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# ASPECTS OF SOCIAL MEDIA USE AND WELLBEING

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### Abstract

Use of social media has quickly become part of everyday life, particularly for those who grew up in this age of technology. Although some research has examined social media use and its relationship to wellbeing, many studies have not accounted for the multifaceted nature of social media nor controlled potentially confounding variables. The current study focused on the relations of the intensity and purposes of social media use with sense of belonging and psychological wellbeing. The primary hypotheses addressed whether the intensity and purposes of social media use are associated with: (a) sense of belonging, and (b) psychological wellbeing. Participants were 298 undergraduate students. They completed an online questionnaire measuring intensity and purposes of social media use with the Gravitation Toward Facebook Scale (GoToFB) and the Multidimensional Facebook Intensity Scale (MFIS). The questionnaire also contained the Sense of Belonging Instrument – Psychological State (SOBI-P) and Ryff's Psychological Wellbeing Scale. In addition, a brief researcher-developed measure of face-to-face interaction was included to investigate the relationship between face-to-face interaction and intensity and purposes of social media use. The results largely did not support the hypotheses that the intensity and purposes of social media use would be associated with sense of belonging and psychological wellbeing. Multiple regression analyses revealed Expression ( $t = -2.13, p = .034$ ) and Learning ( $t = 1.97, p = .049$ ) of the GoToFB scale made significant, unique contributions to psychological wellbeing when gender, social desirability, self-esteem, and the Big 5 personality traits were controlled, but not when sense of belonging was also controlled (both  $ps = .11$ ). Sense of belonging accounted for significant variance in psychological wellbeing, even controlling for all other variables. Regarding bivariate relationships: the Learning subscale of the GoToFB scale was positively correlated with psychological wellbeing.

Additionally, the Monitoring subscale of GoToFB and the Persistence and Overuse subscales of the MFIS were *negatively* correlated with both sense of belonging and psychological wellbeing. Finally, significant relationships were found between different purposes or intensity of social media use and personality traits and face-to-face interaction. Implications for school and clinical psychology are discussed, along with recommendations for future research.

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## Table of Contents

Abstract .....	ii
Acknowledgements .....	iv
List of Tables .....	vii
List of Figures.....	viii
Introduction.....	<b>Error! Bookmark not defined.</b>
The Context: Sense of Belonging, Social Media Use and Wellbeing .....	1
Aspects of Social Media Use and Its Correlates .....	2
Sense of Belonging .....	5
Psychological Wellbeing.....	10
Aspects of Social Media Use.....	13
Face to Face Interaction.....	14
Current Study.....	16
Bivariate Hypotheses.....	18
Primary Hypotheses.....	19
Control Variables.....	19
Method .....	21
Subjects .....	22
Procedure .....	22
Materials .....	23
Data Analysis .....	29
Results.....	30

Tests of Assumptions.....	30
Descriptive Statistics.....	32
Tests of Bivariate Hypotheses .....	34
Tests of Primary Hypotheses .....	35
Discussion.....	39
Bivariate Hypotheses.....	39
Primary Hypotheses.....	40
Findings Regarding Personality.....	44
Implications for Practice .....	46
Limitations and Future Directions .....	48
References.....	63

## LIST OF TABLES

Table #1 Frequencies and Percentages for Participant Demographic .....	pg 50
Table #2 Chronbach's Alpha for the Scales and Subscale .....	pg 51
Table #3 Descriptive Statistics for the Primary Variables.....	pg 52
Table #4 Pearson Correlations .....	pg 57
Table #5 Hierarchical Multiple Regression of Sense of Belonging onto Gender, Social Desirability, Self-Esteem, the Big Five, and Type of Social Media Use.....	pg 58
Table #6 Hierarchical Multiple Regression of Psychological Wellbeing onto Gender, Social Desirability, Self-Esteem, the Big Five, Sense of Belonging, and Type of Social Media Use .....	pg 59
Table #7 Hierarchical Multiple Regression of Psychological Wellbeing onto Gender, Social Desirability, Self-Esteem, the Big Five, Type of Social Media Use, and Sense of Belonging .....	pg 60



## LIST OF FIGURES

Figure #1 P-Plot for Sense of Belonging .....	pg 53
Figure #2 P-Plot for Psychological Wellbeing .....	pg 54
Figure #3 Homoscedasticity analysis for Psychological Wellbeing .....	pg 55
Figure #4 Homoscedasticity analysis for Sense of Belonging.....	pg 56

## **Introduction**

### **The Context: Sense of Belonging, Social Media Use, and Wellbeing**

Belonging is an essential human need, as we have an innate and evolutionary desire to establish and maintain interpersonal and institutional relatedness (Baumeister & Leary, 1995). Like other basic needs, an individual is vulnerable to a myriad of negative consequences without a sense of belonging, such as stress, anxiety, depression and other potential health problems (Baumeister & Leary, 1995). Thus, it is to be expected that people will take several routes in pursuit of belongingness. One route that our society continues to gravitate towards is the use of social media. Social media sites, such as Facebook, Instagram, and Google Plus, have become a staple in the lives of young adults, as 86% of those in college have created a social media profile (Wang, Niiya, Mark, Reich, & Warschauer, 2015). “Recent data estimate that college-aged users dedicate approximately 30 min per day to Facebook, integrating it into their everyday lives” (Pempek, Yermolayeva, & Calvert, 2009). Despite the ubiquity of social media use and growth of research in the area, few studies have examined the relationship between various types of social media use, sense of belonging and psychological wellbeing, while controlling potentially influential variables.

The Multidimensional Facebook Intensity Scale (MFIS) assesses different levels of intensity in Facebook use and differentiates among use to alleviate boredom, self-expression, so-called persistent use, which could be viewed as compulsive use, and overuse (Orosz, Toth-Kiraly, & Bothe, 2015). These four subscales could be viewed as representing increasing intensity of use, from the least problematic use for alleviating boredom to maladaptive intensity like persistent use or overuse. The Gravitating Toward Facebook Scale (GoToFB) takes into account the multi-purpose functionality of Facebook, its content and features, and assesses

different purposes of use, such as for learning, connecting with others, or relaxing (Aladwani, 2014). Taken together, these measures may help identify what aspects and purposes of social media use are associated with a sense of belonging and psychological wellbeing; constructs vital to mental health and academic success (Lin, Fan & Chau, 2014). Thus, the current study investigated the relationship between sense of belonging, psychological wellbeing and the various purposes and intensity of social media use, using the GoToFB and MFIS, among college students, while controlling for the effects of gender, personality, self-esteem and social desirability. This study also explored the relationship between face-to-face interactions and social media use, sense of belonging and psychological wellbeing.

### **Aspects of Social Media Use and its Correlates**

**Defining social media.** According to Boyd and Ellison (2008) social media or social network sites are defined as entities that provide three services. First, they allow individuals to construct a public or semi-public profile within a bounded system. Second, they allow users to articulate a list of other users with whom they share a connection. Finally, users are able to view and navigate among their list of connections and those made by others within that same system. These social networking sites allow users to create profiles, “friend” or connect with others, make comments, and send private messages, but they vary in their features and overall display (Boyd & Ellison, 2008). Although some are designed to foster connection across geographic, cultural and other boundaries, some social networking sites are designed specifically for certain ethnic, religious, sexual orientation, political or other individual categories (Boyd & Ellison, 2008).

As mentioned earlier, social media sites come in many forms and, in some cases, parents and school personnel may have a negative perception of social media. However, some studies

have found benefits of social media use that can go unrecognized. For instance, Perkel (2008) posits that using social media can help individuals develop digital media literacy and appropriately utilize media products (others' writing). In addition, one study found that social media has potential as a medium of access to formal education and enhancing rapport and engagement among students and teachers (Bosch, 2009). Outside the domain of education and information access, social media can also play a role in developing aspiration, fostering creativity and self-expression (Notley & Tacchi 2005). Schools often neglect or cannot address and develop traits and skills related to creativity and self-expression, but they are undeniably important for identity and character development. Furthermore, social media sites can also provide a forum to connect individuals of similar interest (i.e. political, religious, etc.) and support the growth of new ideas through shared content and interaction (O'Keeffe & Clarke-Pearson, 2011), which can be either positive (such as supporting cancer patients) or negative (such as bringing potential terrorists together) depending on the nature of the ideas.

Despite some of the positive outcomes, the overall findings on the correlates of social media use have been mixed. One study investigated Facebook use over a 14-day period and found that more time spent on Facebook was associated with lower levels of subjective well-being and life-satisfaction, even after controlling for the factors of worry and loneliness (Kross, Verduyn, Demiralp, Park, Lee, Lin, Shablack, Jonides, & Ybarra, 2013). Moreover, frequent Facebook "checkers" often reported feeling a lack of control and that the more constantly one checks social media daily, the less positive one's mood (Wang, Niiya, Mark, Reich & Warschauer, 2015). Those results may seem surprising, as use of social media is often thought of as a means of engagement and connection, but not when one considers the possibility and cumulative effects of social comparison. Vogel, Rose, Okdie, Eckles, and Franz (2015) took

social comparison into account in their study and found that those who tended to engage in social comparison used Facebook more often and reported poorer trait self-perceptions, lower state self-esteem, and poorer affect balance than those less inclined toward social comparison. When thinking about general well-being, social media use has also been associated with more serious problems, as some research has found that more time spent on Facebook is associated with greater depression and anxiety scores (Labrague, 2014).

However, based only on cross-sectional, correlational data, it is impossible to tell whether greater amount of time on social media leads to greater depression and anxiety or whether greater feelings of depression and anxiety leads to greater use of social media, or indeed, whether both greater amount of time spent on social media and depression and anxiety are caused by another factor or factors. As social media use continues to grow and become entrenched within our society, we need to look more closely at the nature of people's level of intensity of use and purposes behind use and which, if any, lead to or exacerbate mental health issues, and which, if any, lead to or foster mental health and optimal functioning. We need to understand the effects of the increasingly maladaptive social media use and identify potential risks or benefits of engaging with social media in particular ways, and this study addressed these needs. It is also important to note that correlational studies, such as the ones cited above and the one reported here, can only assess relationships, not causal direction. In addition, cross-sectional research methods measure social media use and the nature of such use and other constructs such as life-satisfaction and depression at only one time point, thus the results of such studies need to be viewed and interpreted with caution.

### **Sense of Belonging**

Sense of belonging is defined as feeling valued by or important to another person or group, or institution and experiencing a fit between the self and that person, group or institution (Hagerty, Lynch-Sauer, Patusky, Bouwsema & Collier, 1993). Abraham Maslow recognized the importance of “love and belongingness needs” in 1962, and this has been further explicated theoretically and examined empirically in recent years (Maslow, 1962). Ryan and Deci’s (2000) Self Determination Theory (SDT) asserts that the optimization of human functioning, growth and well-being is dependent on the fulfillment of three psychological needs: competence, relatedness and autonomy. SDT emphasizes the importance of relatedness, a construct related to belonging, which highlights this essential need. Although people can experience fulfillment and vitality through individual activities, the desire to belong and feel connected is essential in developing and internalizing positive values from those around us (Ryan & Deci, 2000). When thinking about the health and wellbeing of college students, who may be susceptible to a variety of stressors, it is very important to consider their sense of belonging. La Guardia, Ryan, Couchman, and Deci, (2000) utilized 152 college students and found that attachment security, a construct seemingly related to sense of belonging, was significantly correlated with wellbeing and need satisfaction. This finding is consistent with another study that demonstrated that adolescents experiencing global connectedness, another seemingly related construct, in the domains of family, school, peers, and neighborhood was associated with wellbeing (made up four constructs: life satisfaction, positive affect, confidence, and future orientation) (Jose, Ryan, & Pryor, 2012). To understand how to best assist college students thrive academically and psychologically, as psychologists and school psychologists, it is important to understand what factors contribute to their sense of belonging.

**Relation to academic persistence and motivation.** Although a sense of belonging contributes to general psychological well-being, it appears to have an impact in the classroom, as well. Freeman, Anderman, and Jensen (2007) demonstrated that sense of belonging was associated with self-efficacy, intrinsic motivation, and task value among undergraduate students. Morrow and Ackerman (2012) also examined the relationship between sense of belonging and intention to persist among 156 college students. They measured sense of belonging using the Sense of Belonging Scale which encompasses several sub-components of belonging including - perceived peer support, perceived classroom support, perceived isolation, and perceived faculty support. Results indicated that sense of belonging, as a whole, was not significantly correlated with intention to persist, but two subscales of sense of belonging, faculty support, and peer support, were related to intention to persist and academic retention. Although this research does not demonstrate causality, there is a relationship between sense of belonging and academic persistence and, as school psychologists, it is important to keep in mind when considering the academic development of students.

**Relation to mental health.** Sense of belonging is also clinically important, as many studies have found it is negatively related to depression. In one study, sense of belonging was demonstrated to be a protective factor against depression, even more so than resilience (Lee & Williams, 2013). These results align with a longitudinal study by Choenarom, Williams, and Hagerty (2005) who found that lower sense of belonging had a significant relationship to the nature and severity of depression, over a 9-month interval. Turner and McLaren (2011) also found that sense of belonging served as a protective factor for depression, as it was associated with lower levels of depressive symptoms and diminished the negative impact of rumination. Although depression can vary greatly in severity, the importance of sense of belonging should

not be understated, as it has also been found to be a protective factor against suicidal ideation (McLaren, Gomez, Bailey, & Van Der Horst, 2007). As schools and public health continue to focus on and dedicate resources to primary prevention, cultivating a sense of belonging appears as salient as any other contributing factor. Based on this premise, and in regard to mental health, it is important to consider different factors that may contribute to or inhibit the experience of a sense of belonging.

