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## Relationships between Facebook Intensity, Friendship Contingent Self-Esteem, and Personality in U.S. College Students

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### Abstract

U.S. college students (N = 200) completed measures of Facebook use, friendship contingent self-esteem, personality, and narcissism. Those who strongly connected their self-esteem with their quality of friendship relationships were predicted to be more active Facebook users. As predicted, a significant positive relationship between Facebook intensity and friendship contingent self-esteem was found. No significant relationships between Facebook use and personality or narcissism were discovered. Implications for how and why college students use social networking media are discussed, including connections to previous research which discuss the relationship between high friendship contingent self-esteem and risk for depressive symptoms.

Keywords: Facebook, social networking, self-esteem, personality, college student

### Introduction

Online social networking sites, such as Facebook, Google+, and Bebo, have grown in popularity in recent years and they provide an exciting new area of study in the field of psychology. Facebook provides individuals with easy access to view personal information about their friends, coworkers, and even complete strangers (Muise, Christofides, & Desmarais, 2009). Facebook has over 500 million active users and every month over 700 billion minutes are spent on Facebook (Facebook, 2011). Among U.S. college students, 96% have a Facebook account (OnlineEducation.net, 2011). Given the popularity of online social networking sites, Facebook in particular, the current study was designed to investigate the relationship between Facebook use, the importance of quality of friendships to self-esteem, and personality in college students.

Social relationships are considered by many to be the most important component of human life (Erber & Erber, 2011). With the expansion of the Internet and social networking sites, more people are using technology to communicate with their friends and family online and maintain these interpersonal connections in novel ways that were not available in previous generations. Some researchers initially believed online activities negatively impacted relationships and feared that virtual communication would replace face-to-face interactions and deteriorate social bonds. Others, however, have found support for the idea that social networking sites and the Internet have expanded methods of staying socially connected with others and increased relationship closeness and connectedness (Bargh & McKenna, 2004; Jacobsen & Forste, 2011; Valkenburg & Peter, 2009). Social networking sites, such as Facebook, allow users to add "friends" and keep track of their status, interests, photos, "likes", and updates of others' personal information in cyberspace.

Internet use is related to both positive and negative psychological and social factors, but the key to understanding these outcomes is through examining specific types of Internet use instead of simply the amount of time spent online (Shields & Kane, 2011). While using social media can have positive benefits associated with community engagement, education, social connectedness, and identity development, it can also lead to risks linked to social rejection, cyberbullying, depression, exposure to inappropriate content, and other negative consequences related to general well-being (O'Keefe et al., 2011; Valkenburg & Peter, 2009). For example, a negative relationship has been found between time spent using electronic media, including social networking sites, and college grades (Jacobsen & Forste, 2011). In college, upper-class students with more Facebook friends reported high levels of social adjustment and stronger attachment to the college than students with less Facebook friends, although freshmen did not benefit from having more Facebook friends and actually reported decreased social and emotional adjustment (Kalpidou, Costin, & Morris, 2011). In other research on college students, a positive relationship was found between grade point average and the practice of starting the day using the Internet, while a negative relationship was found between grade point average and listening to music online (Shields & Kane, 2011). Many students watch online news videos first thing in the morning and these videos, as opposed to listening to music, can be informative and help with course learning,

performance, and social awareness. Starting the day online was also negatively related to symptoms of depression, perhaps because it demonstrates a desire for social connectivity (Shields & Kane, 2011).

With respect to self-esteem, the research is also mixed, especially considering the different types of self-esteem. In certain cases, excessive Facebook use may be related to lower general self-esteem (Kalpidou, Costin, & Morris, 2011; Mehdizadeh, 2010). For example, Mehdizadeh (2010) found a significant negative correlation between self-esteem and the number of times students checked Facebook per day and between self-esteem and the time spent on Facebook per session. Those with lower self-esteem also presented less self-promoting content on Facebook pages. However, Facebook can enhance self-esteem specifically related to the social functions of the self (social self-esteem) when individuals receive positive comments and feedback from their friends online (Valkenburg, Peter, & Schouten, 2006). Exposure to one's own Facebook profile can serve as a form of self-awareness and can also enhance overall feelings of self-esteem (Gonzales & Hancock, 2011). In their experiment, participants given the chance to update their Facebook profile also reported greater self-esteem than those not given the opportunity to change their personal profile information. Gonzales and Hancock (2011) explain that editing in a social networking site allows for optimization of self-presentation material, which enhances esteem.

