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Facebook: Use, personality, and well-being

Abstract

As our society moves toward greater integration with technology we are seeing more social interactions conducted through electronic means. An understanding of how individual factors affect use of communication mediated by social networking platforms, and the role of this communication in our global social interactions, is important in assessing the impact of our changing options for social contact. Within the present study, a total of 270 participants were recruited through links posted on the social networking site Facebook. The age of participants ranged from 18 to 67, with a mean age of 25.6. The majority of participants reported residing in the United States (n=244), identified as female (n=189), White (n=222) and as students (n=196, ranging from high school to graduate school). Interactions were found between personality traits and content the user uploads to the site, motivations for using Facebook, and consumption of content on the site. Additionally associations between well-being and receiving directed communication from other users were found.

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FACEBOOK: USE, PERSONALITY, AND WELL-BEING

A THESIS

SUBMITTED TO THE FACULTY

OF

SCHOOL OF PROFESSIONAL PSYCHOLOGY

PACIFIC UNIVERSITY

HILLSBORO, OREGON

BY

CHELSEY RITNER

IN PARTIAL FULFILLMENT OF THE

REQUIREMENTS FOR THE DEGREE

OF

MASTER OF SCIENCE IN CLINICAL PSYCHOLOGY

JULY 24, 2013

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ABSTRACT

As our society moves toward greater integration with technology we are seeing more social interactions conducted through electronic means. An understanding of how individual factors affect use of communication mediated by social networking platforms, and the role of this communication in our global social interactions, is important in assessing the impact of our changing options for social contact. Within the present study, a total of 270 participants were recruited through links posted on the social networking site Facebook. The age of participants ranged from 18 to 67, with a mean age of 25.6. The majority of participants reported residing in the United States (n=244), identified as female (n=189), White (n=222) and as students (n=196, ranging from high school to graduate school). Interactions were found between personality traits and content the user uploads to the site, motivations for using Facebook, and consumption of content on the site. Additionally associations between well-being and receiving directed communication from other users were found.

Keywords: Facebook, personality, five-factor model, well-being

FACEBOOK 1

Facebook: Uses, Personality, and Well-being

As of May 2012, Facebook has over 900,000,000 users (Sengupta, 2012). This new paradigm for social interaction may reinforce distant or burgeoning relationships, but may also be composed mainly of weak ties between individuals (Burke, Marlow, & Lento, 2010; Ryan & Xenos, 2011). Conflicting information exists regarding the influence of Facebook on well-being; it may be a means to gain social capital and maintain social connection, or it may act to damage self-esteem. It seems that personality is not only reflected in online actions, but has impacts the effect of our technology use (Burke et al., 2010; Moore & McElroy, 2012; Nosko, Wood, & Molema, 2010, Steinfield, Ellison, & Lampe, 2008)

Facebook: Description and Demographics

"Facebook has destroyed the meaning of the word "friend" ... "friend" used to mean something - I'll take a bullet for you, I'll take care of your kid ... things with meaning. Now, it just means connected to" (Martinez, 2012, para. 7).

Facebook is a social networking site in which members sign up and connect with other members termed "*friends*" of the user (this term applies regardless of the actual relationship shared between the individuals). Users communicate through the site using a variety of features; communication may be public or private, synchronous or asynchronous, and directed to specific users or broadcasted to all *friends*.

Public Communication. Users are given a personal page which displays their personal information and a space (referred to as the wall) where friends may share information (messages, photos, or links to other sites) which is public (able to be seen by the user and the user's friends). Users may also post on their wall to broadcast a message (called a status update) to all or some

of their *friends* or publicly *comment* on a *friend's* posting. When a user uploads personal photos to the site their *friends* can *comment* on the photos, *comments* will be seen by all other users who are allowed to see the photos. Users also *comment* on other user's *status updates* or photos they upload to the site. Users may also publicly *like* these photos, *comments*, and *status updates*, by clicking a small icon. When users *like* something, their name appears under the posting as "[NAME] liked this," and the creator of the post in notified.

Status updates and uploaded photos are examples of information which is broadcasted to all *friends*, whereas *comments* and *like* are functions which are directed at a specific *friend's* post. Public communication may be asynchronous, meaning that users are not required to be communicating in real-time.

Other features may also be used to broadcast information. Using the *share* function allows the user to "share" a link that a *friend* has posted by posting it on one's own *wall* (thus making it visible to one's own set of *friends*). *Notes* are longer text postings made available to view by one's *friends*. The *check-in* feature allows a user to note what their current location is (usually a business or landmark). Users may *like* or post on "pages," which are personal sites for businesses or other organizations, or join "groups" of other users focused on a specific theme. Users may modulate the accessibility of their information to other users; "public" communication here generally refers to making this information accessible to all or the majority of the user's *friends*.

Private communication. Private communication is supported by the site by either the *chat* function (a real-time instant messenger) and the *message* function (which allows for longer notes and is similar to e-mail). Both of these must be directed at specific *friends*, but *chat* is

synchronous (requiring both users to be concurrently using the feature) and the *message* function is asynchronous.

Users may also create an *event*, which often refers to an offline gathering (e.g. a birthday party). Facebook additionally allows users to play games with other users on the site and use other *apps* (or applications), which may post on the site on the user's behalf (i.e. a smartphone app may post a user's score, or update a user's *friends* that they have uploaded a photo to Instagram, a photo *app* owned by Facebook Inc. (Rusli, 2012).

News Feed. The news feed is an aggregate, updating, stream of information uploaded by a user's *friends* and the *pages*, *groups*, and *events* that a user is a part of. This information includes uploaded photos, *status updates*, *shared* links, and includes *comments* and *likes*. This allows a user to passively consume social information without actively communicating with their *friends*.

According to the Pew Research Center's Internet & American Life Project, Facebook is estimated to be utilized by 67% of all internet users (Duggan & Brenner, 2013). More Facebook users identify as women than men and Facebook use is reported more frequently among younger internet users. Of internet users age 18 to 29, 86% reported using Facebook; of Internet users age 65+ only 35% reported using Facebook (Duggan & Brenner, 2013).

Motivations for Facebook Use

Researchers have focused on several explanations for what motivates people to use Facebook. Nadkarni and Hofmann (2012) proposed that there are two needs which are satisfied through Facebook use: 1) the need to belong and 2) the need for self-presentation, both of which are influenced by demographic, cultural, and personality factors. They report that Facebook allows users to visualize their social connections, which functions to validate or improve self-

esteem by endowing a sense of belonging. Facebook additionally allows users to selectively present personal information, thus having a significant amount of control over their public presentation on the site (for example, users control what photos are available for friends to see and may select attractive photos), thus satisfying a need for self-presentation (Nadkarni & Hofmann, 2012). Viewing one's own Facebook *wall* may increase self-esteem because of the satisfaction of the need for self-presentation (Gonzales & Handcock, 2011).

Sheldon, Abad, and Hinsch (2011) reported that relatedness needs are driving Facebook use; when this need is satisfied we are rewarded and experience feeling connected, when it is unsatisfied we experience the feeling of being disconnected. The researchers stated that feeling disconnected may drive Facebook use, and feeling connected rewards use. They found that heavy users of Facebook felt both high levels of satisfaction as well as dissatisfaction and feeling unappreciated (connectedness and disconnectedness). They believe that there are two processes at work: 1) disconnection, which is associated with Facebook use due to individuals using Facebook to cope with feelings of dissatisfaction and 2) connection, which is the reward for heavy Facebook use. Researchers found that being without Facebook access increased feelings of disconnection and the level of disconnection the participants experienced predicted Facebook use when made accessible again (Sheldon, Abad, & Hinsch 2011).

Researchers who conducted a study in North Cyprus concluded that the primary reasons individuals use Facebook are to re-establish and maintain relationships and for entertainment (Doğruer, Meneviş, & Eyyam, 2011). Another study also found that Facebook was used for entertainment, as well as learning about social activities taking place within the user's social network, however they stated that instant messaging is the vector for how individuals maintain and develop relationships online (Quan-Haas & Young, 2010). The uses of each was clearly

delineated: "IM's gratifications consisted in a deeper involvement with contacts, such as sharing and discussing problems, whereas Facebook served as a tool to learn about social events and coordinate get-togethers," (Quan-Haase & Young, 2010, p. 351). Although Facebook added the *Chat* function in April 2008, users were required the user to be logged in to the site to use it (Reiss, 2010). On February 10, 2010 allowed the *Chat feature* to "connect your Facebook account with the instant messaging client of your choice" in order to *chat* with Facebook *friends* without logging in to the Facebook website, thus blurring the line between Facebook and instant messaging (Reiss, 2010).

