook “misled users about its misuse of their personal information” (Angwin, 2011). Hackers have made an impact and some are making widespread news attention, such as when French President Nicolas Sarkozy’s Facebook profile was hacked (Bell, 2012). The media and users are taking a second look. As this study and others contribute to public knowledge about behavior on the social network, in combination with wide spread media concerns of privacy (Carmody, 2011), users may begin to encourage their friend-rich friends to avoid any unwise behavior. This will likely move to the point of pruning their friend connections to the optimal point (Tong et al., 2008). It has already begun. ABC’s Jimmy Kimmel has dubbed Nov. 17th as “National Unfriend Day” (Bissram, 2011). Encouraging users of Facebook to trim off connections with people they truthfully do not know. Social compensatory friending may drastically change for the good, for users’ privacy and safety.

Excessive friending may not only have detrimental effects on how the friend-rich individuals are perceived or how they perceive themselves; it may also have negative effects on their subjective well-being. For instance, the “sociometric overload” (2008) could burden the friend-rich Facebook users psychologically. Having an excessively large friend network is equivalent to having an excessively large “audience” in the SNS realm (Krämer & Winter, 2008); hence, the condition of sociometric overload may place the friend-rich Facebook users under a constant stress of being “exposed” to a large audience. Particularly for those who engage in social compensatory friending primarily in pursuit of self-esteem and positive self-image, such sociometric overload may increase self-presentational concerns, only to incur various psychological costs, including, but not limited to, costs to autonomy, relationships, and self-regulation (Crocker & Park, 2004). The sociometric overload could also overwhelm the friend-rich with loneliness stemming from situations in which one has access to few people for genuine and intimate communication while being “crowded” by countless “friends” who may not reliably serve as the source of companionship or emotional support (Kim & Lee, 2011). This “loneliness-in-the-crowd” situation may, in turn, negatively affect the profile holder’s psychological well-being. As the possible social and psychological costs of excessive friending have yet to be empirically investigated, studies that can appraise and weigh positive and negative outcomes of social compensatory friending would constitute fruitful directions for future research.

# **References**

Alexa. (2010). *Top sites.* Retrieved July 15, 2011 from <http://www.alexa.com/topsites/global>.

Angwin, J. (2011, November 11). Facebook Retreats on Privacy. *Wall Street Journal*. Retrieved November 26, 2011, from http://online.wsj.com/article/SB10001424052970204224604577030383745515166.html?mod=googlenews\_wsj

Angwin, J. (2009). How Facebook is making friending obsolete. *Wall Street Journal*. Retrieved November 21, 2010 from <http://online.wsj.com/article/SB126084637203791583.html?mod=WSJ_hp_mostpop_read>.

Antheunis, M.L., & Schouten, A.P. (2011). The Effects of other-generated and system-generated cues on adolescents' perceived attractiveness on social network sites. *Journal of Computer-Mediated Communication,* 16(3), 391-406.

Baron, R.M., & Kenny, D.A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology,* 51, 1173-1182.

Baumeister, R.F. (1982). Self-esteem, self-presentation, and future Interaction: A dilemma of reputation. *Journal of personality,* 50(1), 29-45.

Bell, M. (2011, January 24). Sarkozy's Facebook hacked; intruder wrote French president would resign in 2012. *Wall Street Journal*. Retrieved November 26, 2011, from http://voices.washingtonpost.com/blog-post/2011/01/sarkozys\_facebook\_hacked\_intru.html

Bell, R.A., & Daly, J.A. (1984). The affinity-seeking function of communication. *Communication Monographs,* 51, 91-115.

Bell, R.A., Tremblay, S.W., & Buerkel-Rothfuss, N.L. (1987). Interpersonal attraction as a communication accomplishment: Development of a measure of affinity-seeking competence. *Western Journal of Speech Communication,* 51(1), 1-18.

Bissram, V. M. (2011, November 17). Delete Your Fake Facebook Friends on National Unfriend Day [VIDEO]. In *Mashable*. Retrieved November 26, 2011, from http://mashable.com/2011/11/17/national-unfriend-day-2/

boyd, D., & Ellison, N.B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication,* 13(1), 210-230.