**Social Media Use and Sense of Belonging.** Despite the importance of sense of belonging, the growing presence of social media, and the seemingly logical connection between these variables, there have been few rigorous studies examining social media use and its relationship to an individual's sense of belonging. However, some studies have demonstrated that sense of belonging plays an important role in people's view of social media and their initial decision to join and sustain use. One study examined the impact of sense of belonging on one's attitude toward social media networking sites and likelihood of joining (Gangadharbatla, 2008). Along with internet self-efficacy and collective self-esteem, increased sense of belonging had a positive association with individuals' attitude toward social networking sites and willingness to join. Additionally, research has demonstrated that increased sense of belonging has a significant association with intention to continue social network membership (Lin, Fan, & Chau, 2014). This was an even more important predictor of continuing use than user satisfaction (Lin et al., 2014). It is also worth noting that research on consumer-based virtual communities (i.e. internet-based sites that allow for user communication, knowledge sharing, and conducting transactions) has also found that higher sense of belonging is significantly associated with increased user loyalty and intentions to participate within the network (Lin, 2008; Zhao, Lu, Wang, Chau, & Zhang, 2012). Based on these studies, it is evident that social media sites are viewed by users as



a means of improving or maintaining one's sense of belonging. It is important that consumers have an accurate picture of what is helpful versus unhelpful in this endeavor.

At this point in time, there have been few studies that have specifically investigated the relationship between the use of social media and sense of belonging. Given the prior literature, this could be a legitimate concern. One study was conducted by Quinn and Oldmeadow (2013). They studied a sample of 443 children aged 9-13 from five primary schools and two secondary schools in England. The researchers utilized an adapted 10-item measure of belonging, the Belonging Scale, often used in Boys and Girls Clubs of America (Anderson-Butcher & Conroy, 2002). The children were asked six questions regarding their social networking site usage intensity. Using a multiple regression analysis, which regressed sense of belonging onto age, gender, and SNS user group (user vs. non-user), they found that social media use was positively associated with higher sense of belonging compared to non-users, but only among boys ( $b = .30$ ,  $p = .003$ ). This remained constant across age ( $b = .09$ ,  $p = .324$ ). Among only boys *using* social media networks, greater intensity of social media use was positively associated with increased sense of belonging, as well ( $b = .37$ ,  $p < .001$ ), which also held constant across age. For girls, no significant relationship was found. Although this research is related to the current study, it differs from the current study in the age of participants, measurement of social media use, and control variables; all of which are noteworthy distinctions.

In a second related study, Terrell Strayhorn (2012) investigated the relationship between first year college students' frequency of use of SNSs (social networking sites) and sense of belonging and academic persistence decisions. Unlike the previous study, the sample consisted of 755 undergraduate students. However, it also used brief and limited measures of sense of belonging and frequency of social media use. The author created a five-item belonging scale to

measure sense of belonging in the study. The independent variable of interest in Strayhorn's study was the rated frequency with which participants used two SNSs (Social Networking Sites), Facebook and Myspace. Response options ranged from 1 (never) to 5 (15 or more hours per week). The hierarchical linear regression analyzed the relationship between sense of belonging, frequency of use of Facebook/Myspace, gender, race, parents' education, fraternity membership, living arrangement, international student status, transfer status, motivation, and grades. The combined effect of these factors was significantly related to sense of belonging,  $F(15, 633) = 6.20, p < .01$ ), but of the five significant predictors of sense of belonging (frequency of use, international status, living arrangement, fraternity membership, motivation), frequency of use accounted for the least variance in sense of belonging (partial  $R^2 = -0.084, B = -0.11$ ). Given the brief nature of these scales and the general difference of focus in this study, the relationship among these variables bears further investigation.

As noted, there have been few studies examining the nature of social media use, and the specific construct of sense of belonging. However, there have been studies that have considered how type of use of social media is related to users' feelings of loneliness; a seemingly related construct. Matook, Cummings, and Bala (2015) investigated loneliness and various kinds of use of social media, but differentiated between passive and active use of social media. Specifically, they examined whether the relationship between social media use and perceived loneliness was dependent upon how an individual utilized the social media site. Their final sample consisted of 166 graduate students. They measured three aspects of social network use: active use, passive use, and frequency of use. Results indicated that using social media sites to communicate and please others, but not for reciprocation, correlated negatively with perceived loneliness ( $B = -.21, p < .01$ ) and reciprocation-motivated use correlated positively with perceived loneliness ( $B =$

.16,  $p < .01$ ) (i.e. those who used social media and expect equal reciprocation were more likely to experience loneliness than those who used it to please others and do not expect reciprocation). They found that use of passive features correlated positively with perceived loneliness ( $B = .23$ ,  $p < .01$ ), while use of the active feature of broadcasting correlated negatively with perceived loneliness ( $B = -.12$ ,  $p < .05$ ). Thus, the research indicates that social media use is a complex construct. Consequently, research needs to use measures that can take into account the different ways social media can be used and purposes behind usage. My study aims to build on the scant research that has been conducted on this topic by using psychometrically sound instruments that measure specific aspects regarding the nature of one's social media use.

### **Psychological wellbeing**

**Defining Psychological Wellbeing.** Within the field of psychology, the notion of well-being has been explored for decades. The field has concentrated on two approaches: hedonic and eudaimonic well-being (Kallay & Rus, 2013). Hedonic well-being (subjective well-being) focuses on the maximization of subjective happiness, pleasure and life-satisfaction, while the eudaimonic well-being perspective (psychological well-being) emphasizes the importance of living within one's values and actualizing potential. Various subfields within psychology have explored the notion of eudaimonic well-being and developed different conceptualizations of wellness. "From developmental psychology, Erikson's (1959) psychosocial stages, Buhler's (1935) basic life tendencies, and Neugarten's (1973) personality changes articulate wellness as trajectories of continued growth across the life cycle. Clinical psychologists offer further descriptions of well-being through Maslow's (1962) conception of self-actualization, Allport's (1961) formulation of maturity, Rogers' (1961) depiction of the fully functioning person, and Jung's (1933) account of individuation." (Ryff & Keyes, 1995, p. 720). Carol Ryff's eudaimonic

approach accounted for all of these different perspectives with a well-rounded and comprehensive approach to well-being. Unlike most other previous perspectives, Carol Ryff was also able to operationalize this construct in her comprehensive, multi-dimensional model of psychological well-being. The model integrates elements of several theories and is comprised of six dimensions of psychological functioning: self-acceptance, personal growth, autonomy, positive relationships, environmental mastery, and purpose in life (Ryff, 1995). Ryff's scale was used in this study to measure psychological wellbeing.

**Psychological Wellbeing and Social Media Use.** In regard to psychological wellbeing and social media use, prior research has shown mixed results. That is, some research has shown that more use is associated with lower wellbeing; whereas other studies have shown that particular types of use are associated with greater wellbeing. As cited earlier, Kross et al., (2013) assessed Facebook use and subjective wellbeing over a 14-day period. In this study, the participants completed a baseline measure of subjective wellbeing (using the Satisfaction with Life Scale and Beck Depression Inventory) and were then contacted 5 times per day, over 14 days, asking about their subjective wellbeing ("How do you feel right now?") and frequency of Facebook use. After 14 days, results indicated that greater frequency of use was associated with lower levels of subjective well-being and life-satisfaction (variables related to psychological wellbeing), even after controlling for the factors of worry and loneliness. However, as mentioned earlier, using frequency of use as a singular assessment of social media use, at this point, is an incomplete measurement of a more complex concept.

Valkenburg, Peter, and Schouten (2006) found that the relationship between "friend networking site" use and wellbeing was dependent on the content of the communication: the degree to which their communication with others on social media was positive or negative. They

studied a sample of 881 adolescents between the ages of 10 and 19 and examined the relations between social self-esteem, life satisfaction, and the nature of the feedback they received (positive or negative), while controlling the effects of age and gender. Using structural equation modeling, their results indicated that positive feedback and life satisfaction were positively related ( $r = .37, p < .001$ ). Results also indicated that more positive feedback was associated with higher levels of social self-esteem ( $r = .40, p < .001$ ). Similarly, Wang, Jackson, Gaskin, and Wang (2014) investigated the relationship between social networking site (SNS) type of use and life satisfaction among 337 college students. The results yielded a significant positive association between life satisfaction and use of SNS for social communication ( $B = .16, p < .01$ ), but not between life satisfaction and use of SNS for entertainment purposes, suggesting that active, social use may be more psychologically beneficial than passive use.

In addition, new research continues to surface as times goes on, but findings remain mixed. A study conducted Burke and Kraut (2016) investigated the relationship between Facebook use, particularly focused on communication, and psychological wellbeing. They utilized a combination of different scales, including Satisfaction with Life, UCLA Loneliness Scale, and Perceived Stress Scale, among others. Regarding Facebook use, the authors “analyzed counts of their activity on Facebook for 3 months.” Thus, the authors analyzed the social media activities of participants, including one-on-one exchanges between users, content broadcasting (posting content for all users to see) and viewing the content of others. They controlled for age, gender, and the impact of major life events. They found that general Facebook communication was not associated with changes in psychological wellbeing over the 3 months. They found that receiving communication from strong ties was associated with higher wellbeing ( $b = .04, p = .003$ ), but communication from weak ties was not ( $b = -0.02, p = .174$ ). They also found that

viewing user-broadcasted information was not significantly associated with a better sense of wellbeing. Although this study does explore different communicative features on Facebook, it does not fully explore the different activities of Facebook, nor does it control for variables such as personality and self-esteem that are known to be related to wellbeing. Social media use is complex and needs to be thoroughly investigated using measures that take into account the complexity of social media, while also controlling for potentially confounding variables.

### **Aspects of Social Media Use**

Another important aspect to consider is how and why social media is being used. Social media has become more complex and sophisticated over time, so activity among users can look very different. As discussed previously, Matook et al., (2015), found that the way in which people use social media influences how it affects them. Using the scale created by Aladwani (2014), the different purposes of social media use is broken down into eight different domains: Connecting, Sharing, Relaxing, Organizing, Branding, Monitoring, Expressing, and Learning. These activities encompass nearly all features and activities offered by Facebook (as well as several other social media networks). In addition to examining the activities engaged in by Facebook users, it is important to investigate the level of intensity in using social media as well. Up to this point, many studies have examined the amount or frequency of Facebook use, but “research on social networking sites (SNS) typically employ [sic] measures that treat SNS use as homogenous...” (Smock, Ellison, Lampe, and Wohn (2011, p. 2322). The Multidimensional Facebook Intensity Scale (MFIS) created by Orsosz et al., (2015) differentiates between problematic and non-problematic forms of use and focuses on four different levels of intensity in Facebook: use to alleviate Boredom, Self-Expression oriented, Persistent use and Overuse.

Whiting and Williams (2013) discussed the different domains of social media within the context of Uses and Gratifications Theory posited by Lariscy, Tinkham, and Sweetser (2011) which asserts that “individuals seek out media that fulfill their needs and leads to ultimate gratification” (p. 362). The authors conducted in-depth interviews of 25 individuals regarding their motivation for social media use. They found that 88 percent of respondents mentioned social interaction, 80 percent described information seeking, 76 percent reported use to pass time, 64 percent used social media for entertainment, 60 percent described relaxation, 56 percent mentioned use for expressing opinions, 56 percent also mentioned communication utility (gives individuals information to talk about with friends), 52 percent mentioned use convenience, 40 percent indicated use for information sharing, and 32 percent described use for surveillance and/or knowledge about others. The components of social media use defined by Aladwani (2014) and Orsosz et al., align well with these findings (although neither author references the other), emphasizing the importance of the purposes of use measured in the current study, particularly those measured by the Gravitating Toward Facebook Scale (GoToFB) which includes the subscales of Connecting, Sharing, Relaxing, Branding, Monitoring, Expressing, Organizing, and Learning. Use of social media can differ widely, and it is important to understand what purposes behind use contribute to belonging and psychological wellbeing and this scale aids in that effort.

### **Face-to-Face Interaction**

In examining the impact of social media use on belonging and psychological wellbeing, it is important to investigate the role face-to-face interaction, as well. Social media has become integrated into our lives, but how has it has affected our face-to-face interactions? One possibility is that individuals are using social media at the expense of their face-to-face interactions. This may be problematic, as the benefits of face-to-face interaction have been well

documented, and many studies have demonstrated its importance to one's psychological health. One study conducted in Japan utilized 186 participants in two different settings: a corporate office and a nursing home (Ono, Nozawa, Ogata, Motohashi, Higo, Kobayashi, Ishikawa, Ara, Yano, & Miyake, 2011). They reported significant negative correlations between amount of social interaction and stress (according to the Stress Checklist, SCL). This was significant in both settings: the corporate office ( $r = -0.270, p < .05$ ) and the nursing home ( $r = -0.377, p < .05$ ). These results align with those from a longitudinal study conducted by Teo, Choi, Andrea, Valenstein, Newsom, Dobscha, and Zivin (2015) that examined the relationship between depression in older adults (aged 50 or above) and face-to-face contact. Conducted over 2 years and after controlling for demographic, clinical, and social variables, the authors found that individuals with face-to-face contact every few months or less with children, family or friends had statistically significantly higher probability of clinically significant depressive symptoms 2 years later than those having in-person contact once or twice per month or week.

One could argue that face-to-face interaction and social media use are both social activities, so these benefits could be transferable to social media use. However, research has demonstrated that there are distinct differences in the nature and psychological outcomes of face-to-face interaction versus social media use. One study by Grieve, Indian, Witteveen, Tolan, and Marrington (2013) examined whether social connectedness, a construct related to belonging, can be derived from Facebook use and whether it is distinct from "offline" social connectedness. Using exploratory factor analysis, their results indicated that offline social connectedness and Facebook social connectedness are distinct, yet related, constructs. They also found that Facebook social connectedness had a moderate, positive relationship with subjective wellbeing and negative relationships with depression and anxiety. Along with being distinct constructs,



research has shown that they differ in quality, as well. Baym, Zhang, and Lin (2004) compared college students' interpersonal interaction online, face-to-face, and on the telephone. Results indicated that face-to-face interactions ( $M = 3.94$ ,  $SD = .79$ ) and phone interactions ( $M = 3.99$ ,  $SD = .78$ ) were perceived by participants as higher quality than those on the internet ( $M = 3.37$ ,  $SD = .79$ ).