Researchers Smock, Ellison, and Lampe (2011) found that different motivations for Facebook use predicts differential feature use. The examined several motivations, including as a relaxing entertainment, for expressive information sharing, for escapism, for companionship/decreasing lonliness, for social interaction, because it is a trend/"cool," for professional advancement, and to meet new people and as a habitual pasttime (Smock, Ellison, & Lampe, 2011). They conceptualized the Facebook SNS platform as a "toolkit" providing tools(features) allowing for indivdiuals with a wide range of motivations to use Facebook. They found that individuals who use Facebook to share expressive information tended to use public means of communication, particularly broadcasted information (such as *status updates*) rather than one-to-one, private communication (such as *chat* or *message*). Those who use Facebook for professional advancement were in contrast more likely to use directed public information in the form of wall posts and private communication through the use of messages. Using Facebook for the goal of companionship was only found to be correlated with not using the *comments* feature. Using Facebook for social interaction predicted the use of a number of features including chat, wall posts, and messaging; all being directed forms of communication. Using Facebook as a past

time was associated with wall posts, which the researchers may have to do with social interactions common on Facebook which includes writing "happy birthday" on friends' Facebook walls (Smock, Ellison, & Lampe, 2011).

Social Support, Social Network Satisfaction and Facebook

Social support and social networks. Social support and social networks are similar constructs but differ in important ways. Social network may best be described as the social relationships of an individual to a community whereas social support refers to the specific benefits (emotional, instrumental, financial etc.) of those relationships (Pinquart & Sörensen, 2000).

Social support has significant influence on well-being, health (physical and mental), and longevity (Berkman, 1984; Brown et al., 2003; Wallston, Alagna, DeVellis & DeVellis, 1983). Inadequate support has been related to negative outcomes, including loneliness, anxiety, and vulnerability to stress and depression (George, Blazer, Hughs & Fowler, 1989; Rook, 1987).

There is evidence Americans have seen decreased social support, but greater connectedness over the last several decades. It has also been found that there is an overall expansion of the social networks of American adults, especially among heavy Internet users (Wellman, 2010). However, the General Social Survey found that, between 1985 and 2004, three times as many participants responded that they had no one with whom they could discuss important matters (Mcpherson, Smith-lovin, & Brashears, 2012). Notably, satisfaction with social networks and perceived social support has been related to the number of confidants an individual has (Stokes, 1983).

Social Capital and Facebook

Do we benefit by using Facebook to communicate with friends? Do these Facebook friendships have value? One way of answering these questions is to examine social capital, which refers broadly to the value of the actual or potential benefits received from social ties (Ellison, Steinfield, & Lampe, 2011). According to Ellison et al. (2011), there are two kinds of social capital: bonding and bridging. Bonding social capital refers to benefits derived from strong ties; for example, a close friend might drive you to a doctor's appointment or offer emotional support. Bridging social capital refers to the benefits derived from weak ties; for example, an acquaintance might recommend a restaurant or mention a news story you had not heard about. Facebook, in allowing users to retain a large number of *friends* may allow for a greater degree of social capital maintenance because it allows the user stay in touch with and gain information from social supports even after relocating (such as when moving away to attend college; Ellison, Steinfield, & Lampe, 2007).

Burke, Kraut, and Marlow (2011) conducted an 8-month longitudinal study examining how different uses of the Facebook site and users' differences in social skills and self-esteem affect social capital (i.e., the wide range of benefits people receive from their social ties). Using both self-report surveys and Facebook server logs of Facebook use for 415 users, researchers looked at three kinds of behavior exhibited on the site: (a) directed communication (personal, one-on-one communication), (b) broadcasting (posting something to the site for general viewing), and (c) passive consumption of social news (browsing what others have posted). Surveys given to participants included measures to assess the participants' appraisal of their social skills, their self-esteem, their bridging and bonding social capital, and their activity on the Facebook site. The researchers found associations between receipt of directed communication and increased bridging social capital (i.e., benefits from weak ties); effects were stronger for

individuals with low self-esteem and low social skills than other respondents. Passively consuming social news was associated with increased social capital for people rated low in social skills, although not for people with high social skills. Noting the lack of association between Facebook use and bonding social capital, authors suggested that Facebook may not increase bonding social capital (i.e., benefits from strong ties). Although Facebook does not serve to strengthen strong ties, a benefit in using Facebook is an increase in the value of weak ties. The authors suggested two possible ways that Facebook may benefit those with low social skill or self-esteem: Facebook allows access to novel information (possibly unavailable due to a lack of interaction) and information from Facebook provides a reason to interact offline. However, only a small proportion of the participants reported low self-esteem or social skill; the authors recommended conservative interpretation of results regarding those participants.

Similarly, Ellison, Steinfield, and Lampe (2010) examined communication-related activities on Facebook and the effect of these activities on social capital. Through a survey of 450 undergraduate participants, three sets of social behavior were assessed: (a) initiating communication with strangers, (b) maintaining existing relationships, and (c) seeking social information about others who share an offline connection. Participants were asked how often they engaged in these behaviors. Initiation behavior was rarely endorsed, maintaining behavior was nearly universally endorsed, and social information seeking endorsement was normally distributed. Researchers found that social information seeking was positively associated with bridging social capital. The researchers offered the explanation that Facebook may facilitate communication between people with weak ties or latent ties (a potential, but not activated, social connection); discovering information held in common online may lead to subsequent offline

communication. Unlike the Burke et al. (2011) study, Ellison et al. only included undergraduates as participants and used only self-report measures to assess behavior.

In a prior longitudinal study, the same researchers found associations between self-esteem, intensity of Facebook use, and bridging social capital (Steinfield, Ellison, & Lampe, 2008). Undergraduate participants were given a survey about their Facebook use and which was administered again a year later, 97 participants completed both surveys. A smaller sample, 18 undergraduates, also participated in more in-depth interviews. The surveys contained questions on general Internet use, the Facebook Intensity scale, which asks about emotional connection to Facebook and the degree to which using Facebook is part of the participants' average day, a self-esteem scale, and a scale developed by the researchers to measure social capital. Higher intensity of Facebook use was associated with greater social capital; the effect was greater for individuals with low self-esteem. The authors suggested that the greater effect for individuals with low self-esteem might be due to the social communication infrastructure Facebook provides, which may facilitate communication by lowering barriers to interacting with weak ties.

Bridging social capital, the actual or potential benefits we receive though our weak ties, appears to be increased through some aspects of Facebook, particularly for individuals with low self-esteem and social skills (Burke, Kraut, & Marlow, 2011; Steinfield, Ellison, & Lampe, 2008). It could be that Facebook is a greater benefit to those who are more uncomfortable engaging with others in person by giving these individuals a new channel through which to communicate and learn information. It is thought the new information facilitates interaction offline; however, further research is needed to confirm this conclusion (Burke, Kraut, & Marlow, 2011).

Social Networks, Social Support, and the Internet. Earlier research had found contradictory evidence regarding the role of the Internet regarding social support, however more recent research indicates that differential uses of the Internet are related to different outcomes, and that use is related to personality (Burke & Kraut, 2011; Swickert, Hittner, Harris, & Herring, 2003).

For example, in a study by Selfhout, Branje, Delsing, ter Bogt, and Meeus (2009), 307 Dutch adolescents age from 14 to 17 were recruited for a one year longitudinal study; researchers examined the relationship between using the Internet to chat using an instant messenger (involving synchronous, directed communication) versus those who tended to "surf" the web (spending time on the internet for non-communication related activities). Researchers found that the quality of the adolescent's friendships was associated with internalizing problems (depression and anxiety), however, of those adolescents who reported low friendship quality, spending time "chatting" online was associated with decreased depression. Depression and social anxiety were found to be positively associated with spending time surfing (Selfhout, Branje, Delsing, ter Bogt, & Meeus, 2009).

Different types of social networking site (SNS) use also equates to differential experiences and outcomes. For example, individuals who directly communicated with their *friends* on Facebook, compared to those who passively consumed or only broadcasted social news, increased the strength of their online relationships and increased their social capital (Burke & Kraut, 2011). Different types of communication also affected social capital: public, individualized, communication (e.g. typing a comment on a friend's status update) did more to increase social capital than did using the *like* function (a public, one-click, non-customizable communication).

Thus it appears there is evidence that engaging in different Internet and SNS activities has been associated with differential outcomes relating to interacting with one's social network. Computer mediated communication synchronously or directly with members of one's social network is associated with better outcomes, including increased social capital and decreased depression, whereas Internet use lacking communication with others is associated with poorer outcomes, including depression and anxiety, for those who report poor social support (Selfhout et al., 2009)

Personality and Facebook

The ways in which we connect is influenced by personality factors and personality has been found to be associated with type of feature use in Facebook as well as differential uses of Facebook (Ross et al., 2009; Ryan & Xenos, 2011). Personality traits which have been investigated include the Five Factor Model of Personality (Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism), shyness, and narcissism (Costa & McCrae, 1992; Ryan & Xenos, 2011). Other constructs have also been investigated, including self-esteem, loneliness, social anxiety, self-consciousness, depression (C. J. Carpenter, 2012; Moore & McElroy, 2012; Steinfield et al., 2008).