Carducci, B.J. (2009). *The psychology of personality: Viewpoints, research, and applications*. West Sussex: Wiley-Blackwell.

Carmody, T. (2011, November 11). Under the Gun, Facebook Relents on Privacy. *Wire*. Retrieved November 26, 2011, from http://www.wired.com/epicenter/2011/11/facebook-relents-on-privacy/

Chang, L., Hau, K.T., & Guo, A.M. (2001). The Effect of Self-Consciousness on the Expression of Gender Views1. *Journal of Applied Social Psychology,* 31(2), 340-351.

Cohen, J., Cohen, P., West, S.G., & Aiken, L.S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (Third ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Correa, T., Hinsley, A.W., & de Zúñiga, H. (2010). Who interacts on the Web?: The intersection of users' personality and social media use. *Computers in Human Behavior,* 26, 247-253.

Crocker, J., & Park, L.E. (2004). The costly pursuit of self-esteem. *Psychological Bulletin,* 130(3), 392-414.

Dunbar, R. (2010). *How Many Friends Does One Person Need?: Dunbar's Number and Other Evolutionary Quirks*. Cambridge, MA.: Harvard University Press.

Dunbar, R. (2011). How many friends can you really have? *Spectrum, IEEE,* 48(6), 81-83.

Ellison, N.B., Heino, R., & Gibbs, J. (2006). Managing impressions online: Self-presentation processes in the online dating environment. *Journal of Computer-Mediated Communication,* 11(2), 415-441.

Ellison, N.B., Steinfield, C., & 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.

Facebook. (2011). *Facebook Statistics.* Retrieved on July 15, 2011 from <http://www.facebook.com/press/info.php?statistics>.

Fenigstein, A., Scheier, M.F., & Buss, A.H. (1975). Public and private self-consciousness: Assessment and theory. *Journal of consulting and clinical psychology,* 43(4), 522.

Gonzales, A., & Hancock, J.T. (2011). Mirror, mirror on my Facebook Wall: Effects of exposure to Facebook on self-esteem *CyberPsychology, Behavior, and Social Networking*. Retrieved 14 from.

Gosling, S.D., Rentfrow, P.J., & Swann, W.B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality,* 37(6), 504-528.

Kim, J., & Lee, J.R. (2011). The Facebook paths to happiness: Effects of the number of Facebook friends and self-presentation on subjective well-being. *CyberPsychology, Behavior, and Social Networking,* 14, 359-364.

Kleck, C., Reese, C., Behnken, D., & Sundar, S. (2007). The company you keep and the image you project: Putting your best face forward in online social networks. In *International Communication Association*. San Francisco.

Krämer, N.C., & Winter, S. (2008). Impression management 2.0: The relationship of self-esteem, extraversion, self-efficacy, and self-presentation within social networking sites. *Journal of Media Psychology: Theories, Methods, and Applications,* 20(3), 106-116.

Macale, S. (Actor). Rose, C. (Narrator). (2011). *The Full Interview: Zuckerberg and Sandb* [Online video]. Retrieved November 26, 2011, from http://thenextweb.com/facebook/2011/11/09/the-full-interview-zuckerberg-and-sandberg-with-charlie-rose/

Mehdizadeh, S. (2010). Self-presentation 2.0: Narcissism and self-esteem on Facebook. *CyberPsychology, Behavior, and Social Networking,* 13, 357-364.

Putnam, R.D. (2001). *Bowling alone: The collapse and revival of American community*: Simon & Schuster.

Robins, R.W., & Trzesniewski, K.H. (2005). Self-esteem development across the lifespan. *Current Directions in Psychological Science,* 14(3), 158.

Rosenberg, M. (1989). *Society and the adolescent self-image*. Middletown, CT: Wesleyan University Press.

Ross, C., Orr, E.S., Sisic, M., Arseneault, J.M., Simmering, M.G., & Orr, R.R. (2009). Personality and motivations associated with Facebook use. *Computers in Human Behavior,* 25(2), 578-586.