In regard to psychological outcomes, there has been little research examining the differences between social media use and face-to-face interactions. However, research has shown that there are differences between face-to-face interaction and internet mediated communication. Lee, Leung, Lo, Xiong, and Wu (2010) explored the role of face-to-face and internet mediated communication in quality of life in four Chinese cities, namely Hong Kong, Taipei, Beijing, and Wuhan. The Satisfaction with Life Scale (SWLS) of Diener (1984) was used to measure quality of life. Using a sample of 1,084 participants across the four cities, they found that quality of life was negatively correlated with internet communication ( $B = -.40$ ,  $p < .001$ ) while face-to-face communication with friends and family was positively related to quality of life ( $B = .77$ ,  $p < .001$ ). These results, and the lack of general research in this area, indicate the importance of exploring whether or not intensity and purpose behind social media use are negatively or positively associated with face-to-face interaction.

### **Current Study**

The purpose of the current study was to examine the relationship between sense of belonging, the nature of one's social media use, and psychological wellbeing. Previous literature has suggested that there are relationships between pairs of these variables, but further investigation is needed because research has not clearly examined different types of use of social media while controlling for relevant variables, and the relationships appear to depend on the

purpose and level of intensity of use (Strayhorn, 2012; Quinn & Oldmeadow, 2013; Zhang, 2010). At this point, there have been very few studies addressing social media use, either generally or more specifically, and its relationship to one's sense of belonging. The studies that have examined this relationship have not taken into account the many facets of social media use (Smock et al., 2011). Additionally, previous research has not investigated the relationship between specific kinds of social media use and psychological wellbeing, nor in combination with sense of belonging. Thus, this study aimed to fill that gap, using comprehensive measures that assess various purposes of social media use and intensity of use, by investigating what kinds of use are related to sense of belonging and psychological wellbeing, while controlling for potentially influential variables.

First, it was hypothesized that overusing social media will be associated with a lower sense of belonging and psychological wellbeing, based on research by Kross et al., (2013), who found that greater frequency of use was associated with lower levels of subjective well-being and life-satisfaction. Second, it was hypothesized that Face-to-face interaction will be positively correlated with persistent use, as the relationship between social media use and face-to-face interaction in previous research has shown them to be distinct, yet related, constructs (Grieve et al., 2013). Thus, it is important to explore whether social media is being used as a substitute for or in conjunction with face-to-face interaction, because of the impact that can have on one's sense of belonging and psychological wellbeing. It was hypothesized that Self-expression will be positively related to sense of belonging, as measured by the Sense of Belonging instrument subscale, Psychological State (SOBI-P) and Psychological Wellbeing. Additionally, it was hypothesized that active use of social media, such as connecting and sharing with others would correlate positively with sense of belonging. In contrast, it was hypothesized that those who tend

to use social media to monitor the social activities of others would have less sense of belonging and lower psychological wellbeing. This is based on research that has shown that active social media use, akin to self-expression and connecting with others, has correlated negatively with loneliness, while passive use has correlated positively with loneliness (Matook et al., 2015, Wang et al., 2014). Hypotheses were only formulated for subscales from the MFIS and GoToFB scales that clearly mapped onto active and passive use discussed in previous research. Overall, the current study investigated the following hypotheses:

**Bivariate Hypotheses:**

1. The subscale of Overuse, of the Multidimensional Facebook Intensity Scale (MFIS), will correlate negatively with sense of belonging and with psychological wellbeing.
2. The subscale of Persistence of Use, of the MFIS, will correlate positively with face-to-face interaction.
3. The subscale of Self-Expression, of the MFIS, will correlate positively with sense of belonging and with psychological wellbeing.
4. The subscales of Connecting, Sharing, and Expression, of the Gravitating Toward Facebook (GoToFB) Scale, will correlate positively with sense of belonging and with psychological wellbeing.
5. The subscale of Monitoring, of the GoToFB Scale, will correlate negatively with sense of belonging and psychological wellbeing.

**Primary Hypotheses:**

- 6 Types of social media use (purpose of use and intensity of use as measured by GoToFB and MFIS, respectively) will account for significant variance in Sense of Belonging, when gender, social desirability, self-esteem, and the Big Five personality factors are controlled.
- 7 Types of social media use (purpose and intensity of use) will account for significant variance in psychological wellbeing (PWB), when gender, social desirability, self-esteem, the Big Five personality factors, and Sense of Belonging are controlled.
- 8 Sense of Belonging will account for significant variance in PWB, when gender, social desirability, self-esteem, the Big Five personality factors, and types of media use are controlled.

**Control Variables**

As indicated in the hypotheses, several factors known to be correlated with the two dependent variables needed to be controlled. The first of these factors was personality, which was measured using the Big Five Inventory (John, Donahue, & Kentle, 1991). The big five personality factors have been linked to many social outcomes in previous research, and thus need to be accounted for (John & Srivastava, 1999). Thus, any research examining the relation of social media to wellbeing must control for the influence of personality and show that type of social media use explains variance beyond that explainable by personality. One study examined the relationship between Facebook use and perceived social belonging, while taking into account personality factors (Stronge, Osborne, West-Newman, Milojev, Greaves, Sibley, & Wilson, 2015). They found that those on Facebook scored significantly higher on Extraversion, Agreeableness, Neuroticism and Openness to Experience compared to those who did not use Facebook, thus indicating the potentially confounding relationship between Facebook use and

personality. Another study conducted by Correa, Hinsley, and de Zuniga (2009), using an online survey in the U.S., found a significant relationship between certain personality traits (measured by the Big Five Inventory) and social media use (measured by frequency of use), while controlling for life satisfaction and socioeconomic variables. In addition, research by Joshanloo and Afshari (2009) found that personality, measured by the Big Five Inventory, was significantly correlated with life satisfaction. Specifically, this study found that extraversion, neuroticism, agreeableness, and conscientious were significantly correlated with life satisfaction (Joshanloo & Afshari, 2009). Given this prior research, the current study also examined and discussed the potential relationships between personality and social media use.

The second control variable was self-esteem, which was measured by the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Rosenberg (1965) defined self-esteem as an individual's sense of self-worth. Self-esteem has been shown to play a role in social relationships and social connectedness; similar constructs to sense of belonging (Lee & Robbins, 1998). As mentioned earlier, Gangadharbatla (2015) found that self-esteem is correlated with one's attitude toward ( $p < .005$ ) and willingness to join social networking sites ( $p < .002$ ). Additionally, a study by Clerkin, Smith, and Hames (2011) investigated whether reassurance seeking via Facebook negatively influenced self-esteem and if self-esteem played a role between Facebook reassurance seeking and belongingness. Their results indicated that Facebook reassurance seeking was correlated with lower self-esteem, which subsequently predicted feelings that "one does not belong" (Clerkin et al., 2011). Thus, it is apparent that self-esteem plays a role in social media and social behavior and needed to be accounted for in this study,

The third control variable was social desirability, which is the tendency of participants to respond in such a way as to present themselves positively. It was assessed using a short form of

the Marlowe-Crowne Social Desirability Scale (Reynolds, 1982). This scale has been extensively used in studies, such as this one, using self-report measures as part of their investigation. One study, conducted by Van de Mortel (2008), utilized 14,275 health-related studies listed on the CINAHL database between the years of 2004 and 2005 to investigate the proportion of studies having findings that were influenced by social desirability. Results indicated that 43% of the studies found that social desirability (measured by the MC-SDS) influenced their results. This indicates the importance of taking this factor into account. Previous research has also shown that sense of belonging is associated with social desirability bias (Fisher & Katz, 2000). Thus, it is important to control for this variable. Given that much of the previous research did not control for these variables, their contribution and relationship to sense of belonging, psychological wellbeing, and the social media variables were also examined and reported. Finally, this study also controlled for the effects of gender. A study by Moksnes and Espnes (2013) found a significant difference in life satisfaction among 1,239 male and female adolescents, as boys reported significantly higher levels of self-esteem and life satisfaction (Moksnes & Espnes, 2013). Carol Ryff, the author of the Psychological Wellbeing Scale, and Corey Keyes (1995) also found significant differences between men and women in different domains of psychological wellbeing as well (Ryff & Keyes, 1995).

## **Method**

### **Subjects**

Three hundred eleven undergraduate students in the psychology department's subject pool at Rutgers University completed the survey. However, the final sample was 298, as described in the next section. The study was listed on the subject pool website, giving students the opportunity to

complete the survey in order to receive Research Participation Units (RPU) in their undergraduate Introductory Psychology course.

**Data Preparation.** Only cases who completed the survey were included and duplicates were removed. There were 331 visits to the survey, but only 311 individuals finished the survey. There were 15 subjects who went to the survey more than once (identified by Sona ID; some more than twice) and only the first occasion in which it was completed was included, which yielded a sample size of 311. In addition, two 17-year-old respondents were removed (as they cannot legally provide consent to participate), and three people who asked to be removed after completing the survey (during debriefing), which resulted in a sample size of 306. There were also two people who did not provide consent; these cases were removed leaving a sample size of 304. Six additional cases were removed because it took them less than three minutes, 50 seconds to complete the survey, leaving a final sample size of 298. That time was attained by the researcher taking the average of five attempts to complete the survey as quickly as possible, without reading the survey questions.

**Demographics.** Participants were: 55.4% male, 44.6% female, 28.9% White, 42.6% Asian, 13.1% Hispanic/Latino, 9.4% African American and 6.0% other. Regarding age groups, 98% of the participants were between 18 and 22 years old, with 49.3% being 18 years old.

### **Procedure**

Participants completed an anonymous online survey, constructed in Qualtrics, containing all instruments and their respective instructions. The study, along with a brief description, was posted on the Psychology Department's subject pool website (which uses Sona Systems Software). When students registered for the study, they were automatically sent the link to the survey. The first page of the survey was the informed consent page that includes a description of

the research. After reading the informed consent, they were asked whether or not they wished to participate. Those who agreed to participate proceeded to the survey itself. Those who declined were sent to the end of the survey where they were thanked for their time.

## **Materials**

**Multidimensional Facebook Intensity Scale.** Intensity of social media use was measured by the Multidimensional Facebook Intensity Scale developed by Orosz, Toth-Kiraly, and Bothe (2015) which consists of 13 items in which respondents indicate their level of agreement on a 5-point likert scale. The scale includes four subscales: Self-expression, use to relieve Boredom, Persistence of Facebook Use, and Overuse. The persistence subscale is made up of four items, while all the other subscales are made up of three. Exploratory and confirmatory factor analyses were conducted across three studies by the scale creators, all of which confirmed this factor structure. These subscales, the authors argue, more accurately reflect intensity in the use of Facebook, ranging from adaptive to maladaptive use (Orosz et al., 2015). Regarding the subscale of Boredom, one item asks the participant's level of agreement with the statement, "When I'm bored, I often go to Facebook", and one item of the Self-expression subscale states, "I like refining my Facebook profile." These subscales represent more adaptive use, while the Persistence and Overuse subscales measure problematic use. For instance, one item from the Persistence subscale states, "Before going to sleep, I check Facebook once more", and one item from the Overuse subscale states, "I spent time on Facebook at the expense of my obligations." Cronbach's Alpha, which assesses internal consistency reliability, ranges from .72 to .81 among the four subscales (Orosz et al., 2015). Test-retest reliability, over a 4-week period, ranges from .80 to .87 for the four subscales (Orosz et al., 2015). Orsoz et al., (2015) also



provided evidence of convergent validity using the Bergen Facebook Addiction Scale, Online Sociability Scale, Facebook Passion Scale, and the Big Five Inventory.

**Gravitating Towards Facebook Scale.** To measure individuals' purpose for Facebook use, Aladwani (2014) created the Gravitating Towards Facebook Scale (GoToFB). The scale contains 34 items, divided among 8 subscales: Connecting, Sharing, Relaxing, Branding, Organizing, Monitoring, Expressing, and Learning. Items are rated using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) and a center point of 4 (Neutral). According to Aladwani (2014), the original scale presents the statement "While I was interacting with Facebook, I felt gravitated toward exploiting its features to:" and then lists various activities or purposes as possible ways of completing the sentence. However, in the current study, the stem was changed to "While I was interacting with Facebook, I felt drawn to" as this seemed to be a more natural English wording. The Connecting subscale measures use for initiating and maintaining relationships, and one item states "keep in touch with relatives." The Sharing subscale measures the proclivity to use Facebook to exchange information, and one item states, "Share content". The Relaxing subscale measures use for the purpose of managing stress, and one item states, "Reduce my mental stress." The Branding subscale measures one's tendency to use Facebook to gain favor and admiration, and one item states, "Publicize myself." The Organizing subscale assesses use for the purpose of creating and organizing events, and one item states, "Manage events." The Monitoring subscale measures use for the purpose of checking on friends and peers, and one item states, "Keep an eye on my friends." The Expressing subscale assesses use for the purpose of communicating one's thoughts or beliefs, and one item states "Make my voice heard." The Learning subscale measures use for the purpose of consuming new ideas or information, and one item states, "Get more information." Wording of two items, both

from the Connecting subscale, was adjusted: “Initiate new relationships with people I did not meet before”, was changed to “Initiate new relationships with people I had not met before.” Further, “Develop relationship with people I met before” was changed to “Develop relationship with people I had met before.” Respondents were asked to rate their level of agreement with each statement. Composite reliability, a measure of internal consistency, for 8 subscales ranged from .89 to .92 and the reliability score for the entire instrument is .90 (Aladwani, 2014). Aladwani (2014) assessed the items for face validity using “a number of experts and a pre-test study”, which led to elimination and rewording of certain items. To assess construct validity, the authors used a statistical technique called Structural Equation Modeling (SEM) and found that convergent and discriminant validity were satisfactory.