Openness to Experience. Openness to experience is described as a tendency to have wide ranging interests, being imaginative, perceptive, sensitive to art and beauty, creative, having a need for variety, and holding unconventional values. Those who score low tend to judge in conventional terms, favor conservative values, and express fewer artistic or intellectual interests

(McCrae & John, 1992). Carpenter et al. (2011) found that those individuals who used Facebook to manage and communicate with their real-life social relationships tended to also have personality traits of openness to experience and a curiosity about the perspectives of others. In comparison, they reported that for users who reported that they had maintained relationships, both platonic and romantic, solely through Facebook, their manner of use was associated with a defensiveness regarding taking other's perspectives (Carpenter et al., 2011).

Extraversion. Extraversion is associated with talkativeness, assertiveness, energy, sociability, activity and warmth, whereas low scorers may be shy, reserved, retiring, unassertive, quiet, and inhibited (McCrae & John, 1992). Extraversion is also associated with features that include direct connection with others; for example, people who score high on the facet of the Extraversion tend to use features such as chat to have real time communication with others (Costa & McCrae, 1992; Ryan & Xenos, 2011).

Neuroticism. Neuroticism is associated with a tendency to experience distress and negative affect. Individuals high in neuroticism are likely to experience nervous tension, self-consciousness, low self-esteem, and ineffective coping, while individuals who obtain low scores tend to be calm, relaxed, and even-tempered (McCrae & John, 1992). The trait of neuroticism has been associated with the use of asynchronous communication, such as posting on a friend's page or commenting on a photos, instead of synchronous communication (such as *chat*) which requires real-time responses in communication (Ryan & Xenos, 2011). Those scoring high in neuroticism tended to report that the *wall* was their favorite component of Facebook (Ross et al., 2009).

Agreeableness. High scores on the trait of Agreeableness are associated with being emotionally supportive, altruistic, kind, caring, straightforward and forgiving. Low scorers may be described as hostile, indifferent to others, self-centered, or spiteful (McCrae & John, 1992). Agreeableness has been associated with greater levels of regret about inappropriate content they may have posted on Facebook as well as a tendency for people who score higher in the trait of agreeableness to make more postings about themselves when compared to people who scored lower in agreeableness (Costa & McCrae, 1992; Moore & McElroy, 2012).

Conscientiousness. Conscientiousness is associated with being planful, thorough, neat, organized, and achievement oriented; low scorers are tend to be disorganized, more impulsive and less controlled (McCrae & John, 1992). Those scoring high in conscientiousness tend to make significantly fewer wall postings, about either themselves or others (Costa & McCrae, 1992; Moore & McElroy, 2012).

Social Anxiety and Shyness. Individuals with social anxiety may tend to base more of their interactions on the Internet and find more value in passive consumption of social news (e.g. browsing friend's photos; Lee, Moore, Park, & Park, 2012). People who are sensitive to rejection tend to use Facebook to communicate more (Farahani, Aghamohamadi, Kazemi, Bakhtiarvand, & Ansari, 2011). Those individuals who tend to worry about the perceptions of others tend to accumulate large amounts of Facebook friends, possibly as a compensatory behavior (Lee & Stapinski, 2012). However, Tong et al. (2008) found that high numbers of friends may decrease social attractiveness; both having too many (more than 300) or too few (around 100 or fewer) friends was associated with being seen a less socially attractive by participants (Tong et al., 2008).

Loneliness. Individuals who are lonely tend to spend more time on social networks and spend more time observing other user's social interactions on Facebook (Ryan & Xenos, 2011; Burke et al., 2010).

Self-esteem. The literature reveals mixed results regarding the intersection of Facebook use and self-esteem. Mehdizadeh (2010) found that the amount of time the participants (students) spent on Facebook per session was associated with lower self-esteem. Frequency of checking Facebook was also found to be negatively associated with self-esteem (Mehdizadeh, 2010).

In contrast, a study of undergraduate students found that Facebook use was associated with well-being; they theorized that this may be because Facebook functions as a facilitator of social capital (Ellison et al., 2007). Facebook may have more significant positive effect for individuals identified as those with low life satisfaction and low self-esteem, who may otherwise have difficulty gaining and maintaining social capital (Ellison et al., 2007). Other researchers have found that viewing one's own Facebook *wall* increases self-esteem (Gonzales & Handcock, 2011).

Narcissism. Individuals higher in narcissism tended to exhibit higher levels of Facebook use and some self-promoting behaviors (Mehdizadeh, 2010). Grandiose exhibitionism, a trait associated with narcissism, predicted self-promoting behaviors and accepting strangers as Facebook *friends* (Carpenter, 2012).

Limitations of current literature

One of the significant limitations of the literature is the overrepresentation of studies on populations of graduate and undergraduate students. All 42 studies of Facebook use studied by

Nadkarni and Hofmann (2012) examined undergraduate populations. Facebook use is very common among undergraduates (it is estimated between 85% and 95% of undergraduate students in the US use Facebook), however since become available to non-student users in 2006, that demographic has continued expanding (Abram, 2006; Duggan & Brenner, 2013; Ellison, Steinfield, & Lampe, 2007).

The experience of using Facebook is constantly changing as new features are added to the platform. One of the more significant changes have been decoupling the *chat* function from the site itself, so users no longer need to be logged on to the site to use it (Reiss, 2010). Users no longer need to use their computers to log on to Facebook; more than half of 900,000 users connect through mobile devices (Sengupta, 2012). Previous research may become less applicable as the Facebook experience evolves.

Summary

Whether an intrusion or an advantage, technology and Internet connected utilities have been playing an increasingly larger role in how individuals communicate with their social networks. The manner in which they are used and motivations to use them is influenced by personality, yet, the tools themselves are constantly changing; long term implications and effects on a broad population (i.e. beyond students) have not yet been comprehensively studied (Burke et al., 2010; Ellison, Steinfield, & Lampe, 2007; Ryan & Xenos, 2011).

The present study is an investigation of the interaction of five-factor personality traits and the content a user chose to upload to the site, content the user chooses to access on the site, and motivations for using Facebook. Differences in well-being were also examined with regard to communication sent by other users and reasons for using Facebook. In that this is an exploratory study, no specific hypotheses are put forth.

METHODS

Participants

A total of 270 participants were recruited through links posted on the social networking site Facebook. The age of participants ranged from 18 to 67, with a mean age of 25.6. The majority of participants reported residing in the United States (n=244, 90.4%). However, participants also reported residing in Australia (n=5, 1.9%), the United Kingdom (n=4, 1.5%), Canada (n=3, 1.1%), two participants each from Japan and New Zealand (.7% each), and one participant each from Argentina, Bulgaria, Costa Rica, France, Germany, Italy, Republic of Korea, and Romania (each making up .4% of participants).

The majority of participants identified as female (n=189, 70.0%), followed by male (n=79, 29.3%), and those who did not identify as male or female (n=2, .7%).

The majority of participants reported a racial identity of White (n=222, 82.2%) followed by Black or African American (n=12, 4.4%), Multi-Racial (n=9, 3.3%), Other (n=8, 3.0%), Asian (n=7, 2.6%) Latino (n=7, 2.6%), Native American (n=3, 1.1%), Hawaiian Native (n=1, .4%). Twenty participants reported an ethnic identity of Hispanic or Latino (n=20, 7.4%). One participant did not report a racial or ethnic identity.

Only 74 participants (27.4%) reported a status of not being a current student. Of the 72.6 % who reported being a current student,124 (45.9%) participants reported being an undergraduate student, 48 (17.8%) reported being a graduate student, and 24 (8.9%) reported being a high school student.

Procedure

Study materials were hosted on the online survey site SurveyGizmo.com. Upon entering the study site, participants were presented with the informed consent document (Appendix A). In that this was an online survey, signed consent was not possible; Participants indicated their consent by agreeing to the terms of the study as outlined in the informed consent document. Individuals who did not wish to participate were notified they may exit the study site at any time without penalty.

After providing informed consent, participants were presented with and asked to complete a brief demographics questionnaire (Appendix B), the Short-Form UCLA Loneliness Scale (ULS-8; Appendix C), the Satisfaction with Life Scale (Appendix D), the Social Support Questionnaire (SSQ) Short-Form (Appendix E), the IPIP Broad-Bandwidth Inventory Assessing NEO PI-R Domains (Appendix F), the Bergen Facebook Addiction Scale (Appendix G), and a series of question aimed at determining the individual's pattern of Facebook use (Appendix H). The duration of participation in the study was approximately 25 minutes. Upon completion of these measures, each individual was told that their participation was complete and thanked for their time. A description of each measure is provided below.