Santrock, J. (1987). *Adolescence: An introduction*. Dubuque, IA: Brown Publishers.

Scheier, M., Buss, A.H., & Buss, D.M. (1978). Self-consciousness, self-report of aggressiveness, and aggression. *Journal of Research in Personality,* 12(2), 133-140.

Scheier, M., & Carver, C.S. (1985). The self-consciousness scale: A revised version for use with general populations. *Journal of Applied Social Psychology,* 15, 687-699.

Schroeder, S. (2011, February 11). Facebook Privacy: 10 Settings Every User Needs to Know. In *Mashable*. Retrieved November 26, 2011, from http://mashable.com/2011/02/07/facebook-privacy-guide/

Smith, J. (2009). *Fastest Growing Demographic on Facebook: Women Over 55*. Retrieved April 19, 2011 from <http://www.insidefacebook.com/2009/02/02/fastest-growing-demographic-on-facebook-women-over-55/>.

Steinfield, C., Ellison, N.B., & Lampe, C. (2008). Social capital, self-esteem, and use of online social network sites: A longitudinal analysis. *Journal of Applied Developmental Psychology,* 29(6), 434-445.

Tabachnick, B.G., & Fidell, L.S. (2001). *Using multivariate statistics* (Fourth ed.). Needham Heights, MA: Allyn and Bacon Boston:.

Tong, S.T., Van Der Heide, B., Langwell, L., & Walther, J.B. (2008). Too much of a good thing? The relationship between number of friends and interpersonal impressions on Facebook. *Journal of Computer-Mediated Communication,* 13, 531-549.

Valenzuela, S., Park, N., & Kee, K. (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.

Valkenburg, P.M., Schouten, A.P., & Peter, J. (2005). Adolescents’ identity experiments on the Internet. *New Media & Society,* 7(3), 383.

Zywica, J., & Danowski, J. (2008). The faces of Facebookers: Investigating social enhancement and social compensation hypotheses; Predicting Facebook™ and offline popularity from sociability and self-esteem, and mapping the meanings of popularity with semantic networks. *Journal of Computer-Mediated Communication,* 14(1), 1-34.

**Figure Caption**

# *Figure 1.* Interaction between self-esteem and public self-consciousness

**List of Tables**

Table 1. *Descriptives and Bivariate Correlations of Variables*

Table 2. *Hierarchical Regression on Number of Facebook Friends*

1. . The distribution of the racial/ethnic categories was as follows: “American Indian/Alaska Native” (0%); “Asian/Pacific Islander” (3.0%); “Black/African American” (1.7%); “Hispanic” (1.3%); “Caucasian/White” (91.5%); and “Multiracial” (1.2%). [↑](#footnote-ref-1)
2. . Upon checking distributions of variables, we found that number of Facebook friends (minimum = 90, maximum = 1,611) showed moderate positive skew. This deviation from normal was remedied by a square root transformation, as suggested by Tabachnick and Fidell (2001). This transformed variable of number of Facebook Friends was used for the regression analysis. [↑](#footnote-ref-2)
3. . We centered the variables entering the interaction term prior to the multiple regression analysis as recommended by Cohen, Cohen, West, and Aiken (2003) to avoid problems that can be caused by nonessential multicollinearity as well as to enhance interpretational advantages (p. 267).

   [↑](#footnote-ref-3)
4. . Number of Facebook Friends = .89 + (0.10)Age + (0.43)Income + (−1.70)Gender + (1.47)Ethnicity + (0.09)Openness + (0.37)Conscientiousness + (1.13)Extraversion + (−0.08)Agreeableness + (−0.35)Neuroticism + (.88)AffinitySeeking + (1.37)FacebookHistory + (0.79)FacebookDependency + (−2.63)SelfEsteemcentered + (−0.49)PrivateSC + (1.27)PublicSCcentered + (−2.18)SelfEsteemcentered x PublicSCcentered

   [↑](#footnote-ref-4)