**Psychological Well-Being.** To measure psychological wellbeing, Carol Ryff developed the six-factor Psychological Well-Being Scale (PWBS). The original scale consists of 84 items (long form); however, the current study used the 42-item short form. The six subscales are self-acceptance, personal growth, purpose in life, environmental mastery, autonomy, and positive relations with others. Items are rated from 1 (strongly disagree) to 6 (strongly agree). For instance, one item from the Autonomy subscale states “I tend to worry about what other people think of me” (Springer & Hauser, 2006). Coefficient alpha on the six scales ranges from 0.82 to 0.90 (Kafka & Kozma, 2002). Construct validity was established by Ryff (1989b) in a sample of 321 respondents. Correlations with related measures of positive functioning (i.e., life satisfaction, affect balance, self-esteem, internal control, and morale) were all positive and significant, with coefficients ranging from .25 to .73. Similarly, correlations with prior measures of negative functioning (i.e., powerful others, chance control, depression) were all negative and significant, with coefficients ranging from -.30 to -.60 (Ryff, 1989b).

**Sense of Belonging.** Bonne Hagerty and Kathleen Patusky (1995) developed the Sense of Belonging Instrument (SOBI) to measure one's sense of belonging. They described two components of this construct; the experience of feeling valued, needed or accepted and the perception that there is fit between the individual and the environment. They assessed the content validity of the instrument by asking a panel of seven experts in the field to rate the items on a 4-point scale (1 = not relevant, 4 = very relevant). In this process, 6 items were removed. Content validity was calculated using the Content Validity Index (CVI), which determines the extent to which the judges agreed on the relevance of the items to the definition of sense of belonging. The content validity, according to the CVI, for the entire instrument was .83. Psychometric testing of the instrument was done using samples from three different populations. Using the results of factor analysis, two subscales, composed of 27 total items were created that cover two distinct dimensions of sense of belonging. The first scale, SOBI-P (psychological state), has 18 items and represents "the psychological state of belonging" and focuses on the experience of fit and value within one's environment. For example, one item states, "I feel like I observe life rather than participate in it" (Jones, 2009). The second scale is the SOBI-A (antecedents) has 9 items and taps into the precursors of sense of belonging, including the desire and ability to develop sense of belonging. One example of this is an item that states, "I am working on fitting in better with those around me" (Jones, 2009).

In addition to factor analysis, construct validity was determined using contrasting groups. These groups included 379 college students, 31 individuals being treated in psychiatric units, and 37 nuns from a local convent. This method supported construct validity, as the mean sense of belonging among the three distinct groups differed significantly; as one may have expected. The third method for demonstrating construct validity was by assessing convergence with measures

of related concepts (social support, reciprocity and loneliness). Among the three samples, the correlation of the two subscales and measures of social support and reciprocity ranged from .26 to .59. The correlation of sense of belonging and loneliness (among three samples and across both subscales) ranged from -.13 to -.76. The internal consistency reliability was examined using coefficient alpha. The coefficient alpha for the SOBI-P and SOBI-A ranged from .63 to .93 among the three samples. Test-retest reliability was examined using the college student sample over an 8-week period and the test-retest correlation was .84 for SOBI-P and .66 for SOBI-A.

**The Big Five Inventory.** The Big Five Inventory (BFI) was developed by John, Donahue and Kentle (1991) to measure the “Big Five dimensions” of personality; Extraversion or Surgency, Agreeableness, Conscientiousness, Emotional Stability versus Neuroticism, and Intellect or Openness (John & Srivastava, 1999). The BFI consists of 44 short phrases, rated on a Likert scale from 1 = “disagree strongly” to 5 = “agree strongly”. For example, the general stem for all items states “I am someone who...” and then the items are statements, such as “ \_\_\_\_ Is talkative” which the responder rates. In both US and Canadian samples, the coefficient alpha reliabilities ranged from .75 to .90 across the 5 subscales. Three-month test–retest reliabilities ranged from .80 to .90, with a mean of .85 (John, Naumann, & Soto, 2008). Construct validity was established using convergent validity, established by demonstrating significant correlation with other Big Five instruments, such as the TDA (Trait Descriptive Adjectives) and the NEO Personality Inventory (John & Srivastava, 1999).

**The Marlowe-Crowne Social Desirability Scale - Short Form.** It is important to evaluate social desirability response tendencies when using self-report measures and the Marlowe-Crowne Social Desirability Scale (M-C SDS) is a scale that has been extensively used in research to serve that purpose (Crowne & Marlowe, 1960). Several short form versions of this

scale were made using factor loading criterion of .40 or greater (Reynolds, 1982). M-C Form C, a 13-item version of this scale, exhibited comparable internal reliability to the original 33-item scale, as indicated by Cronbach alpha, of .76. Construct validity, was assessed and established via correlations between this 13-item version and the standard 33-item M-C SDS scale,  $r = .93$ , and the Edwards Social Desirability Scale,  $r = .41$  (Reynolds, 1982).

**Rosenberg Self-Esteem Scale.** The Rosenberg Self-Esteem Scale is a widely used, 10-item measure of global self-esteem that employs a 4-point, Likert response scale that ranges from “Strongly agree” to “Strongly disagree” (Sinclair, Blais, Gansler, Sandberg, Bistis, & LoCicero, 2010). For example, one item states, “At times I think I am no good at all” and asks the responder to rate agreement with this statement. The scale was created by Rosenberg in 1965, but psychometric data was re-measured in 2006, using a sample of 503 participants. The authors conducted psychometric analysis at the item-level and then the scale level. The authors first measured item convergent validity, which measures the relationship between an item and its hypothesized scale to determine whether items are linearly related to the general construct being measured. This was done using Pearson correlations and all items were at or above  $r = .40$ . They also evaluated item discriminant validity (the assumption that items will have significantly higher correlations with their hypothetical scale than with other scale measuring different constructs) and found that all items met this criterion, as well. Regarding scale-level psychometric data, internal consistency reliability was measured using Cronbach’s alpha and found that this was satisfactory at  $r = .91$ . In regard to construct validity, discriminant validity was established, as RSES correlated negatively with Depression, Anxiety and Stress Scale (DASS-21) and positively with Mental Component Summary Measures (MCS) and Self-Liking and Self-Competence (Sinclair et al., 2010).

**Measure of Face-to-Face Interaction.** A brief exploratory measure of the amount of face-to-face contact with friends was developed by the researcher. This measure provided a list of 11 activities created by the researcher and asked participants to check all the activities that they engaged in with a friend over the last week. There was also an option stating “None of these” that could be chosen if they had not engaged in any of the activities listed. The measure was scored by summing the activities, so scores could range from 0 (if they picked “none of these”) to 11 (if they checked all 11 activities). Scores on this measure should be viewed cautiously, as their validity has not been demonstrated and it is an experimental measure that was created for this study. The items are listed below:

- Grocery shopping
- Clothes shopping
- Eat breakfast, lunch or dinner
- Routine activity outside of home (coffee, ice cream, sit outside, etc.)
- Exercise (go to the gym, jog, walk, bike, play sports, etc.)
- Attend an event (concert, play, movie, etc.)
- Attend a party or engagement
- Meet at your home or friend’s house to talk
- Watch TV
- Do other activities around the house (e.g., laundry, yard work, cooking)
- School work
- None of these

### **Data Analysis**

Data from a single time period were examined using multiple regression analysis, looking at the scores on the Sense of Belonging Instrument and Psychological Wellbeing Scale and each predictor variable, as measured by the total and subscale scores of the GoToFB and the MFIS.

Pearson correlations were calculated to assess the relationships among psychological wellbeing, sense of belonging and the various social media use scales. Then, multiple regression analyses were conducted to assess relationships while controlling for variables that could account for significant variation and thereby affect the apparent relations among the variables of interest. These include social desirability, the Big Five personality factors, self-esteem, sex, and age.

## **Results**

### **Tests of Assumptions**

According to Tabachnick and Fidell (2003) the assumptions for a hierarchical multiple regression are that: (a) all variables and all linear combinations of those variables are normally distributed, (b) there is a linear relationship between the independent and dependent variables, (c) homoscedasticity is present, (d) there are no multivariate outliers, (e) scores of different cases on a variable are all independent of each other and (f) no multicollinearity exists.

**Normality.** Univariate normality was assessed via the skewness and kurtosis indices (i.e., skewness or kurtosis statistic/standard error) of the variables. Per Kline (2011), a variable is not normally distributed if its skewness index is above three and if its kurtosis index is between 10 and 20. As shown in Table 3, no variable displayed such properties. Thus, the assumption of univariate normality is fulfilled.

Next multivariate normality was examined via the normal probability plot generated by the linear regression procedure of SPSS. Per Tabachnick and Fidell (2007), multivariate normality is fulfilled when the points are clustered towards the diagonal. As seen in Figure 1 and Figure 2, the points in the Normal P-P plot of regression for selected variables are clustered around the diagonal line for both dependent variables.

**Outliers.** To check for univariate outliers, scores on the various instrument subscales were transformed into standard scores (i.e., z scores). Cases whose standardized values were above the absolute value of 3.29 (0.1%) were deemed to be univariate outliers (Tabachnick & Fidell, 2007). One case had a standard score of 3.30 (id = 218) on the Self Expression subscale. Another case had a standard score of -3.54 (id = 91) on the Openness scale of the Big Five Inventory. As noted earlier, the latter case was deleted from the data set.

To check for multivariate outliers, the Cook's Distance (D) values generated by the linear regression procedures were examined. According to Tabachnick and Fidell (2007), cases whose Cook's D values are two standard deviations above the Cook's D mean are deemed to be multivariate outliers. However, there were none.

**Homoscedasticity and linearity.** Homoscedasticity and linearity were assessed via the scatterplot of studentized residuals by the standardized predicted values (for both psychological wellbeing and sense of belonging). As per Tabachnick and Fidell (2007), homoscedasticity and linearity are fulfilled if the plot yields a random scatter. In the case of Psychological well-being, the standardized predicted value was fairly consistent along the regression line, which means that the assumption for homoscedasticity in the case of Psychological well-being is fulfilled (see Figure 3). In the case of Sense of Belonging there is a slight increase in the distance between the standardized predicted value and the regression line, which implies the possible presence of modest heteroscedasticity (see Figure 4).

**Multicollinearity.** Multicollinearity was assessed by examining the variance inflation factor (VIF) values. Values of VIF that exceed 10 are generally regarded as indicating multicollinearity (Robinson & Schumacker, 2009). No predictor exceeded this threshold indicating that the assumption of the absence of multicollinearity was fulfilled.



**Reliability.** Cronbach's alpha values for all measures in the current sample ranged from .65 to .92 (see Table 2). Hair, Black, Babin, and Anderson (2010), indicated that a Cronbach's alpha of .60 to .70 is minimally acceptable. Given this criterion, all scales and subscales had acceptable or better reliability.

### **Descriptive Statistics**

The frequency and percentages for the participants' demographic characteristics are reported in Table 1. In terms of age, the largest percentage of participants were 18 ( $n = 148$ , 49.5%). The average age was 18.95, with a standard deviation of 1.4. In terms of ethnicity, the largest percentage of participants were Asian ( $n = 128$ , 42.8%). The majority were male ( $n = 165$ , 55.2%). Descriptive statistics for all the measures are reported in Table 3. The mean on the Psychological Wellbeing Scale of 169.70 ( $SD = 26.59$ ) is generally comparable to other studies using this 42-item version of the scale (e.g., Abbot, Ploubidis, Huppert, Kuh, & Croudace, 2009). The mean on the Sense of Belonging Instrument ( $M = 52.90$ ,  $SD = 10.12$ ) appears quite similar to that reported by Hagerty and Patusky (1995;  $M = 55.54$ ).). Neither the authors of the Multidimensional Facebook Intensity Scale, Orsoz et al., (2015), nor the author of the Gravitating Towards Facebook Scale (GoToFB), Aladwani (2014), provided descriptive statistics for their instruments. No other studies were found providing the means for either scale, perhaps due to how new these scales are. The measure of face-to-face interaction was created by the author of this study, thus there is no normative data for this instrument

Pearson correlations were computed between the measures (see Table 4). In terms of absolute value, the correlations with PWB ranged from .007 (MFIS-Boredom) to .78 (Self-Esteem) with 13 of the 22 correlations significant at the alpha .05 level, and 6 correlations were over .50. In addition to Self-esteem, the variables that correlated significantly with PWB were:

Sense of Belonging ( $r = .75$ ), Neuroticism ( $r = -.62$ ), Conscientiousness ( $r = .56$ ), Extraversion ( $r = .54$ ), and Agreeableness ( $r = .52$ ). Of the 12 correlations between PWB and social media subscales, only 4 were significant (three at the .05 level and one at the .05 level). Three of those four were negative correlations (with Persistence,  $r = -.22$ , Overuse,  $r = -.16$ , and Monitoring,  $r = -.13$ ). Of the social media subscales, only Learning was significantly positively correlated with PWB ( $r = .18$ ,  $p = .002$ ). Thus, greater use of social media for Learning is associated with greater PWB.

In terms of absolute value, correlations with Sense of Belonging ranged from .008 (Sharing) to .75 (PWB), with 14 of the 22 correlations significant at the alpha .05 level or better. Of the 12 correlations between Sense of Belonging and social media scales, four were significant. All four of these correlations were negative: Persistence ( $-.25$ ), Overuse ( $-.21$ ), Self-expression ( $-.17$ ), and Monitoring ( $-.14$ ), indicating that greater Persistence, Overuse, use for Self-expression, and Monitoring others were associated with a poorer Sense of Belonging.

Regarding the overall correlational data, none of the measures was correlated over .30 with any of the 12 social media subscales. However, 10 of the 120 correlations were greater than .20. Variables most highly correlated with the social media scales include Sense of Belonging (with Persistence,  $r = -.25$ ; with Overuse,  $r = -.21$ ), Extraversion (with Sharing,  $r = .22$ ), Openness to Experience (with Connecting,  $r = .20$ ; with Sharing,  $r = .24$ ; with Learning,  $r = .27$ ), Self-esteem (with Persistence,  $r = -.21$ ), Social Desirability (with Overuse,  $r = -.21$ ; with Branding,  $r = -.22$ ), PWB (with Persistence,  $r = -.22$ ), and gender (with Boredom,  $r = .20$ ; with Overuse,  $r = .20$ , such that women have significantly higher Boredom and Overuse scores).