Materials

Short-Form UCLA Loneliness Scale. The Short-Form UCLA Loneliness Scale (ULS-8; Hays & DiMatteo, 1987) is an 8-item scale derived from the revised UCLA Loneliness Scale; items address the discrepancy between desired quality and quantity of social interaction.

Satisfaction with Life Scale. The Satisfaction with Life Scale (SWLS; Diener, Emmons, & Larsen, 1985) is a 5-item scale which assesses an individual's appraisal of global life satisfaction. Items assess for an individual's judgment about their life conditions, rather than positive affect, and are associated with general well-being (Diener, Emmons, & Larsen, 1985).

Social Support Questionnaire Short Form. The Social Support Questionnaire Short Form (SSQSR; Sarason, Levine, Basham, & Sarason, 1983) is an abbreviated form of the Social Support Questionnaire, which contains 6 two-part items addressing an individual's appraisal of social support. Participants respond to the first part of the item with the number of individuals who they believe would offer them support in a number of different situations. The second part of each item assesses the participant's satisfaction with the perceived support (Sarason et al., 1983).

IPIP Broad-Bandwidth Inventory. The IPIP Broad-Bandwidth Inventory Assessing NEO PI-R Domains (Goldberg et al., 2006) is a fifty item instrument which assesses personality traits from the five-factor model: Extraversion, Openness, Conscientiousness, Agreeableness, and Neuroticism.

Bergen Facebook Addiction Scale. The Bergen Facebook Addiction Scale (Andreassen, Torsheim, Brunborg, & Pallesen, 2012) is a recently developed 6-item scale assessing aspects of behavioral addiction: salience, mood modification, tolerance, withdrawal, conflict, and relapse. Higher scores are correlated with more problematic Facebook use (Andressen, 2012).

Finally, participants were presented with a series of question aimed at determining the individual's pattern of Facebook use. Items addressed feature use, frequency of use, and with whom the participants communicate while using Facebook.

RESULTS

Status Updates and Personality

Sharing positive and negative life events. Participants were asked how often they share negative and positive experiences with their Facebook *friends*. They were given the options to respond "rarely or never," "sometimes" or "often" with regards to the phrases "I share the bad things that are happening in my life" and "I share the good things that are happening in my life." Responses were grouped into low frequency ("rarely or never") and higher frequency ("sometimes" and "often") groups.

An independent-samples t-test was conducted to compare five factor personality traits in those who reported they "rarely or never" share negative events in their lives on Facebook (n=160), versus those who "sometimes" and "often" do so (n= 93). There was a significant difference in the neuroticism scores for the low frequency group (M=2.30, SD=.84) compared to those who report more frequent sharing of negative events (M=2.03, SD=0.80); t(251)= 2.59, p = 0.01. The mean difference between scores was .28 with a 95% confidence interval of the difference between .07 and .48. These results suggest that sharing negative experiences is associated with higher scores on a measure of neuroticism.

An independent-samples t-test was conducted to compare five factor personality traits in those who reported they "rarely or never" share positive events in their lives (n=68), versus those who "sometimes" and "often" do so (n=184). There was a significant difference in the openness

to experience scores for the low frequency group (M=3.42, SD=.72) and those who report more frequent sharing of positive events (M=3.21, SD=0.84); t(250)=2.04, p = 0.04. The mean difference between scores was .22 with a 95% confidence interval of the difference between .01 and .43. These results suggest that sharing positive experiences is associated with higher scores on a measure of openness to experience.

These results suggest that neuroticism has some influence on the frequency of sharing negative events with *friends* on Facebook and openness to experience has some influence on the frequency of sharing positive events.

Use of links and quotes. Participants were asked how often they used other's content for their status updates, specifically examining the use of quotes and links. In response to the items "my status updates are interesting links" and "my status updates are quotes or song lyrics" participants could report engaging in this behavior "rarely or never," "sometimes," or "often." Participants were grouped into those who frequently use links or quotes (responding "often") and those who reported less frequent engagement in this behavior ("sometimes" or "rarely or never").

An independent-samples t-test was conducted to compare five factor personality traits in those frequently use quotes or lyrics in their status updates (n=30), versus those who do so less frequently (n= 223). There was a significant difference in the conscientiousness scores for the high frequency group (M=3.33, SD=.71) and those who report less frequent use of quotes and lyrics (M=2.94, SD=.81); t(251)=2.55, p=.011. The mean difference between scores was .40 with a 95% confidence interval of the difference between .09 and .70. These results suggest that frequently using quotes and song lyrics in status updates is associated with higher mean scores on a measure of conscientiousness.

A second independent-samples t-test was conducted to compare five factor personality traits in those frequently use links in their status updates (n=48), versus those who do so less frequently (n=205). There was a significant difference in the openness to experience scores for the high frequency group (M=3.83, SD=.63) and those who report less frequent use of links (M=3.26, SD=.75); t(80.82)= 5.49, p < .001 (equal variance not assumed). The mean difference between scores was .58 with a 95% confidence interval of the difference between .37 and .78. These results suggest that frequently using links in status updates is associated with higher scores on a measure of openness to experience.

Feelings, thoughts, and experiences. Participants were asked about their tendencies regarding sharing feelings, thoughts, and experiences in status updates and results were compared to score on five-factor personality traits. A significant difference was found between mean scores on a measure of extraversion and responding "often" to an item regarding creating status updates "about what I'm thinking." No significant differences were found between five-factor personality traits and status updates of feelings or experiences.

An independent-samples t-test was conducted to compare five factor personality traits in those "often" create status updates of their thoughts (n=68), versus those who do so less frequently (n=191). There was a significant difference in the extraversion scores for the high frequency group (M=3.13, SD=.86) and those who report less frequently updating their status with what they are thinking (M=2.8, SD=.94); t(257)=2.39, p=.018. The mean difference between scores was .31 with a 95% confidence interval of the difference between .05 and .57. These results suggest that frequently sharing what one is thinking in status updates is associated with higher scores on a measure of extraversion.

Immediacy. Participants responded to items which asked when they tended to updates their status or upload photos. Items included "I post photos of what I'm doing while I'm doing it (e.g. posting photos to Facebook from a concert)," "I post status updates about what I'm doing while I'm doing it," "I post photos or status updates when I have free time," and "I post photos or status updates after something happens".

An independent-samples t-test was conducted to compare five factor personality traits in those "often" update their status immediately (n=22), versus those who do so less frequently (n=229). There was a significant difference in the openness to experience scores for the high frequency group (M=2.86, SD=.56) and those who report less frequently updating their status in the moment (M=3.41, SD=.76); t(28.98)=-4.22, p <.001 (equal variances not assumed). The mean difference between scores was -.55 with a 95% confidence interval of the difference between -.81 and -.28. These results suggest that frequently sharing what one is doing in the moment via status updates is associated with lower scores on a measure of openness to experience.

Similarly, an independent-samples t-test was conducted to compare five factor personality traits in those "often" post photos immediately (i.e. post photos of their current activity while engaging in that activity) (n=25), versus those who do so less frequently (n=228). There was a significant difference in the openness to experience scores for the high frequency group (M=3.08, SD=.70) and those who report less frequently updating their status in the moment (M=3.40, SD=.76); t(251)=-2.01, p=.045. The mean difference between scores was -.32 with a 95% confidence interval of the difference between -.63 and -.01. These results suggest that frequently sharing photos of what one is doing in the moment on Facebook is associated with lower scores on a measure of openness to experience.

Motivation for Facebook use.

An independent-samples t-test was conducted to compare five factor personality traits in those who endorsed using Facebook to communicate with close friends (n=211, M=3.42, SD=.74) and those who report rarely or never using Facebook to communicate with close friends (n=42, M=3.12, SD=.83). There was a significant difference in the openness to experience scores of those who reported using Facebook to communicate with close friends ("sometimes" or "often") compared to those reported rarely or never engaging in this behavior, t(251)=2.35, p =.02. The mean difference between scores was .30 with a 95% confidence interval of the difference between .05 and .55. These results suggest that rarely or never using Facebook to communicate with close friends is associated with lower scores on a measure of openness to experience compared to those who do use Facebook to communicate with close friends.

An independent-samples t-test was conducted to compare five factor personality traits in those who report use of Facebook when feeling lonely (responding "sometimes" or "often" versus those who rarely or never do so. There was a significant difference in the neuroticism scores for those who endorsed using Facebook when lonely (n=109, M=2.45, SD=.84) and those who report rarely or never using Facebook when lonely (n=147, M=1.88, SD=.726); t(211.89)=5.62, p <.001 when equal variances are not assumed. The mean difference between scores was .57 with a 95% confidence interval of the difference between .37 and .76. These results suggest that using Facebook when lonely is associated with higher scores on a measure of neuroticism.