In addition, researchers have found that introverted individuals and individuals with low self-esteem may benefit from the social opportunities provided by the Facebook interface, without the anxiety of interacting face-to-face (Ellison, Steinfield, & Lampe, 2007). Zywica and Danowski (2008) tested competing social enhancement and social compensation hypotheses about Facebook use regarding popularity and self-esteem of university students. As part of their data collection, researchers asked the open-ended question "What does it mean for you to be popular on Facebook?" and analyzed the text along with responses to other measures of self-esteem, sociability, popularity, and Facebook use. More social students with higher self-esteem are popular on Facebook and offline, supporting the social enhancement hypothesis. However, less social students with lower self-esteem are less popular offline and try to be more popular online, consistent with the social compensation hypothesis (Zywica & Danowski, 2008).

Facebook provides an opportunity for individuals who value their friendships to stay informed about social events and this technology may be particularly important and highly utilized by individuals whose value of themselves is contingent on how well their relationships with friends are succeeding. A newly developed friendship contingent self-esteem measure (Cambron, Acitelli, & Steinberg, 2010) provides a means for assessing the importance of relationships to beliefs about the self. As part of their study, Cambron, Acitelli, and Steinberg (2010) developed and tested a friendship contingent self-esteem measure to predict symptoms of depression. Their results suggest individuals with high levels of friendship contingent self-esteem are at an increased interpersonal risk for depressive symptoms. Related to the current investigation, the quality of friendships and how this quality affects self-esteem may be correlated with the frequency and intensity in which individuals engage in social networking. Individuals who value their friendships and see these friendships as important dimensions of themselves may engage in increased social networking behaviors to provide additional means for keeping connected with friends and sharing personal activities.

Other research has explored the personality types of individuals who engage in social networking and has found mixed results. The Five-Factor Model (Big Five) (Costa & McCrae, 1992) identifies five dimensions of human personality: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Past research has found relationships between Facebook use and extraverted personality (Correa, Hinsley, & du Zuniga, 2010), narcissism (Buffardi & Campbell, 2008; Ong et al., 2011; Mehdizadeh, 2010), and other personality traits (Back et al., 2010; Ross et al., 2009). While some studies have examined self-reports of Facebook use and personality and have not found strong relationships between personality and Facebook use (i.e., Ross et al., 2009), others have examined more objective Facebook behaviors and found strong relationships between personality and detailed Facebook use (Amichai-Hamburger & Vinitzky, 2010). Given the mixed results for personality factors related to Facebook use, we included a brief measure of personality and narcissism in our current investigation to compare specifically to our chosen measure of Facebook intensity (Ellison, Steinfield, & Lampe, 2007).

For the current study, we were specifically interested in the relationship between active Facebook engagement, self-esteem based on the quality of friendships, and personality. Prior research has not examined the relationship between Facebook usage and friendship contingent self-esteem, which makes this study an important, unique contribution to the literature. We predicted a positive relationship between Facebook intensity and friendship contingent self-esteem as our primary hypothesis. Importance of friend relationships to the self should be related to increased use of Facebook to maintain these friendships and friendship contingent self-esteem. Individuals who consider their relationships with friends to be an important part of how they feel about themselves should be more emotionally tied and actively involved with using Facebook. As secondary hypotheses, we also predicted positive relationships between Facebook intensity and extraversion and Facebook use and narcissism, consistent with previous research. Individuals who are more social should show more activity and engagement in social networking sites like Facebook, and individuals who are more narcissistic should use Facebook more intensely as a way to enhance their self-image with themselves and others.

## Method

### Participants

Undergraduates (N = 200) from public universities in Ohio and South Carolina participated in the current study for course research credit. The majority of the student participants were from Coastal Carolina University (77.5%) and 22.5% were from The Ohio State University. Sixty-five percent of the participants were women and 35% were men. Participant ages ranged from 18 to 40 (M = 19.98, SD = 5.45). The majority of participants were Caucasian (80%), while 14% were African American, 2.5% Hispanic, .5% Asian, 2.5% Native American, and .5% indicated "other". The

class rank of the participants consisted of 40% freshman, 35.5% sophomores, 13.5% juniors, 8.5% seniors, and 2.5% of the participants indicated "other".