The measure of face-to-face interaction was positively correlated with Sense of Belonging ( $r = .25$ ,  $p < .001$ ), Extraversion ( $r = .28$ ,  $p < .001$ ), Self-esteem ( $r = .20$ ,  $p < .001$ ),

and Psychological Wellbeing ( $r = .19, p = .001$ ). It was positively correlated with 10 of the 12 social media subscales comprising the Multidimensional Facebook Intensity Scale and the Gravitating Toward Facebook Scale, with correlations ranging from .11 (Organizing) to .18 (Boredom; Monitoring). It was not correlated with the Persistence or Overuse subscales of the MFIS.

### Tests of Bivariate Hypotheses

It was hypothesized (H1) that overuse of Facebook, as measured by the Overuse subscale of the MFIS, would be associated with a worse sense of belonging (measured by the SOBI-P), and worse psychological wellbeing. Consequently, negative correlations were predicted. As shown in Table 4, the results were consistent with this prediction: the Overuse subscale (of the MFIS) was negatively correlated with SOBI-P ( $r = -.21, p < .001$ ) and with Psychological Wellbeing ( $r = -.16, p = .004$ ), indicating overuse was associated with lower Sense of Belonging and poorer Psychological Wellbeing, accounting for 4% and 2.6% of variance, respectively.

H2 stated that the MFIS subscale Persistence of Use would correlate positively with face-to-face interaction. Persistence of Use was not significantly correlated with face-to-face interaction ( $r = .09, p = .12$ ).

H3 stated that the Self-Expression subscale (of the MFIS) would correlate positively with Sense of Belonging (SOBI-P) and with Psychological Wellbeing. The results were not consistent with this prediction. Self-Expression was *negatively* correlated with SOBI-P ( $r = -.17, p = .004$ ), indicating that greater use for Self-expression was associated with lower Sense of Belonging, accounting for 2.7% of variance. Self-Expression was not significantly correlated with Psychological Wellbeing ( $r = -.09, p = .10$ ).

H4 stated that the three subscales of Connecting, Sharing, and Expressing (of the

GoToFB Scale) would be associated with a better Sense of Belonging and Psychological Wellbeing. Thus, positive correlations with SOBI-P and Psychological Wellbeing were predicted. However, the results showed that none of the three subscales was significantly correlated with either SOBI-P or Psychological Wellbeing (correlations ranged from  $-.06$  to  $.08$ ; all  $p$  values were  $.20$  or greater; see Table 4). Connecting was not significantly correlated with SOBI-P ( $r = .02, p = .80$ ) or with Psychological Wellbeing ( $r = .05, p = .37$ ). Sharing was not significantly correlated with SOBI-P ( $r = -.01, p = .89$ ) or with Psychological Wellbeing ( $r = .08, p = .20$ ). Finally, Expressing was not significantly correlated with SOBI-P ( $r = -.06, p = .30$ ) or with Psychological Wellbeing ( $r = -.04, p = .47$ ).

H5 stated that using Facebook for monitoring the activity of others would be associated with lower Sense of Belonging and Psychological Wellbeing. Thus, the subscale Monitoring (of the GoToFB Scale) was expected to correlate negatively with Sense of Belonging (SOBI-P) and with Psychological Wellbeing. Consistent with H4, Monitoring was significantly negatively correlated with SOBI-P ( $r = -.14, p = .02$ ), accounting for 2% of the variance in Sense of Belonging and negatively correlated with Psychological Wellbeing ( $r = -.13, p = .02$ ), accounting for 1.7% of variance in Psychological Wellbeing.

### Tests of Primary Hypotheses

**Hypothesis 6.** It was hypothesized that type of social media use (both purpose and intensity of use) would account for significant variance in Sense of Belonging (SOBI-P) scores, when gender, social desirability, self-esteem, and the Big Five personality factors are controlled. To test this hypothesis, a five-step hierarchical multiple regression analysis was computed.

In the first step, SOBI-P scores were regressed on gender and social desirability. As shown in Table 5, the  $R^2$  of  $.069$  was significant;  $F(2, 295) = 10.91, p < .001$ . Thus, gender and

social desirability together accounted for 6.9% of the variance in SOBI-P. Gender negatively predicted SOBI-P,  $\beta = .12$ ,  $t(295) = -2.10$ ,  $p = .036$ . Men exhibited a significantly greater sense of belonging when social desirability was controlled. Social desirability positively predicted SOBI-P,  $\beta = .23$ ,  $t(295) = 4.09$ ,  $p < .001$ . Thus, greater social desirability was associated with a greater sense of belonging, when gender was controlled. In the second step, the Big Five Inventory subscales were entered. The change in  $R^2$  of .361 was significant;  $F(5, 290) = 36.68$ ,  $p < .01$ . Therefore, the Big Five personality traits accounted for an additional 36.1% of the variance in SOBI-P. Four of the five traits made significant, unique contributions: Openness ( $\beta = -.12$ ,  $t(290) = -2.42$ ,  $p = .016$ ) and Neuroticism ( $\beta = -.33$ ,  $t(290) = -5.79$ ,  $p < .001$ ) negatively predicted SOBI-P while Extraversion ( $\beta = .27$ ,  $t(290) = 5.42$ ,  $p < .001$ ) and Agreeableness ( $\beta = .30$ ,  $t(290) = 5.49$ ,  $p < .001$ ) positively predicted SOBI-P. Therefore, greater Openness and Neuroticism were associated with lower Sense of Belonging, when social desirability, gender, and other Big Five traits were controlled. In contrast, greater Extraversion and Agreeableness were associated with greater Sense of Belonging, when social desirability, gender, and other Big Five traits were controlled.

In the third step, the Rosenberg Self-Esteem scores were entered into the analysis. The change in  $R^2$  of .129 was significant;  $F(1, 289) = 84.87$ ,  $p < .001$ . Thus, self-esteem accounted for 12.9% of the variance in SOBI-P. Self-esteem positively predicted SOBI-P, thus greater self-esteem was associated with a higher Sense of Belonging, when social desirability, gender, and the Big Five personality traits were controlled;  $t(289) = 9.21$ ,  $\beta = .49$ ,  $p < .001$ .

In the fourth step, the four MFIS subscales were entered. The change in  $R^2$  of .019 was significant;  $F(4, 285) = 3.12$ ,  $p = .02$ . Adding the Multidimensional Facebook Intensity subscales accounted for an additional 1.9% of the variance in Sense of Belonging. However,

none of the individual Multidimensional Facebook Intensity subscales made a significant unique contribution to SOBI-P. In the fifth and last step, the eight GoToFB subscales were entered. The change in  $R^2$  of .009 was not significant;  $F(8, 277) = 0.73, p = .66$ . Thus, intensity and intrusion of use, as measured by the MFIS, accounted for significant variance in sense of belonging, but there was no evidence that types of use were associated with sense of belonging.

**Hypothesis 7.** It was hypothesized that the type of social media use (purpose and intensity of use), as measured by the MFIS and GoToFB, would account for significant variance in PWB scores, when gender, social desirability, self-esteem, the Big Five personality factors, and sense of belonging (as measured by the SOBI-P) are controlled. To test this hypothesis, a six-step hierarchical linear regression analysis was conducted. In the first step, gender and social desirability were entered the equation. As shown in Table 6, gender and social desirability together accounted for 12.7% of the variance of PWB;  $F(2, 295) = 21.49, p < .001$ . However, only social desirability made a significant, unique contribution to PWB;  $\beta = .34, t(295) = 6.25, p < .001$ .

In the second step, the Big Five Inventory scales were entered. Adding the Big Five Inventory subscales into the model accounted for an additional 53.3% of the variance in PWB;  $F(5, 290) = 91.05, p < .001$ . Openness ( $\beta = .13, t(290) = 3.43, p = .001$ ), Conscientiousness ( $\beta = .25, t(290) = 6.01, p < .001$ ), Extraversion ( $\beta = .28, t(290) = 7.48, p < .001$ ), and Agreeableness ( $\beta = .23, t(290) = 5.45, p < .001$ ) positively predicted PWB, while Neuroticism ( $\beta = -.34, t(290) = -7.69, p < .001$ ) negatively predicted PWB.

In the third step, the Rosenberg Self-Esteem scores were entered. Adding self-esteem in this step accounted for an additional 9.9% of the variance in PWB;  $F(1, 289) = 118.39, p < .001$ . Self-esteem positively predicted PWB,  $\beta = .43, t(289) = 10.88, p < .001$ . That is, greater

self-esteem is associated with higher PWB, when gender, social desirability, and the Big Five traits were controlled.

Sense of belonging (SOBI-P) was entered in the fourth step. Adding SOBI-P into the regression accounted for an additional 4.5% of variance accounted in PWB,  $F(1, 288) = 66.86$ ,  $p < .001$ . Sense of belonging positively predicted PWB (meaning a higher sense of belonging was associated with a higher psychological wellbeing),  $\beta = .32$ ,  $t(288) = 8.17$ ,  $p < .001$ . In the fifth step, the eight GoToFB subscales were entered. The change in  $R^2$  of .010 was not significant;  $F(8, 280) = 1.83$ ;  $p = .071$ . Furthermore, none of the Gravitating Toward Facebook subscales made a significant, unique contribution to PWB. In the final step, the four MFIS subscales were entered into the model. The MFIS scales as a whole did not make a significant contribution;  $\Delta R^2 = .004$ ,  $F(4, 276) = 1.39$ ,  $p = .237$ . None of the subscales made a significant, unique contribution to PWB.

**Hypothesis 8.** It was hypothesized that Sense of Belonging (SOBI-P) would account for significant variance in PWB scores, when gender, social desirability, self-esteem, the Big Five personality factors, and types of media use are controlled. To test this hypothesis, a six-step hierarchical linear regression procedure was conducted. The first three steps are the same as in the previous analysis. In the first step, gender and social desirability were entered into the equation and accounted for 12.7% of the variance of PWB;  $F(2, 295) = 21.49$ ,  $p < .001$ . Only social desirability significantly predicted PWB (see Table 7).

In the second step, the Big Five Inventory scales were entered, and they accounted for an additional 53.3% of the variance in PWB;  $F(5, 290) = 91.05$ ,  $p < .001$ . In the third step, the Rosenberg Self-Esteem scale was entered, and it accounted for an additional 9.9% of the

variance in PWB;  $F(1, 289) = 118.39, p < .001$ . Greater self-esteem was associated with higher PWB, when gender, social desirability, and the Big Five traits were controlled.

In the fourth step, the eight GoToFB subscales were entered. The Gravitating Toward Facebook subscales made a statistically significant contribution, accounting for 1.4% of the variance in PWB;  $\Delta R^2 = .014, F(8, 281) = 2.23, p = .026$ . Learning positively predicted PWB ( $\beta = .08, t(281) = 1.97, p = .049$ ), while Expressing negatively predicted PWB;  $\beta = -.09, t(281) = -2.13, p = .034$ ).

In the fifth step, the four MFIS subscales were entered. The MFIS subscales did not make a significant contribution;  $\Delta R^2 = .006, F(4, 277) = 1.95, p = .102$ . Further, none of the Facebook Intensity subscales made a significant unique contribution to PWB. In the sixth and last step, the SOBI-P scores were entered into the equation. The SOBI-P accounted for 3.8% of the variance in PWB, over and above the other variables, which was significant;  $F(1, 276) = 57.91, p < .001$ . Sense of Belonging positively predicted PWB;  $\beta = .30, t(276) = 7.61, p < .001$ . Thus, greater Sense of Belonging (SOBI-P) was associated with greater Psychological Wellbeing (PWB).

## Discussion

### Bivariate Relations

The results of the present study provided only some support for the hypothesis that the various types of social media use, as measured by the GoToFB and MFIS, are associated with sense of belonging and psychological wellbeing. Of the 5 bivariate hypotheses, only 2 (H1 and H5) were supported. As hypothesized, Overuse of social media was negatively correlated with sense of belonging and with psychological wellbeing. This aligns with prior research (i.e., Kross et al., 2013) finding that greater frequency of use is correlated with lower levels of subjective



wellbeing. Moreover, the MFIS subscale of Persistent use was also negatively correlated with Sense of belonging ( $r = -.20$ ) and Psychological Wellbeing ( $r = -.16$ ), further aligning with research that greater frequency and intensity in Facebook use are associated with negative psychological outcomes.

Surprisingly, the results showed that the MFIS subscale of Self-Expression was *negatively* related to sense of belonging ( $r = -.17$ ), indicating that greater use of Facebook for self-expression was associated with a poorer sense of belonging. Self-expression was not significantly correlated with psychological wellbeing. Also, in contrast to the hypothesis, none of the three GoToFB subscales, Connecting, Sharing, or Expressing, was significantly correlated with Sense of Belonging or Psychological Wellbeing. This is a surprising finding, along with the negative correlation of self-expression and sense of belonging, given prior research indicating that active, communicative use was negatively correlated with loneliness and positively correlated with satisfaction with life, although those are somewhat different constructs (Matook et al., 2015; Wang et al., 2014). In addition, the MFIS Self-expression subscale is not comprised of communicative behaviors but is rather more focused on how much detail is included and how much upkeep individuals do on their Facebook profile. Consistent with the study's hypothesis, the Monitoring subscale of GoToFB was significantly, negatively related to Sense of Belonging ( $r = -.14$ ) and with Psychological Wellbeing ( $r = -.13$ ). This aligns with research that passive use of social media, such as viewing others' broadcasted information, is associated with constructs such as loneliness (Matook et al., 2015), and not associated with wellbeing (Burke et al., 2016). Finally, Persistence of Use (MFIS) was not significantly correlated with face-to-face interaction, failing to support the stated hypothesis. It worth noting, however, that face-to-face interaction was significantly correlated with 15 of 21 variables, including positive correlations with

Connecting ( $r = .16$ ), Sharing ( $r = .16$ ), Expressing ( $r = .15$ ), sense of belonging ( $r = .24$ ) and psychological wellbeing ( $r = .19$ ). It also significantly positively correlated with the other MFIS subscales, boredom ( $r = .17$ ) and ( $r = .16$ ), but not overuse.