Additionally was a significant difference in the extraversion scores for those who endorsed using Facebook when lonely (n=112, M=2.73, SD=1.01) and those who report rarely or

never using Facebook when lonely (n=148, M=3.03, SD=0.84); t(212.35)=-2.56, p =.011 when equal variances are not assumed. The mean difference between scores was -.30 with a 95% confidence interval of the difference between -.53 and -.07. These results suggest that using Facebook when lonely is associated with lower scores on a measure of extraversion.

A significant difference was found in agreeableness scores for those who endorsed using Facebook when lonely (n=112, M=3.16, SD=0.67) and those who report rarely or never using Facebook when lonely (n=147, M=3.40, SD=0.66); t(257)=-2.90, p=.004. The mean difference between scores was -.24 with a 95% confidence interval of the difference between -.40 and -.08. These results suggest that using Facebook when lonely is associated with lower scores on a measure of agreeableness.

Finally, a significant difference was found in the conscientiousness scores for those who endorsed using Facebook when lonely (n=110, M=2.84, SD=0.84) and those who report rarely or never using Facebook when lonely (n=146, M=3.11, SD=0.76); t(254)=-2.72, p=.007. The mean difference between scores was -.27 with a 95% confidence interval of the difference between -.47 and -.08. These results suggest that using Facebook when lonely is associated with lower scores on a measure of conscientiousness.

An independent-samples t-test was conducted to compare Satisfaction With Life Scale (SWLS) in those who report use of Facebook when feeling lonely (responding "sometimes" or "often") versus those who rarely or never do so. A significant difference was found in the SWLS scores for those who endorsed using Facebook when lonely (n=114, M=21.09, SD=6.59) and those who report rarely or never using Facebook when lonely (n=151, M=24.16, SD=6.43); t(263)=-3.81, p <.001. The mean difference between scores was -3.07 with a 95% confidence

interval of the difference between -4.66 and -1.48. These results suggest that using Facebook when lonely is associated with lower scores on a measure of well-being.

Receptive communication and consumption content

Participants were asked about receptive interactions with friends, such as the perceived frequency (rarely or never, sometimes, or often)with which their friends "liked" posts and photos, "commented" on posts or photos, "messaged" them, or "shared" posts. Participants were also asked about their use of other's content on Facebook including how frequently they attend events coordinated on Facebook, read the news feed, and browse their friend's photos.

An independent-samples t-test was conducted to compare SWLS scores in those who report their *friends* frequently ("often") "like" their photos (n=137), versus those who report their *friends* do so less frequently (n= 127). There was a significant difference in the SWLS scores for the high frequency group (M=23.67, SD=6.80) and those who report less frequent "liking" by friends (M=21.96, SD=6.44); t(262)=2.10, p=.037. The mean difference in scores was 1.71 with a 95% confidence interval around the difference of .10 to 3.32. These results suggest that *friends* frequency of "liking" photos posted to Facebook is associated with higher scores on a measure of well-being.

An independent-samples t-test was conducted to compare SWLS scores in those who report their *friends* frequently ("often") "comment" on their photos (n=112), versus those who report their *friends* do so less frequently (n=151). There was a significant difference in the SWLS scores for the high frequency group (M=23.85, SD=6.97) and those who report less frequent "commenting" by friends (M=22.15, SD=6.32); t(261)=2.06, p=.04. The mean difference in scores was 1.70 with a 95% confidence interval around the difference of .07 to

3.32. These results suggest that *friends*' frequency of "commenting" on photos posted to Facebook is associated with higher scores on a measure of well-being.

Scores on five-factor personality scales and SWLS scores were compared for those who very frequently ("often") browse their friend's photos, attend events coordinated on Facebook, and read the news feed compared to those who do so less frequently. Significant mean differences were found for browsing photos and attending events, although none were found for reading the news feed.

A significant difference was found in the extraversion scores for those who endorsed very frequently attending events coordinated on Facebook (n=20, M=3.55, SD=0.76) and those who report less frequently attending events coordinated on Facebook (n=236, M=2.84, SD=0.91); t(254)= 3.37, p =.001. The mean difference between scores was .71 with a 95% confidence interval of the difference between .29 and 1.12.

Additionally, a significant difference was found in the openness to experience scores for those who endorsed very frequently attending events coordinated on Facebook (n=19, M=3.74, SD=0.56) and those who report less frequently attending events coordinated on Facebook (n=230, M=3.34, SD=0.76); t(23.79)=2.84, p=.009 (equal variances not assumed). The mean difference between scores was .39 with a 95% confidence interval of the difference between .11 and .68.

Finally, a significant difference was found in the SWLS scores for those who endorsed very frequently attending events coordinated on Facebook (n=21, M=26.29, SD=7.24) and those who report less frequently attending events coordinated on Facebook (n=240, M=22.48,

SD=6.52); t(259)= 2.54, p =.012. The mean difference between scores was 3.80 with a 95% confidence interval of the difference between .85 and 6.75.

These results suggest that frequently attending events coordinated on Facebook is associated with higher scores on measures of extraversion, openness to experience, and well-being compared to those who attend such events less frequently.

An independent-samples t-test was conducted to compare five factor personality traits in those "often" browse their friends' photos uploaded to Facebook (n=103), versus those who do so less frequently (n= 154). There was a significant difference in the agreeableness scores for the high frequency group (M=3.17, SD=.72) and those who report less frequently browsing their friends' photos (M=3.38, SD=.63); t(255)=-2.46, p=.015. The mean difference between scores was -.21 with a 95% confidence interval of the difference between -.38 and -.04. These results suggest that frequently browsing friends' photos is associated with lower mean scores on a measure of agreeableness.

DISCUSSION

The results of this study can fall into several categories: the interaction of personality traits and the user's uploaded content, the intersection of personality and motivations for use of Facebook, and the differential traits of those who access different forms of content on the site as well as associations with receptive communication from other users.

Uploaded content. Several findings were associated with the influence of personality traits on what the user uploaded as public to the site, particularly in the form of posting status updates and similar content viewable by all (or the majority) of the user's *friends*.

We found that those who scored higher on a measure of neuroticism tended to share negative life events more frequently than those who had scored lower on that measure. This is congruent with the conceptualization of high scorers on neuroticism to express more distress than low scorers (McCrae & John, 1992). As those who responded that they "often" "share the bad things happening in my life" it may be that those who score more highly on neuroticism are more willing than low scorers to broadcast information about their negative experiences through status updates. The preference for use of asynchronous communication with *friends* by those higher in neuroticism had been found in previous studies (Ryan & Xenos, 2011). Posting to one's *wall* via status updates is also congruent with previous research where those scoring high in neuroticism tended to report that the *wall* was their favorite component of Facebook (Ross et al., 2009). It may be that broadcasting negative experiences may be a mechanism for coping with their distress and an attempt to reach out to emotional supports through a comfortable type of communication (asynchronous). Alternatively, it could be that those who score highly on neuroticism simply perceive experiencing more "bad things" than others.

Within the present study, scores on a measure of openness to experience were related to the frequency of sharing positive events. As people who scored higher on openness to experience, they were more likely to manage and communicate with their real-life social relationships online; this finding is possibly an artifact of their tendency to share important events with their social network in this manner, rather than a tendency towards positive emotion (often associated with extraversion; Carpenter et al., 2011; McCrae & John, 1992). A high

frequency of using links was found to be associated with higher mean scores on measures of openness to experience. This may be reflective of the wide range of interests and curiosity of those who score highly on openness to experiences (McCrae & John, 1992).

The use of quotes or song lyrics as status updates very frequently was associated with increased conscientiousness. This may be reflective of care being taken with regards to what content is posted online, in this case it may be relatively safe to share: another person has actually created the content and is not inherently related to the users experience thus it may function as a mechanism to control the amount of disclosure. This may be related to prior research indicating that those higher in conscientiousness make fewer postings overall (Moore & McElroy, 2012).

A tendency to share what one is thinking (in the form of status updates) was associated with higher scores on a measure of extraversion. Previous research has linked extraversion with a tendency to frequently update one's status (Ross et al., 2009). Both findings may be reflective of the tendency toward being gregarious and assertive in those with high extraversion. It may be that this tendency has translated to generally sharing ideas with one's *friends list*.

Within the present study, two significant results were found with regards to the timing of uploading content. The results indicated that updating one's status or posting photos in the moment (i.e. broadcasting what you are doing while you are doing it) was related to lower openness to experiences, meaning those users were more likely to hold conventional beliefs or values and may be less interested in artistic or intellectual pursuits (McCrae & John, 1992). Facebook has often had a prompt for status updates, such as "What's on your mind?" it could be that those who update in this manner are using Facebook in a "conventional" way by following

prompts. Perhaps it reflects a less introspective, perceptive, or creative approach generally, by simply sharing one's current activity rather than sharing that which, upon later reflection, seemed to be most important to share.