### Materials and Procedure

The research was approved by an institutional review board and participants were recruited from undergraduate research participant pools at each university. Participants received research credit for participation in a study titled "Social Networking, Friends, & The Self." Participants were instructed the purpose of the study was to "investigate how social networking (i.e., Facebook) practices impact behaviors and attitudes related to friendship and the self." Participants completed a series of previously developed surveys in random order, as well as demographic questions regarding age, sex, race, and year in school.

The Facebook Intensity Scale (Ellison, Steinfield, & Lampe, 2007) was developed as part of an investigation of undergraduates' social networking site usage and social capital, the resources accumulated through being part of a network. Strong relationships were found between Facebook use and different types of social capital. An important part of this study was the development of a scale to measure Facebook intensity, including the active engagement with Facebook activities, the extent to which individuals were emotionally connected to Facebook, and how well Facebook was integrated into users' daily lives. Facebook intensity included number of Facebook friends and time spent online on a typical day, but it went beyond frequency and duration measures previously included in a measure of Facebook usage (Ellison, Steinfield, & Lampe, 2007). The Facebook Intensity Scale has eight questions designed to measure active engagement and emotional connection with Facebook ( $\alpha = .83$  in our sample). Example questions are "Facebook is part of my everyday activity" and "I would be sorry if Facebook shut down." Two additional Facebook Usage scales (Ellison, Steinfield, & Lampe, 2007) were used to measure how people used Facebook to meet new people (On to Offline; 1 item: "I use Facebook to meet new people") and connect with existing offline contacts (Off to Online; 5 items,  $\alpha = .68$ ; example item: "I have used Facebook to check out someone I met socially"). Participants answered each question from these scales on a five point Likert scale with 1=strongly disagree and 5=strongly agree.

The Friendship Contingent Self-Esteem Scale (FCSES; Cambron, Acitelli, & Steinberg, 2010) is an eight question scale which measures the importance of relationships to beliefs about the self ( $\alpha = .87$  in our sample). Sample questions include "I only feel good about myself when things are going well in my friendships" and "It really affects the way I feel about myself when friendships fall apart." Participants assess each statement on a five point Likert scale ranging from 1=very little like me to 5=very much like me.

The Narcissistic Personality Inventory 16 (NPI-16; Ames, Rose, & Anderson, 2006) is a 16-item questionnaire which measures narcissism ( $\alpha = .71$  in our sample). Participants read pairs of statements and then selected the statement that best described their feelings and beliefs about themselves. An example pair of choices would be "I really like to be the center of attention" or "It makes me uncomfortable to be the center of attention." Selecting the first option in this pair would contribute to a higher narcissism score.

The Ten-Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003) is a 10-item questionnaire, which includes two questions to measure each of the Big Five personality traits (alphas are not provided due to the low number of items per dimension). Participants rate how much they agree with each statement on a seven point Likert scale. The scale ranges from 1=disagree strongly to 7=agree strongly for each of the Big Five dimensions of personality: extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience. An example item on the extraversion dimension is "I see myself as extraverted, enthusiastic." The authors (Gosling, Rentfrow, & Swann, 2003) created the TIPI to be a very short instrument to measure broad personality categories, with optimized validity.

### Results

Descriptive statistics for Facebook usage indicated participants in the current sample had an average of 611.65 Facebook friends ( $SD = 420.10$ , Range = 38 – 2,660, Mdn = 541) and spend, on average, 73.02 minutes a day ( $SD = 97.68$ , Range = 0 – 360, Mdn = 30) on Facebook. Students from both universities sampled reported similar Facebook usage.

Table 1. Facebook Intensity, Personality, and Age Correlations.

	Facebook Intensity
Extraversion	.047
Agreeableness	.096
Conscientiousness	-.132*
Emotional Stability	-.056
Openness to Experience	.001
Age	-.164**

Note. \* Correlation is significant at the 0.10 level (2-tailed). \*\* Correlation is significant at the 0.05 level (2-tailed).