Overall, only 4 of the 12 social media variables were related to Psychological Wellbeing (Persistence, Overuse, Monitoring, and Learning) and only one was above the absolute value of .20 (Persistence of use). Similarly, only 4 of the 12 social media variables were related to Sense of Belonging (Persistence, Overuse, Self-expression, and Monitoring). Based on the sample size of 298 and the 22 variables being analyzed, the study had over 99.5% power to detect a medium-sized correlation of .3 at the alpha .05 level of significance (Cohen, 1977). This indicates that the probability of making a type II error, of falsely accepting the null hypothesis, and thus having any correlations go undetected, is less than 1% for a medium-sized correlation.

### **Primary Hypotheses**

The findings of the complex hypotheses that controlled for gender, social desirability, self-esteem and the Big Five personality factors were mixed. As shown in Table 5, intensity in social media use, as measured by the Multidimensional Facebook Intensity Scale (MFIS), added significant variance to sense of belonging, over and above gender, social desirability, the Big Five, and self-esteem. But the magnitude of its contribution was modest: 1.9 % of the variance in sense of belonging. However, none of the individual subscales of the MFIS made significant unique contribution to sense of belonging. This indicates that the total amount of variance they explain is significant, but it is somewhat possible that the overlap among the subscales may be preventing individual scales from making significant individual contributions. The average intercorrelation among the MFIS subscales was .65 and ranged from .49 (Boredom and Self-Expression) to .78 (Self-Expression and Persistence of use).

As shown in Table 7, the Gravitating toward Facebook scales added significant variance (1.4%) to Psychological Wellbeing, over and above gender, social desirability, the Big Five, and self-esteem. Two subscales made significant, unique contributions: Learning was positively associated with Psychological Wellbeing and, surprisingly, Expressing was *negatively* associated with Psychological Wellbeing. The overlap among the GoToFB scales also may have reduced the number of significant individual contributions, as the average intercorrelation among the 8 subscales of the GoToFB was .52 and ranged from .35 (Organizing and Relaxing) to .69 (Sharing and Branding).

It is an interesting finding that, when other variables are controlled, Expressing was negatively associated with Psychological Wellbeing. Its Pearson correlation was near zero, but its association was significant once gender, social desirability, the Big Five, and self-esteem were controlled. This runs counter to the hypothesis of the researcher and some previous research. For example, Matook et al., (2015) found that active use of social media negatively correlated with perceived loneliness, and Wang et al., (2014) found that social media use for social purposes (rather than entertainment) was positively correlated with life satisfaction. However, life satisfaction may sufficiently differ from psychological wellbeing that it may yield different findings. Alternatively, use for social purposes may meaningfully differ from use for expressing one's views. The former may focus on others and one's relationships with others; whereas, the latter may be more about one's ego or demonstrating one's superiority (showing off). Looking more closely at the contents of the Expressing subscale of the GoToFB, it asks whether individuals are attracted to features that allow them to express themselves "without limits", "without reservation", "talk about beliefs freely" and making their voice heard. Perhaps those who are most attracted to those features feel less able to express themselves in real life and

substitute Facebook to fulfill that need. It also could suggest that using Facebook for the purpose of expression is not necessarily an effective or helpful outlet for those feeling socially neglected or repressed (Seidman, 2012). Again, it is notable that the bivariate correlation between Expressing and PWB was not significant; whereas, the unique contribution of Expressing was significant when the other variables were controlled in the HMRA, indicating that controlling for gender differences or personality may have allowed the negative relation to be observed.

Although less surprising, it is also interesting that the GoToFB subscale of Learning was positively associated with psychological wellbeing, when variables like gender, personality, and self-esteem were controlled in the HMRA reported in Table 7. Although there is sizeable intercorrelation among the variables of the GoToFB subscales (average  $r = .520$ ), connecting, expressing and sharing were not associated with psychological wellbeing in the bivariate correlations either (which ran counter to hypothesis 3). It also runs counter to a study conducted by Matook et al., (2015) which found that passive social media use correlated positively with perceived loneliness. However, that study did not control for personality, self-esteem or social desirability. Moreover, the structure and purpose of Facebook have evolved since its nascence and this finding may be a reflection of that. Barthel, Shearer, Gottfried and Mitchell (2015) of the Pew Research Center, found that 63% of members utilize Facebook as news and informational platforms, “outside of the realm of friends and family.” Thus, it appears that a majority of Facebook users now view this network as a hub for news and information. In addition, the relationship between Learning and PWB was reduced when sense of belonging was controlled (Table 6). According to MacKinnon, Krull and Lockwood (2000), the difference in regression coefficients (.42 versus .31) indicates that sense of belonging may serve as a mediator or positive confounding variable in the relation between use of Facebook for learning and PWB.

Research that examines changes in Learning, sense of belonging, and PWB over time will be needed to answer the question about mediation.

As expected, sense of belonging and psychological wellbeing were positively associated with one another, after gender, social desirability, personality, self-esteem and types of social media use were controlled. This is as predicted in hypothesis 8 and demonstrates the importance of an individual's sense of belonging with regard to psychological health. Although seemingly obvious, it is a noteworthy finding, given that sense of belonging still uniquely contributes to psychological wellbeing over and above factors like gender, personality, self-esteem, social desirability and even social media use. The importance of sense of belonging cannot be overstated, particularly among those between 18 and 20 years old (90.3% of the sample) and should be a focus for undergraduate administrators who oversee social programs on campus and within individual dorms.

### **Findings Regarding Personality**

In addition to the findings regarding psychological wellbeing, sense of belonging, and type of social media use, there were also interesting findings regarding personality and social media use. First, personality appears to play a large role in psychological wellbeing and sense of belonging, as it accounted for 53.3% of variance in psychological wellbeing and 36.1% of variance in sense of belonging, as measured by the Big Five Inventory.

Regarding particular personality traits, this study found that the personality trait of Extraversion, measured by the Big Five Inventory, was positively associated with the GoToFB subscale of Connecting. This is consistent with the findings of Seidman (2012) that Extraversion was associated with communication. The present study also found that Extraversion was positively associated with use for the purpose of Sharing, Branding, Organizing, and Expressing-

- all forms of connecting and interacting with others. Orsosz et al. (2015) also found that the personality factor of Extraversion was positively correlated with the MFIS subscale of Self-expression. This is interesting in that those who are extraverted also display extraversion via social media, as they may be more likely to use the active and social features of Facebook.

The current study also found that Neuroticism was positively associated with Monitoring, of the GoToFB scale. This too aligns with Seidman (2012) who found that Neuroticism was related to information-seeking; a construct similar to Monitoring. Neuroticism was also found to be positively associated with the MFIS subscale of Overuse in this study, as well as in the study conducted by Orsosz et al. (2015). This study also found a positive association between Neuroticism and Persistence of use. Despite the variety of social media networks, perhaps those who are neurotic are prone to maintaining their behavioral and emotional attachment to Facebook to check in and view the activities of others and see if any of this activity includes (*or excludes*) them.

Regarding the personality trait of Agreeableness, the current study found that Agreeableness was negatively associated with Persistence of use and Self Expression of the MFIS. Orosz et al., (2015) also found that this trait was significantly negatively associated with Persistence, but in contrast, found it was significantly *positively* associated with Self-expression. This is an interesting contrast and there may be several contributing factors. First, Orosz et al. (2015) controlled for age, gender, and current and finished level of education, which differs from the current study. In addition, one may speculate that this may be partially a product of the evolving nature of Facebook as a forum for politics. The current political climate is one of polarization and more agreeable individuals, those less likely to engage in argument or debate, may be reluctant to express themselves via social media.

### **Implications for Practice**

The findings of the current study highlight some important facets of Facebook use that can be misperceived or minimized. That lower psychological wellbeing is associated with using Facebook for expressing oneself is both a surprising and concerning finding. Similar to what was hypothesized in this study, parents, school psychologists and other school personnel may believe that using Facebook to express oneself is a more psychologically healthy practice than more passive use. As a result, they may overlook or even encourage using social media for self-expression, which this study suggests may be either unhelpful or even detrimental. However, this can also be viewed as a positive finding. Although passive use and monitoring behavior can be hard to track, active use as described by the Expressing subscale could be easily recognized. This subscale specifies that the user is attracted to the features of expressing oneself “freely”, “without limits”, “without reservation” and “making my voice heard.” That is, the person is endorsing items that indicate a wish to express views without limits of good taste, concern for the feelings of others, or social conventions. Future research could examine the relation between this scale and cyberbullying. When a student is prone to making opinionated statements about other people, themselves, their views and their beliefs, it may be prudent for parents, peers and school personnel to notice this trend and consider proactive intervention.

In contrast, the finding that the tendency to use Facebook for learning is positively related to psychological wellbeing is encouraging. The items of this subscale include tendencies to “find creative ideas”, “learn new things”, “improve knowledge” and “get more information”. However, participants do not have to specify what kind of ideas or information they may be seeking. Although, parents and school personnel may be concerned about and inclined to discourage Facebook use, not all use should necessarily be viewed as wasteful. As described by

Barthel et al. (2015), people are becoming more apt to use Facebook as a place for information gathering. It is important that parents and school personnel are not only aware of the content that their children and students are viewing on social media but help them become knowledgeable consumers. More than ever before, we are hearing about the dissemination of “fake news” on popular sites like Facebook. Being able to sort through and discern the difference between gossip/opinion and reliable, professional journalism has become an essential skill, perhaps even a skill that should be focused on in school.

The results also highlight the importance of the interaction between type and intensity of social media use, sense of belonging, psychological wellbeing and personality. Although, for some, particular types of social media use may be innocuous or beneficial, it can also be harmful to the psychological wellbeing of others. This is especially relevant and important when considering the mental health of high school and college students: a significant portion of social media consumers. Neuroticism was associated with Facebook monitoring, overuse, and persistence in the current study. Thus, neurotic individuals may be susceptible to problematic use that may serve to exacerbate negative emotions. It is important that parents and mental health personnel in schools understand social media and discern the difference between being social and using social media. It can be helpful for parents, school personnel and students themselves to be aware that social behavior and behavior on social media can be parallel. For instance, extraverted individuals are most likely to engage in self-expressive behavior, while conscientious individuals are more likely to use Facebook for learning. In addition, neurotic individuals can be particularly susceptible to overuse, which is defined as use that is problematic and potentially interfering with an individual’s functioning, similar to addiction. Given the ubiquity of social media use, parents, schools, and universities should be aware of social media’s many uses and its



potential influence on their students' psychological wellbeing. Only with a full understanding of its features and effects can parents have an informed discussion with their children about healthy and unhealthy ways to channel and express their feelings.

### **Limitations and Future Directions**

The current study was limited by the fact that participants were not asked to provide an initial confirmation that they were a member of Facebook, nor how frequently they accessed it, nor their duration of use per day or per week. One may presume that those who chose to participate in this study were likely users of social media, but this may not be the case for all participants. Although participants did complete a short subscale that assessed Persistence of Facebook use (on the MFIS), this is an imperfect substitute. This may have affected the results, as the sense of belonging and psychological wellbeing of users and non-users may differ. Furthermore, attentiveness and motivation may have also played a role in this study. The researcher eliminated 6 participants for completing the entire survey in less than or equal to 3 minutes and 50 seconds; a threshold representing the average survey completion time of several trials by the researcher and a colleague when marking answers as quickly as possible (answering each item randomly without reading the items). Twenty additional seconds were added to that number to account for individual differences and differences in internet speed. It is still possible, however, that there were inattentive and unmotivated participants whose inclusion could have affected the results.

In addition to these limitations, there are potential measurement issues that could have affected this study as well. Three subscales exhibited a Cronbach's alpha, a measure of internal consistency reliability, below .70 (Connecting of GoToFB was .65, as was Social Desirability, and Conscientiousness of The Big Five Inventory was .66). Low reliability constrains

correlations. Another measurement issue that should be acknowledged is that these two instruments (GoToFB and MFIS) measure several different aspects and types of Facebook use, but they may not capture all behaviors that occur on Facebook. For instance, supporting and celebrating the life events of others does not appear to be captured. Many individuals use Facebook to wish friends a happy birthday or congratulate them on a certain achievement, but these kinds of behaviors are not clearly reflected in any of the subscales, including Connecting or Sharing. Another example of this is that neither of these two subscales explicitly describes any behaviors related to looking or posting pictures. Although GoToFB includes items referring to “Showing off my coolness”, “Contributing content” and keeping an eye on friends and neighbors, it does not at all refer to some of the voyeuristic behaviors that one can engage in on Facebook, nor behaviors related to cyberbullying. Although they are the more nefarious activities on Facebook, they are important to consider nonetheless.

This study is unique in that minimal research up to this point has focused on different kinds of Facebook use and their correlation with sense of belonging and psychological wellbeing. Although other studies (Matook et al., 2015; Quinn et al., 2013; Strayhorn, 2012; Valkenburg et al., 2006) controlled for the effects of gender, this study uniquely accounted for personality, self-esteem and social desirability. This is an important advance, as many of the social media related subscales are significantly correlated with Big Five personality traits and/or self-esteem. Thus, correlations reported in other studies may be the result of personality differences in their participants, rather than differences in Facebook use. Or, correlations that have been reported in prior research between Facebook use variables and wellbeing could actually have been due partially or entirely to the Big Five personality factors, which strongly predict wellbeing. When personality is controlled, then a clearer picture of the influence of

Facebook use can be obtained. Facebook is constantly changing and adapting, with new features being added on a near-daily basis and studies simply measuring Facebook use by time spent and frequency provide little information. Future research needs to continue to advance in finding ways to assess use of the complex and ever-changing nature of Facebook and its potential effects on young adults.