Motivations for use. Examining the intersection of motivations to use Facebook with outcomes (well-being) and personality traits revealed several findings. Rarely or never using Facebook to communicate with close friends is associated with lower scores on a measure of openness to experience, which is congruent with research by Carpenter et al. (2011) finding that those individuals who using Facebook to communicate with their real-life social relationships tended to have the trait of openness to experience. It may be that those who eschew Facebook to maintain their relationships prefer to do so using more conventional means (e.g. phone and face to face contact).

Using Facebook for companionship (that is, tending to use Facebook when feeling lonely) was related to higher scores on a measure of neuroticism, lower scores on measures of well-being, extraversion, agreeableness, and conscientiousness. It may be that these individuals are attempting to cope with a disordered connection to their existing social network and thus are attempting to connect with others through Facebook. The relationship between this tendency and well-being is ambiguous; is seeking connection through Facebook a contributor to lower scores of well-being or a reflection thereof? The personality traits, particularly higher neuroticism and lower extraversion and agreeableness, indicate that these individuals may have some difficultly connecting with others, which could (in fact, is likely to) influence well-being exclusive of Facebook use. Further research is needed to explore the role of Facebook (positive or negative) for individuals dissatisfied with extant social support, particularly beyond the college undergraduate population.

Receptive communication and accessed content. The frequency with which friends liked and commented on photos posted to Facebook was associated with higher scores on a measure of well-being, although other forms of communication (e.g. messaging or liking content other than photos) were not associated. Burke, Marlow, and Lento (2010) found similar results in a study of college students: Public, directed interaction (wall posts, comments, and likes) was found to be associated with decreased levels of loneliness and increased bonding social capital. It was somewhat surprising that the association was only found with photos, however, the items themselves may have been lacking in precision and we may have different results if we had asked for exact numbers of interactions instead of perceptions of frequency. Photos on Facebook have been shown in past research to have a unique relationship with self-worth, Stefanone and colleagues (2011) have found that having contingent sources of self-worth including appearance, other's (general) approval, and successfully competing (outdoing) others explained online photo sharing. If significant meaning for the individual's self-worth is placed on other's approval of one's Facebook photos, then it follows that those communications may have a larger impact on well-being. More research is needed to extricate the exact nature of this relationship.

Attending events coordinated on Facebook was associated with higher scores on measures of extraversion, openness to experience, and well-being. Extraversion scores may be related to those individuals' increased sociability (and thus higher likelihood of attending social gatherings). Higher openness to experience scores may reflect the use of Facebook to manage and communicate real-life social relationship, as was found in previous research (Carpenter et al., 2011). Higher well-being may reflect a more robust connection to one's social network or a willingness to take advantage of opportunities to become closer to people in one's social network.

Frequently browsing photos uploaded by other users was associated with lower scores of agreeableness. Although there is not a clear explanation for this finding in the extant literature, it could be related to the tendency for those who consume large amounts of content (rather than communication) to be lonelier and report reduced social capital (Burke, Marlow, & Lento, 2010). Possibly those who are lower on agreeableness have a somewhat more difficult time gaining social capital or support and seek it through the consumption of social information, such as Facebook *friends*' photos. Sefanone et al. (2011) found that one factor which influenced user's posting of photos was a sense of self-worth from outdoing others; perhaps those who take a more antagonistic stance with other users spend more time looking at others' (i.e. their competitors') photos.

Limitations of the Current Study

The current study contains several limitations. The first limitation is a lack of probability sampling. This study used a convenience sampling method by disseminating a link to the study survey page through Facebook users known to the researchers, as it was impossible to the researchers to obtain a list of all Facebook users and to contact Facebook users randomly, due to privacy limitations of Facebook. This study does have a strength in that the population of participants is not exclusively comprised of undergraduate or graduate students. Future research may be able to utilized embedded advertising in the *news feed*, which was introduced after the recruitment portions of this study was complete and beyond the resources of the researchers.

Another important limitation is the limiting of the study to a single SNS: Facebook. This may limit generalizability of findings to other social networking sites. This is mitigated

somewhat by Facebook's popularity, considering 67% of all internet users utilize Facebook (Duggan & Brenner, 2013).

Conclusion

The present study examined the influence of personality in the use of the Facebook site as well as differences in well-being associated with facets of the Facebook experience. Personality appeared to influence the content users chose to upload, the timing of uploaded content, what content was accessed, motivation for using Facebook. Openness to experience scores tended to be higher for those who attended real-life events coordinated on Facebook and who tended to share links or positive life events in their status updates. Scores tended to be lower on average for those who rarely communicate with real-life friends on Facebook or who update their status or upload photos during events they are participating in. Extraversion scores tended to be higher for those who attended real-life events coordinated on Facebook and sharing what one is thinking in status updates, mean scores were lower for those who use Facebook when lonely. Using Facebook when lonely was associated with higher mean scores of neuroticism, as was a tendency to share distressing life events. Frequently browsing the photos uploaded by other users and using Facebook when feeling lonely was associated with lower mean scores of agreeableness. Mean scores of conscientiousness tended to be lower for those who reported using Facebook when lonely and higher for those who frequently used quotes or lyrics in their status updates. Mean scores on a measure of well-being differed with regards to communication from friends and motivations for use. Well-being scores tended to be higher for those who attended real-life events which were coordinated on Facebook and when user's friends frequently liked or

commented on a user's photos. Mean well-being scores were lower for users who endorsed using Facebook because they were feeling lonely.

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doi:10.1177/0002764209356247

Appendix A

Informed Consent

You are invited to participate in this examination of the potential relationships that exist between expression, personal relationships and Facebook use.

The study is expected to begin after IRB approval and to be completed by July 2013. All study information will be collected via the Internet and stored on a secure account owned by a student of the Pacific University School of Professional Psychology, within the College of Health Professions.

Study personnel

| Name | Chelsey Ritner | Shawn Davis |
|-------------|-----------------------------------|-----------------------------------|
| Role | Principal Investigator | Faculty Advisor |
| Institution | Pacific University | Pacific University |
| Program | School of Professional Psychology | School of Professional Psychology |
| Email | ritn9365@pacificu.edu | davissh@pacificu.edu |
| Telephone | 503-352-7319 | 503-352-7319 |

Participant characteristics and exclusionary criteria

To participate in this study, you must be at least 18 years of age. If you are below the age of 18, please exit this survey immediately by closing the browser window.

Study materials and procedures

In this study, you will be asked to complete a brief demographic survey. Once this is complete, you will be presented several brief questionnaires with items regarding the ways you express yourself, relate to others and use Facebook.

Your participation is completely anonymous. There is no means of associating any information that you provide with you personally.

You may opt out of the study at any time by closing the browser window. If you choose to close the window before completing the study none of your information can or will be used.

It should only take about 25 minutes to complete your participation in the study.

Risks, risk reduction steps and clinical alternatives

a. Unknown risks

Your participation in this project involves no foreseeable risks.

b. Anticipated risks and strategies to minimize/avoid

Any risks involved in participation in this study are minimal and are not greater that those ordinarily experienced in daily life or during the performance of any routine computer operation.

All data collected will be strictly anonymous. While SurveyGizmo allows the survey administer to determine whether or not to collect IP addresses as part of the survey data, IP addresses will not be collected during any phase of this study to insure anonymity.

c. Advantageous clinical alternatives

This study does not involve experimental clinical trials.

7. Adverse event handling and reporting plan

If you experience discomfort during the study procedure you should stop your participation immediately and Shawn Davis, Ph.D. at (503) 352-7319.

The Institutional Review Board office will be notified by Dr. Davis on or before the next normal business day if minor adverse events occur. Study investigators will consult with the IRB about changes that may need to be made to the protocol or other changes deemed necessary to minimize any minor adverse events.

The Institutional Review Board office will be notified by Dr. Davis within 24 hours if major adverse events occur. In such a situation, the study investigators will immediately discontinue recruitment and discuss with the IRB office the best solution in order to minimize any and all adverse events.

- 8. Direct benefits and/or payment to participants
- a. Benefit(s)

There is no direct benefit to you as a study participant.

b. Payment(s) or reward(s)

You will not be paid for your participation.

9. Promise of privacy

Your participation is completely anonymous. There is no means of associating any information that you provide with you personally.

Results from participants will be available only to the experimenters. If a publication or conference presentation results from this experiment and findings are presented, all information will be presented terms of group data; no responses for a single individual will be presented. There is no means of associating your responses with your identity.