Facebook intensity, as measured with the Facebook Intensity Scale (Ellison, Steinfield, & Lampe, 2007), was positively correlated with friendship contingent self-esteem,  $r(198) = .21$ ,  $p = .003$ . However, a simple linear regression analysis revealed that the five personality variables together were not a good predictor of Facebook intensity,  $R^2 = .02$ ;  $F(5, 194) = .85$ ,  $p = .52$ . Individually, Facebook intensity was not correlated with narcissism,  $r(198) = .06$ ,  $p = .32$ , or the other measures of personality, all  $r$ s  $< .10$ , except conscientiousness, which was marginally significant,  $r(198) = -.13$ ,  $p = .06$ . Facebook intensity was also negatively correlated with participant age,  $r(198) = -.16$ ,  $p = .02$ , and narcissism was positively correlated with total number of Facebook friends reported,  $r(198) = .25$ ,  $p < .001$ . A summary of individual correlations are presented in Table 1 and Table 2. In addition, total number of Facebook friends reported and extraversion were positively correlated, but the relationship was only marginally significant,  $r(198) = .12$ ,  $p = .08$ .

Table 2. Facebook Intensity, Narcissism, Friendship Contingent Self-Esteem, and Facebook.

	Facebook Intensity	Narcissism	Friendship Contingent Self-Esteem
Narcissism	.065	1	-.161*
Friendship Contingent Self-Esteem	.212**	-.161*	1
Facebook Usage Off to Online	.538**	.068	.137
Facebook Usage On to Offline	.309**	.208**	.020
Minutes per day using Facebook	.552**	.093	.066
Facebook Friends	.393**	.247**	.009

Note. \* Correlation is significant at the 0.05 level (2-tailed). \*\* Correlation is significant at the 0.01 level (2-tailed).

We also investigated sex differences. Compared to the females in our sample, males reported fewer Facebook friends ( $M$ s = 585.43 and 625.67, respectively) and fewer minutes spent on Facebook per day ( $M$ s = 54.41 and 91.64, respectively), although these differences were not statistically significant,  $p$ s  $> .2$ . The males scored higher on the NPI-16 than the females,  $t(198) = 2.13$ ,  $p = .04$ , but there were no significant sex differences in FCESES scores,  $p = .46$ . Females scored higher than males on Facebook Intensity,  $t(198) = 2.04$ ,  $p = .04$ , although males reported higher scores than females concerning meeting new friends online (On to Offline),  $t(198) = 2.57$ ,  $p = .01$ . There were no significant sex differences concerning using Facebook to connect with existing offline contacts (Off to Online),  $p = .24$ . The only personality sex difference was in the openness to experience dimension, where males scored slightly higher than females,  $t(198) = 2.0$ ,  $p = .05$ .

## Discussion

As predicted in our primary hypothesis, Facebook intensity was positively related to friendship contingent self-esteem, although the strength of this relationship was only moderate. Individuals who consider friends and friend relationships important to their esteem are more actively engaged and emotionally connected using Facebook. Personality dimension measures were not significantly connected to Facebook intensity overall. However, there was a marginally significant negative correlation between conscientiousness and Facebook intensity, although the strength of this relationship was weak. These results are in line with research by Ross et al. (2009) which found limited relationships between general Facebook use and personality, including no relationship between extraversion and Facebook time spent online or using Facebook communicative features. More specific types of Facebook activities, such as content posted and groups joined, may provide more detailed information about individual differences in personality related to Facebook use (Amichai-Hamburger & Vinitzky, 2010). For example, Ross and colleagues (2009) found a positive relationship between extraversion and the number of Facebook groups users belonged to, a more specific Facebook activity.

While Facebook intensity was not associated with narcissism in our sample, more narcissistic individuals did report having more Facebook friends, although the strength of this relationship was moderate. More narcissistic people also reported using Facebook to meet new friends online. In addition, friendship contingent self-esteem was negatively correlated with narcissism, although the strength of this relationship was weak. Narcissistic individuals do not appear to derive their self-esteem from quality of friend relationships, but the quantity of friends appears to be important to them. Specific Facebook activities, such as the self-generated content of profile picture rating and status update frequency (Ong et al., 2011), may yield interesting avenues of future research related to narcissism and friendship contingent self-esteem.