Perhaps the most important limitation is that there are various other social media platforms that have grown in popularity. The current study is limited by the singular focus on Facebook to examine types of social media use. Although other social media networks have become increasingly popular, many more sophisticated measures of Facebook use have been developed with the ability to consider various types of use. As many of the other social media networks grow, such as Instagram and Snapchat, it is likely that, with time, more robust and in-depth scales will be developed that include these networks and their intricacies. Currently, nearly 75 percent of participants were 18-19 years old. This is a unique age group because, although they continue to be Facebook users, they also consist of the most users of other social media networks and direct message applications, and research suggests that networks like Snapchat and Instagram will overtake Facebook in the coming years (Kosoff, 2016). A recent study conducted by Cramer and Inkster (2017), of the Royal Society for Public Health (RSPH), found that this trend can have very detrimental consequences to our youth. They conducted a survey in the United Kingdom (UK), with 1,479 participants of ages ranging from 14 to 24, which asked about *their perception* of social media's impact on their health and wellbeing on a continuum from -2 to +2. The results indicated that YouTube was most associated with the perception of positive psychological outcomes, followed by Twitter, then Facebook, Snapchat and, lastly, Instagram. Only YouTube had a perceived net positive effect, while users of Facebook, Snapchat and

Instagram believed that these platforms had worsened symptoms of anxiety and depression. In addition, these platforms were believed to negatively affect sleep and body image and increase bullying behavior. However, the results also suggested that these platforms increased perceived emotional support, but Instagram provided the least of these three. Although this research only examined the users' *perception*, it further suggests that future research needs to focus on how using these networks, individually and collectively, influence one's sense of belonging and psychological wellbeing. Only then can we start to identify all the necessary avenues for intervention.

Table 1

*Frequencies and Percentages for Participant Demographics (N = 298)*

Variable	<i>n</i>	%
Age in years ( $M = 18.95$ ; $sd = 1.40$ )		
18	147	49.3
19	80	26.8
20	42	14.1
21	17	5.7
22	6	2.0
23	3	1.0
24	1	.3
29	2	.7
Ethnicity		
Asian	127	42.6
White	86	28.9
Hispanic / Latino	39	13.1
Black or African American	28	9.4
Other	18	6.0
Gender		
Male	165	55.4
Female	133	44.6

Table 2

*Cronbach's Alpha for the Scales and Subscales (N = 298)*

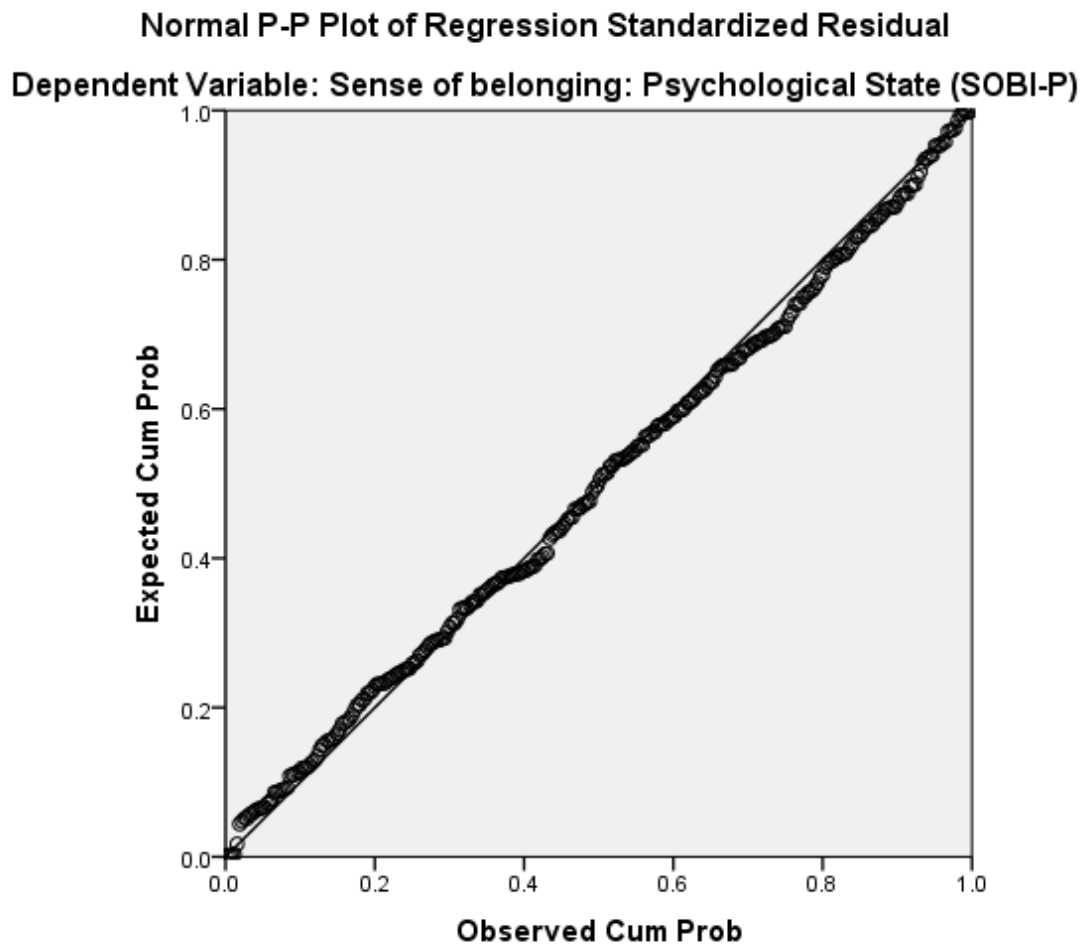
Scale/Subscales	$\alpha$	Number of Items
Multidimensional Facebook Intensity Subscales		
Persist	.81	4
Boredom	.85	3
Overuse	.79	3
Self-Expression	.82	3
Gravitating Toward Facebook Subscales		
Connecting	.65	5
Sharing	.85	5
Relaxing	.89	4
Branding	.83	4
Organizing	.86	4
Monitoring	.73	4
Expressing	.86	4
Learning	.81	4
Sense of Belonging Subscales		
Sense of belonging: Antecedents	.70	9
Sense of belonging: Psychological State	.93	18
Big Five Subscales		
Extraversion	.80	8
Agreeableness	.79	9
Conscientiousness	.66	9
Neuroticism	.76	8
Openness	.72	10
Rosenberg Self-Esteem Score	.88	10
Social Desirability Score	.65	13
Face-to Face Interaction Score	.74	11
Psychological Well-Being Total	.92	42
Autonomy	.69	7
Environmental Mastery	.72	7
Personal Growth	.73	7
Positive Relations	.77	7
Purpose in Life	.58	7
Self-Acceptance	.80	7

Table 3

*Descriptive Statistics for the Primary Variables (N = 298)*

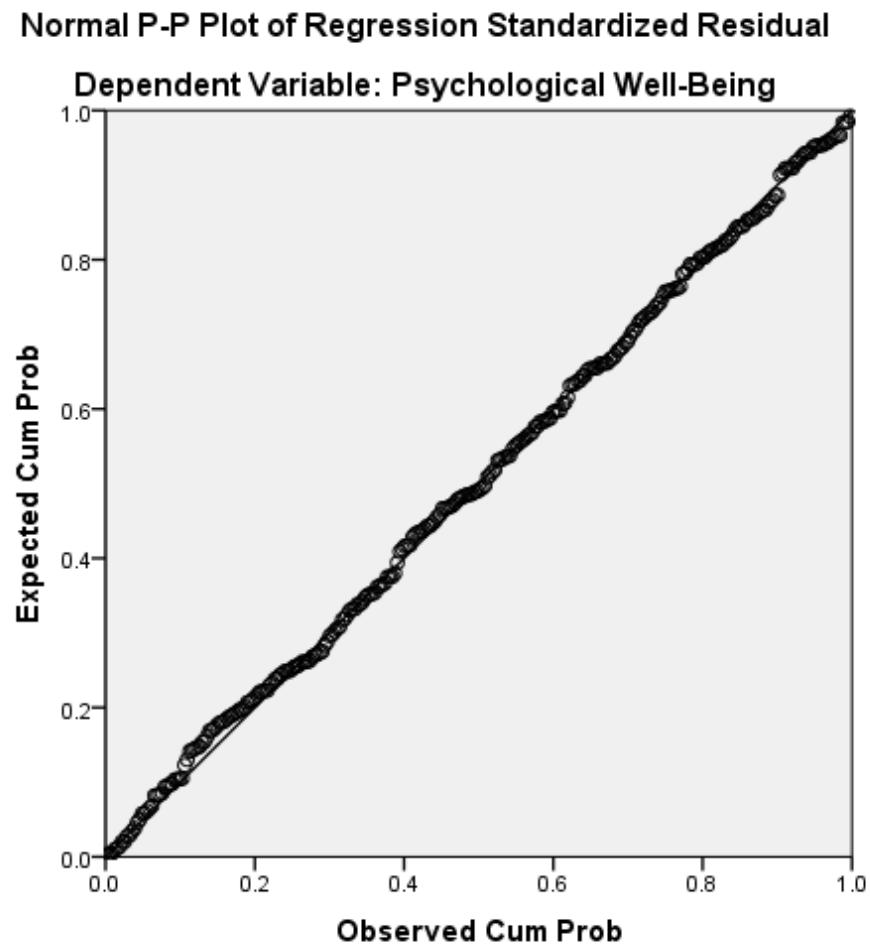
Variable	Observed Range	<i>M</i>	<i>SD</i>	Skew	Kurtosis
Facebook Intensity (4)					
Persist	4.00 to 19.00	8.30	3.63	.62	-.41
Boredom	3.00 to 15.00	9.72	3.40	-.52	-.71
Overuse	3.00 to 15.00	7.54	3.18	.26	-.71
Self-Expression	3.00 to 15.00	6.17	2.68	.68	-.20
Gravitating toward Facebook (8)					
Connecting	5.00 to 35.00	21.30	5.18	-.70	.98
Sharing	5.00 to 35.00	21.90	6.38	-.69	.25
Relaxing	4.00 to 28.00	15.56	5.75	-.20	-.61
Branding	4.00 to 28.00	15.42	5.55	-.36	-.28
Organizing	4.00 to 28.00	16.22	5.70	-.29	-.46
Monitoring	4.00 to 25.00	14.66	5.05	-.38	-.48
Expressing	4.00 to 28.00	14.29	5.62	-.01	-.61
Learning	4.00 to 28.00	19.37	4.87	-1.03	1.31
Sense of Belonging	24.00 to 72.00	52.90	10.12	-.08	-.49
Big-Five Inventory (5)					
Extraversion	1.00 to 4.88	3.16	.73	-.33	.02
Agreeableness	1.67 to 5.00	3.63	.64	-.15	-.50
Conscientiousness	2.00 to 5.00	3.30	.53	.30	.14
Neuroticism	1.00 to 4.75	2.96	.68	-.23	.32
Openness	1.70 to 5.00	3.54	.55	-.07	.41
Rosenberg Self-Esteem	15.00 to 40.00	29.39	5.58	.06	-.44
Social Desirability	1.00 to 14.00	7.37	2.74	.02	-.17
Face-to-Face Interaction	.00 to 11.00	6.17	2.67	-.11	-.53
PWB	96.00 to 239.00	169.70	26.59	.17	-.31

*Note.* *SE* for skewness statistic = .14. *SE* for kurtosis statistic = .28.

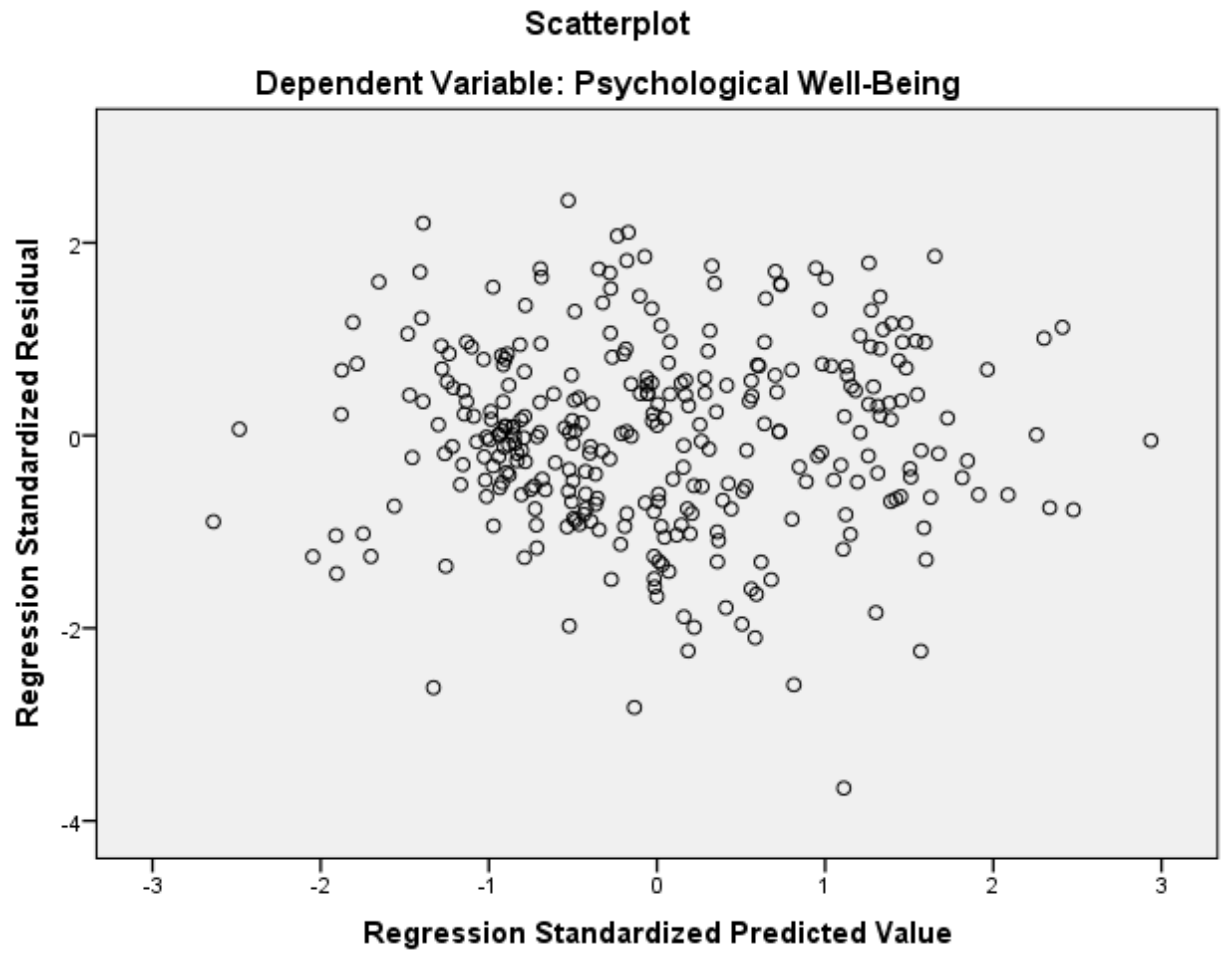


*Figure 1.* P-Plot for Sense of Belonging.

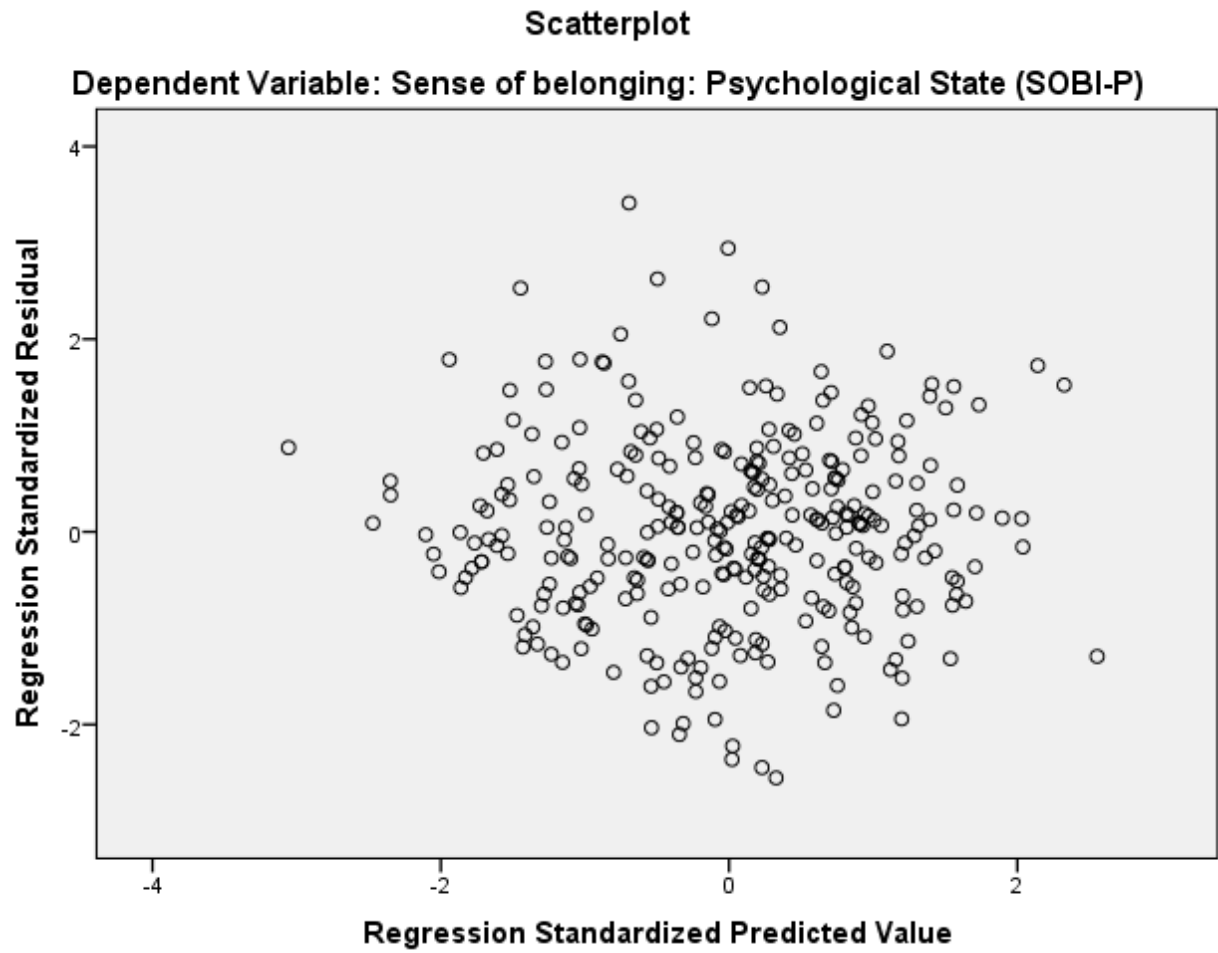




*Figure 2.* P-Plot for Psychological Well-Being.



*Figure 3.* Homoscedasticity analysis for Psychological Well-Being.



*Figure 4.* Homoscedasticity analysis for Sense of Belonging.

Table 4

*Pearson Correlations (N = 298)*

Measures	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Facebook intensity																						
1 Persistence																						
2 Boredom	.57**																					
3 Overuse	.72**	.72**																				
4 Self-expression	.78**	.49**	.63**																			
Gravitating toward Facebook																						
5 Connecting	.30**	.25**	.25**	.36**																		
6 Sharing	.29**	.30**	.28**	.33**	.58**																	
7 Relaxing	.39**	.31**	.36**	.38**	.49**	.55**																
8 Branding	.37**	.25**	.31**	.41**	.52**	.69**	.60**															
9 Organizing	.18**	.12*	.12*	.27**	.43**	.60**	.34**	.44**														
10 Monitoring	.41**	.24**	.32**	.42**	.50**	.48**	.52**	.64**	.36**													
11 Expressing	.36**	.17**	.25**	.39**	.52**	.64**	.58**	.61**	.44**	.51**												
12 Learning	.19**	.38**	.21**	.26**	.50**	.60**	.52**	.46**	.42**	.45**	.45**											
Sense of belonging																						
13 Psychological state	-.25**	-.07	-.20**	-.16**	-.01	.01	-.01	-.03	.01	-.13*	-.06	.08										
14 Psychological wellbeing	-.21**	.01	-.16**	-.09	.05	.07	-.01	.02	.03	-.13*	-.04	.17**	.74**									
15 Face-to-face interactions	.09	.17**	.10	.16**	.13*	.16**	.16**	.18**	.11*	.17**	.15**	.15**	.24**	.27**								
Big-Five Inventory																						
16 Extraversion	.07	.17**	.14*	.16**	.16**	.22**	.10	.13*	.14*	.06	.19**	.19**	.43**	.53**	.28**							
17 Agreeableness	-.17**	-.06	-.12*	-.12*	.01	.04	.01	-.08	.02	-.16**	.02	.07	.42**	.52**	.04	.21**						
18 Conscientiousness	-.12*	-.01	-.11	-.09	.11	.06	.02	-.02	.02	-.07	-.01	.13*	.33**	.56**	.07	.23**	.42**					
19 Neuroticism	.13*	.07	.15*	.06	.04	.03	.01	.01	-.01	.14*	.07	-.03	-.53**	-.62**	-.13*	-.37*	-.31**	-.35**				
20 Openness	-.07	.04	-.02	.01	.20**	.24**	.09	.18*	.18**	.04	.13*	.26**	.11*	.41**	.05	.21**	.36**	.38**	-.15**			
Other measures																						
21 Rosenberg Self-Esteem	-.21**	-.02	-.16**	-.12*	.05	.00	-.01	-.01	-.03	-.16**	-.02	.09	.68**	.78**	.20**	.42**	.43**	.44**	-.55**	.32**		
22 Social desirability	-.15**	-.11*	-.20**	-.11*	-.08	-.11*	-.08	-.21**	-.04	-.15**	-.02	-.01	.23**	.34**	-.02	.11	.48**	.45**	-.33**	.22**	.29**	
23 Gender	.16**	.20*	.20**	.10	.03	.08	-.02	.01	-.01	.12*	.09	.02	-.13*	-.11	.05	.03	.10	.04	.34**	.07	-.14*	-.04

\*  $p < .05$ . \*\*  $p < .01$  (two-tailed).

Table 5

*Hierarchical Multiple Regression of Sense of Belonging onto Gender, Social Desirability, Self-Esteem, the Big Five, and Type of Social Media Use (N = 298)*

Variables	Model Summary			Coefficients				
	$R^2$	$\Delta R^2$	$p$	$B$	$SE$	$\beta$	$t$	$p$
Step 1:	.069	.069	<.001					
Male (0) vs. female (1)				-2.40	1.14	-.12	-2.10	.036
Social desirability				.85	.21	.23	4.09	<.001
Step 2: Big-Five Inventory	.430	.361	<.001					
Openness				-2.19	.91	-.12	-2.42	.016
Conscientiousness				2.05	1.05	.11	1.96	.051
Extraversion				3.71	.68	.27	5.42	<.001
Agreeableness				4.76	.87	.30	5.49	<.001
Neuroticism				-4.86	.84	-.33	-5.79	<.001
Step 3: Rosenberg Self-Esteem	.559	.129	<.001	.89	.10	.49	9.21	<.001
Step 4: Facebook Intensity	.578	.019	.015					
Persistence				-.26	.20	-.09	-1.31	.192
Boredom				.17	.17	.06	.98	.329
Overuse				-.31	.22	-.10	-1.44	.152
Self-expression				-.01	.24	.00	-.02	.985
Step 5: Gravitating toward Facebook	.586	.009	.662					
Connecting				-.08	.10	-.04	-.80	.425
Sharing				.03	.11	.02	.28	.784
Relaxing				.06	.10	.04	.63	.532
Branding				.06	.12	.03	.46	.644
Organizing				.06	.09	.03	.66	.509
Monitoring				.06	.12	.03	.51	.613
Expressing				-.15	.11	-.08	-1.41	.160
Learning				.12	.12	.06	.98	.331

Table 6

*Hierarchical Multiple Regression of Psychological Wellbeing onto Gender, Social Desirability, Self-Esteem, the Big Five, Sense of Belonging, and Type of Social Media Use (N = 298)*

Variables	Model Summary			Coefficients				
	$R^2$	$\Delta R^2$	$p$	$B$	$SE$	$\beta$	$t$	$p$
Step 1:	.127	.127	<.001					
Male (0) vs. female (1)				-5.08	2.91	-.10	-1.75	.082
Social desirability				3.30	.53	.34	6.25	<.001
Step 2: Big-Five Inventory	.660	.533	<.001					
Openness				6.31	1.84	.13	3.43	.001
Conscientiousness				12.76	2.12	.25	6.01	<.001
Extraversion				10.37	1.39	.28	7.48	<.001
Agreeableness				9.57	1.76	.23	5.45	<.001
Neuroticism				-13.09	1.70	-.34	-7.69	<.001
Step 3: Rosenberg Self-Esteem	.759	.099	<.001	2.04	.19	.43	10.88	<.001
Step 4: Sense of Belonging	.804	.045	<.001	.84	.10	.32	8.18	<.001
Step 5: Gravitating toward Facebook	.814	.010	.071					
Connecting				-.11	.18	-.02	-.60	.549
Sharing				.35	.20	.08	1.80	.073
Relaxing				-.11	.17	-.02	-.65	.514
Branding				-.41	.22	-.09	-1.93	.055
Organizing				-.12	.16	-.03	-.74	.458
Monitoring				.19	.20	.04	.96	.338
Expressing				-.30	.18	-.06	-1.60	.110
Learning				.31	.20	.06	1.59	.112
Step 6: Facebook Intensity	.818	.004	.237					
Persistence				-.42	.36	-.06	-1.17	.242
Boredom				.46	.33	.06	1.40	.163
Overuse				-.50	.39	-.06	-1.29	.199
Self-expression				.80	.43	.08	1.85	.065

Table 7

*Hierarchical Multiple Regression of Psychological Wellbeing onto Gender, Social Desirability, Self-Esteem, the Big Five, Type of Social Media Use, and Sense of Belonging (N = 298)*

Variables	Model Summary			<i>B</i>	<i>SE</i>	Coefficients		
	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>p</i>			$\beta$	<i>t</i>	<i>p</i>
Step 1:	.127	.127	<.001					
Male (0) vs. female (1)				-5.08	2.91	-.10	-1.75	.082
Social desirability				3.30	.53	.34	6.25	<.001
Step 2: Big-Five Inventory	.660	.533	<.001					
Openness				6.31	1.84	.13	3.43	.001
Conscientiousness				12.76	2.12	.25	6.01	<.001
Extraversion				10.37	1.39	.28	7.48	<.001
Agreeableness				9.57	1.76	.23	5.45	<.001
Neuroticism				-13.09	1.70	-.34	-7.69	<.001
Step 3: Rosenberg Self-Esteem	.759	.099	<.001	2.04	.19	.43	10.88	<.001
Step 4: Gravitating toward Facebook	.773	.014	.026					
Connecting				-.20	.20	-.04	-.99	.323
Sharing				.38	.22	.09	1.76	.080
Relaxing				-.12	.19	-.03	-.64	.525
Branding				-.39	.24	-.08	-1.64	.103
Organizing				-.06	.17	-.01	-.33	.741
Monitoring				.21	.22	.04	.93	.354
Expressing				-.43	.20	-.09	-2.13	.034
Learning				.42	.22	.08	1.97	.049
Step 5: Facebook Intensity	.780	.006	.102					
Persistence				-.61	.40	-.08	-1.54	.125
Boredom				.51	.36	.07	1.42	.158
Overuse				-.74	.43	-.09	-1.73	.084
Self-expression				.76	.48	.08	1.59	.112
Step 6: Sense of Belonging	.818	.038	<.001	.80	.11	.30	7.61	<.001

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