Interestingly, older individuals used Facebook less in the current sample. This may be a function of younger students being more familiar with the technology, or older students shifting their focus on different social goals (i.e., networking to find a job) as they near graduation. Kalpidou, Costin, and Morris (2011) discuss how upper-class students use Facebook in more efficient ways and report greater social adjustment related to Facebook use compared to freshmen. Future research could explore more of these age related shifts in how Facebook is utilized, including samples outside of the college setting.

The current results highlight some of the first evidence of a link between Facebook intensity and friendship contingent self-esteem. Friendship contingent self-esteem has been identified as an interpersonal risk factor for depressive

symptoms (Cambron, Acitelli, & Steinberg, 2010) and may be related to maladaptive interpersonal behaviors, such as rumination and excessive reassurance seeking, that may lead to depression (Cambron & Acitelli, 2010). Rumination about negative events may make individuals with high friendship contingent self-esteem especially vulnerable to depression, although rumination about positive events for individuals high in friendship contingent self-esteem further reinforces their self-worth. Exposure to changes in Facebook information and posts may lead to rumination for those high in friendship contingent self-esteem, and the type of rumination may make self-esteem for those with high friendship contingent self-esteem fluctuate. Identifying these individuals with high friendship contingent self-esteem and monitoring their Facebook use, or even limiting Facebook use of those with unstable friendship contingent self-esteem, may be extremely valuable for parents, friends, school officials, and psychological professionals. While it may be difficult, or impossible in some cases, to monitor and control Facebook use of at risk populations, this may prevent more serious psychological problems in certain individuals with high friendship contingent self-esteem.

## Limitations and Future Directions

We recognize the limitations of using an exclusively U.S. college sample, constraints of our measures, and the general confines of correlational results. While college-aged students are indeed one of the primary groups using Facebook, questions still exist about the generalizability of results beyond college populations. In particular, age and education level variations should be investigated in future explorations of Facebook use, friendship contingent self-esteem, and personality. Sizes of social groups grow as individuals age and develop more friendships through work, family, and other activities. Friendship contingent self-esteem may become more or less valued as college students transition through other stages of life. Our measure of Facebook intensity (Ellison, Steinfield, & Lampe, 2007) was a general self-report measure. The literature on social networking use is expanding to include a more detailed analysis of very specific Facebook behaviors, as opposed to general Facebook use. Researchers have investigated public- and private-based contingencies of self-worth related to Facebook use (Stefanone, Lackaff, & Rosen, 2011), approach versus avoidance of others' perspectives on Facebook related to specific Facebook behaviors and Mind-Reading Motivation (Carpenter, Green, & LaFlam, 2011), and user-information uploads on Facebook (Amichai-Hamburger & Vinitzky, 2010). Future research should investigate friendship contingent self-esteem with these specific Facebook behaviors to extend the current findings.

As with all correlational designs, causal relationships between Facebook intensity and friendship contingent self-esteem cannot be determined. It is not possible to determine whether Facebook intensity increases friendship contingent self-esteem or whether friendship contingent self-esteem increases Facebook intensity. Further experimental methods may explore these questions in the future, especially considering many of our correlations would be classified as weak to moderate in terms of their strength. Furthermore, issues related to how the Internet contributes to various social relationships in multiple cultures and across different types of relationship interactions (friends, family members, and work colleagues) may be fruitful areas of exploration (Amichai-Hamburger & Hayat, 2011).

## Conclusion

Overall, the results of this study have broad implications for understanding individuals who use social networking sites and how their online behaviors are related to friendship contingent self-esteem. Individuals with higher friendship contingent self-esteem were more actively engaged and emotionally connected using Facebook, although this relationship yields cautionary concerns regarding potential depressive symptoms and psychological health. Secondary, we also found limited evidence of a link between our selected measures of Facebook use, personality, and narcissism. Future research investigating the role of friendship contingent self-esteem in Facebook use and specific Facebook experiences related to depression and maladaptive behaviors is warranted.

## Author Note

Portions of this research were presented at the 23rd Annual Association for Psychological Science Convention in Washington, D.C.

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