10. Medical care and compensation in the event of accidental injury

During your participation in this project it is important to understand that you are not a Pacific University clinic patient or client, nor will you be receiving care or treatment of any kind as a result of your participation in this study. If you are injured during your participation in this study and it is not due to negligence by Pacific University, the researchers, or any organization associated with the research, you should not expect to receive compensation or medical care from Pacific University, the researchers, or any organization associated with the study.

11. Voluntary nature of the study

Your decision whether or not to participate will not affect your current or future relations with Pacific University. There are no costs to you for your participation other than the time involved in completing the surveys. If you choose not to participate, you are free to withdraw at any time; withdrawal will not result in penalty.

If you withdraw (by closing your browser window) from the study at any point prior to completing the survey, your participation will be ended. In this situation, all data collected to that point will be erased and not used in any analyses. It will not be possible to withdraw from the study after completing the entire study survey, due to its anonymous nature. However, all data will be erased (and not used in any analyses) for any individual that does not complete the entire study survey (defined as not reaching the final page of questions and answering any questions on that page).

Participation in this project is voluntary and the only other alternative to this project is non-participation. If you decide to participate, you are free to not answer any question or withdraw at any time without prejudice or negative consequences.

12. Contacts and questions

The researcher(s) will be happy to answer any questions you may have at any time during the course of the study. If you are not satisfied with the answers you receive, please call Pacific University's Institutional Review Board, at (503) 352-1478 to discuss your questions or concerns further. If you become injured in some way and feel it is related to your participation in this study, please contact the investigators and/or the IRB office. All concerns and questions will be kept in confidence.

13. Statement of consent

Since this is an on-line survey, signatures cannot be obtained. By clicking "NEXT" I understand

I will be taken to the study and that my continued participation in the survey denotes my consent to the following: *This question is required.

| • | I have read and understand the above. |
|---|---|
| • | All my questions have been answered. |
| • | I am 18 years of age or over and agree to participate in the study. |
| • | I have read and understand the description of my participation duties and I |
| | understand that I can print a copy of this form to keep for my records. |

Remember that if you choose not to participate or to withdraw from participation, you can close your web browser at any time.

Appendix B

Demographics Questionnaire

| What is your age? | ? |
|--------------------|---|
| What is your gend | der? |
| | emale 1ale |
| What is your racia | al identity? (Check all that apply) |
| □ A □ BI | |
| What is your ethn | nicity? |
| | ispanic or Latino ot Hispanic or Latino |
| What country do y | you live in? (Drop box of all countries) |
| What state do you | u live in? (Drop box list of all US states) |

| What is your le | vel of education? |
|-----------------|---|
| | 2 year degree 4 year degree Some graduate school |
| I am currently: | |
| l am: | Not in school An undergraduate student A graduate student Other |
| | Married or Partnered In a relationship |

□ Single

Appendix C Short-Form UCLA Loneliness Scale (ULS-8)

| | Often | Sometimes | Rarely | Never |
|--|-------|-----------|--------|-------|
| I lack companionship | [] | [] | [] | [] |
| There is no one I can turn to. | [] | [] | [] | [] |
| I am an outgoing person. | [] | [] | [] | [] |
| I feel left out. | [] | [] | [] | [] |
| I feel isolated from others. | [] | [] | [] | [] |
| I can find companionship when I want it. | [] | [] | [] | [] |
| I am unhappy being so withdrawn. | [] | [] | [] | [] |
| People are around me but not with me. | [] | [] | [] | [] |

Appendix D

Satisfaction with Life Scale

| | Strongly Disagree | Disagree | Slightly Disagree | Neither Agree nor Disagree | Slightly Agree | Agree | Strongly Agree |
|--|----------------------|----------|----------------------|----------------------------------|-------------------|-------|-------------------|
| In most ways my life is close to my ideal. | [] | [] | [] | [] | [] | [] | [] |
| The conditions of my life are excellent. | [] | [] | [] | [] | [] | [] | [] |
| I am satisfied with my life. | [] | [] | [] | [] | [] | [] | [] |
| So far I have gotten the important things I want in my life. | [] | [] | [] | [] | [] | [] | [] |
| If I could live my life over, I would change almost nothing. | [] | [] | [] | [] | [] | [] | [] |

Appendix E

Social Support Questionnaire (Short Form)

The following questions ask about people in your environment who provide you with help or support. Each question has two parts. For the first part, list all the people you know, excluding yourself, whom you can count on for help or support in the manner described. Give two initials for each person. For the second part, answer how satisfied you are with the support you receive.

| the second part, a | nswer how satis | fied you are wit | h the support y | ou receive. | , |
|-----------------------|---------------------|----------------------|---------------------|------------------------------|-----------------|
| Whom can you rea | illy count on to b | e dependable v | when you need | help? | |
| No one | 1) | 4) | 7) | | |
| | 2) | 5) | 8) | | |
| | 3) | 6) | 9) | | |
| How satisf | ied are you with | this support? | | | |
| Very Satisfied Fai | rly Satisfied A L | ittle Satisfied A | Little Dissatisfied | I Fairly Dissatisfied Ve | ry Dissatisfied |
| [] | [] | [] | [] | [] | [] |
| Whom can you rea | ally count on to | help you feel m | ore relaxed whe | en you are under pressu | ure or tense? |
| No one | 1) | 4) | 7) | | |
| | 2) | 5) | 8) | | |
| | 3) | 6) | 9) | | |
| How satisf | fied are you with | this support? | | | |
| Very Satisfied Fair | ly Satisfied A Li | ttle Satisfied A L | ittle Dissatisfied | Fairly Dissatisfied Ver | y Dissatisfied |
| [] | [] | [] | [] | [] | [] |

| Who accepts you totally, including both your worst and your best point | Who acc | cepts vou | totally, in | cluding | both vour | worst and | vour best | points' |
|--|---------|-----------|-------------|---------|-----------|-----------|-----------|---------|
|--|---------|-----------|-------------|---------|-----------|-----------|-----------|---------|

| | No one | 1) | 4) | 7) | | |
|--------|----------------------|---------------------|----------------------|------------------------------|---------------------|------------|
| | | 2) | 5) | 8) | | |
| | | 3) | 6) | 9) | | |
| | | | | | | |
| | How satisfied | are you with thi | s support? | | | |
| Very S | Satisfied Fairly S | atisfied A Little | Satisfied A Little | e Dissatisfied Fairly Diss | atisfied Very Dis | ssatisfied |
| | [] | [] | [] | [] | [] | [] |
| | | | | | | |
| Who | m can you count | on to care abou | ut you, regardle | ss of what is happening | { to you? | |
| | | | | | | |
| | No one | 1) | 4) | 7) | | |
| | | 2) | 5) | 8) | | |
| | | 3) | 6) | 9) | | |
| | | | | | | |
| | How satisfied | are you with thi | s support? | | | |
| Very | Satisfied Fairly S | atisfied A Little | Satisfied A Little | e Dissatisfied Fairly Diss | atisfied Very Dis | ssatisfied |
| | [] | [] | [] | [] | [] | [] |
| | | | | | | |
| | | | | | | |

Whom can you really count on to help you feel better when you are feeling generally down-in-the-dumps?

| No one | 1) | 4) | 7) |
|--------|----|----|----|
| | 2) | 5) | 8) |
| | 3) | 6) | 9) |

| | How satisfied | are you with this | s support? | | | | | |
|---------|--|---------------------|----------------------|-----------------------------|---------------------|-----------|--|--|
| Very Sa | Very Satisfied Fairly Satisfied A Little Satisfied A Little Dissatisfied Fairly Dissatisfied Very Dissatisfied | | | | | | | |
| | [] | [] | [] | [] | [] | [] | | |
| | | | | | | | | |
| | | | | | | | | |
| Whom | ı can you count | on to console yo | ou when you are | very upset? | | | | |
| | | | | | | | | |
| | No one | 1) | 4) | 7) | | | | |
| | | 2) | 5) | 8) | | | | |
| | | 3) | 6) | 9) | | | | |
| | | | | | | | | |
| | How satisfied | are you with this | s support? | | | | | |
| Very Sa | atisfied Fairly Sa | atisfied A Little | Satisfied A Little | Dissatisfied Fairly Dissa | atisfied Very Dis | satisfied | | |
| | [] | [] | [] | [] | [] | [] | | |

Appendix F

IPIP Broad-Bandwidth Inventory Assessing NEO PI-R Domains

Please use the rating scale below to describe how accurately each statement describes you.

Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence. Please read each statement carefully, and then indicate the choice corresponds to the number on the following scale.

| 1 | 2 | 3 | 4 | 5 |
|-----------------|--------------------------|---------------------------------------|------------------------|---------------|
| Very Inaccurate | Moderately Inaccurate | Neither Inaccurate nor Accurate | Moderately Accurate | Very Accurate |

- 1. Often feel blue.
- 2. Dislike myself.
- 3. Am often down in the dumps.
- 4. Have frequent mood swings.
- 5. Panic easily.
- 6. Rarely get irritated.
- 7. Seldom feel blue.
- 8. Feel comfortable with myself.
- 9. Am not easily bothered by things.
- 10. Am very pleased with myself.
- 11. Feel comfortable around people.
- 12. Make friends easily.
- 13. Am skilled in handling social situations.
- 14. Am the life of the party.
- 15. Know how to captivate people.

- 16. Have little to say.
- 17. Keep in the background.
- 18. Would describe my experiences as somewhat dull.
- 19. Don't like to draw attention to myself.
- 20. Don't talk a lot.
- 21. Believe in the importance of art.
- 22. Have a vivid imagination.
- 23. Tend to vote for liberal political candidates.
- 24. Carry the conversation to a higher level.
- 25. Enjoy hearing new ideas.
- 26. Am not interested in abstract ideas.
- 27. Do not like art.
- 28. Avoid philosophical discussions.
- 29. Do not enjoy going to art museums.
- 30. Tend to vote for conservative political candidates.
- 31. Have a good word for everyone.
- 32. Believe that others have good intentions.
- 33. Respect others.
- 34. Accept people as they are.
- 35. Make people feel at ease.
- 36. Have a sharp tongue.
- 37. Cut others to pieces.
- 38. Suspect hidden motives in others.
- 39. Get back at others.
- 40. Insult people.
- 41. Am always prepared.

- 42. Pay attention to details.
- 43. Get chores done right away.
- 44. Carry out my plans.
- 45. Make plans and stick to them.
- 46. Waste my time.
- 47. Find it difficult to get down to work.
- 48. Do just enough work to get by.
- 49. Don't see things through.
- 50. Shirk my duties.

Appendix G

The Bergen Facebook Addiction Scale

| How often during the last year have you | Very rarely | Rarely | Sometimes | Often | Very often |
|--|-------------|--------|-----------|-------|------------|
| Spent a lot of time thinking about Facebook or planned use of Facebook? | [] | [] | [] | [] | [] |
| Felt an urge to use Facebook more and more? | [] | [] | [] | [] | [] |
| Used Facebook in order to forget about personal problems? | [] | [] | [] | [] | [] |
| Tried to cut down on the use of Facebook without success? | [] | [] | [] | [] | [] |
| Become restless or troubled if you have been prohibited from using Facebook? | [] | [] | [] | [] | [] |
| Used Facebook so much that it has had a negative impact on your job/studies? | [] | [] | [] | [] | [] |

Appendix H

Facebook Use Questionnaire

| I have had a Fa | acebook account for approximately year(s) month(s) |
|-----------------|---|
| I mostly use Fa | cebook: |
| [] On r | my phone |
| [] On r | my computer or tablet |
| [] Eve | nly split between my computer or tablet and my phone |
| [] Othe | er |
| | |
| How much time | e to you spend on Facebook a day? hrs mins |
| How many time | es a day do you check Facebook on your computer? |
| How many time | es a day do you check Facebook on your phone? |
| How many time | es a day do you check Facebook on another device? |
| | |
| How often do y | ou have access to Facebook? |
| | Almost always, |
| | Most of the time |
| | Often Sometimes |
| _ | Rarely |
| | Almost never |
| How often am | I in a situation where it is impossible to access Facebook? |
| | Almost always |
| | Most of the time |
| | Often |
| | Sometimes |
| | Rarely Almost never |

I use the following features on Facebook:

| Feature | Frequency | of Use | |
|---------------|-----------|-----------|-----------------|
| | Often | Sometimes | Rarely or Never |
| Status Update | [] | [] | [] |
| Post Photos | [] | [] | [] |
| Comment | [] | [] | [] |
| "Like" | [] | [] | [] |
| Chat | [] | [] | [] |
| Games | [] | [] | [] |
| Check-In | [] | [] | [] |
| Poke | [] | [] | [] |
| Send Messages | [] | [] | [] |
| Create Events | [] | [] | [] |
| Notes | [] | [] | [] |
| Share | [] | [] | [] |

| l spend most | of m | v time | on F | acek | ook: | : |
|--------------|------|--------|------|------|------|---|
|--------------|------|--------|------|------|------|---|

| ш | Browsing photos | or reading the | e news teed |
|---|-----------------|----------------|-------------|
|---|-----------------|----------------|-------------|

Number of notifications I get per day: _____

[☐] Chatting or writing messages and comments

[☐] Updating my status or uploading photos

[□] Other

On Facebook I chat with:

| | Often | Sometimes | Rarely or Never |
|--------------------------------|-------|-----------|-----------------|
| | | | |
| Friends I rarely see | [] | [] | [] |
| Friends I see often | [] | [] | [] |
| Close friends | [] | [] | [] |
| People I don't know well | [] | [] | [] |
| People I want to be closer to | [] | [] | [] |
| People I want to stay close to | [] | [] | [] |

I comment on the posts or photos of:

| | Often | Sometimes | Rarely or Never |
|--------------------------------|-------|-----------|-----------------|
| | | | |
| Friends I rarely see | [] | [] | [] |
| Friends I see often | [] | [] | [] |
| Close friends | [] | [] | [] |
| People I don't know well | [] | [] | [] |
| People I want to be closer to | [] | [] | [] |
| People I want to stay close to | [] | [] | [] |

I "like" the posts or photos of:

are about things I've done

| | Often | Som | netimes Ra | arely or Never |
|---|-------------|-------|------------|-----------------|
| Friends I rarely see | [] | | [] | [] |
| Friends I see often | | | | |
| | [] | | [] | [] |
| Close friends | [] | | [] | [] |
| People I don't know well | [] | | [] | [] |
| People I want to be closer to | [] | | [] | [] |
| People I want to stay close to | [] | | [] | [] |
| | | Often | Sometimes | Rarely or Never |
| I tag friends with the Check-In feature. | | [] | [] | [] |
| I post photos of what I'm doing while I'm doing it | | [] | [] | [] |
| (e.g. posting photos to Facebook from a co | oncert) | | | |
| I post status updates about what I'm doing doing it | g while I'm | [] | [] | [] |
| I post photos or status updates when I have free time | | [] | [] | [] |
| I post photos or status updates after some happens. | ething | [] | [] | [] |
| My status updates | Often | Ç | Sometimes | Rarely or Never |
| have to do with me | [] | | [] | [] |
| are interesting links | [] | | [] | [] |
| are quotes or song lyrics | [] | | [] | [] |
| write comments on my posts | [] | | [] | [] |
| are about how I feel | [] | | [] | [] |

[]

[]

[]

| | | | 60 |
|--|----------------------------|----------------------------------|----------------------------|
| are about things I think | [] | [] | [] |
| are about things I've experienced | [] | [] | [] |
| | | | |
| | Often | Sometimes | Rarely or Never |
| I read the news feed | [] | [] | [] |
| I browse my friends' photos | [] | [] | [] |
| I attend events coordinated on Facebook | [] | [] | [] |
| I share the good things that are happening in my life | [] | [] | [] |
| I share the bad things that are happening in my life | [] | [] | [] |
| I use Facebook | Often | Sometimes | Rarely or Never |
| to see what other people are doing | | | r 1 |
| | [] | [] | [] |
| to keep in touch with people. | [] | [] | [] |
| to keep in touch with people. to plan social activities | | | |
| | [] | [] | [] |
| to plan social activities | [] | [] | [] |
| to plan social activities to keep in touch with old friends | [] [] | [] [] | [] [] |
| to plan social activities to keep in touch with old friends to communicate with people I see a lot | [] [] [] | [] [] [] | [] [] [] |
| to plan social activities to keep in touch with old friends to communicate with people I see a lot to communicate with close friends | [] [] [] [] | [] [] [] [] | [] [] [] [] |
| to plan social activities to keep in touch with old friends to communicate with people I see a lot to communicate with close friends to get closer to people I know | [] [] [] [] | [] [] [] [] [] | [] [] [] [] [] |
| to plan social activities to keep in touch with old friends to communicate with people I see a lot to communicate with close friends to get closer to people I know to communicate with people I know already | [] [] [] [] [] | [] [] [] [] [] [] | [] [] [] [] [] |

| My friends | Often | Sometimes | Rarely or Never |
|---|------------|----------------------|---------------------|
| "like" my photos | [] | [] | [] |
| "like" my posts | [] | [] | [] |
| write comments on my posts | [] | [] | [] |
| write comments on my photos | [] | [] | [] |
| write private messages to me | [] | [] | [] |
| share my posts or photos | [] | [] | [] |
| "poke" me. | [] | [] | [] |
| Number of photos of me on Facebook | | | |
| What percentage of the photos of you did y | ou upload? | (Adjust slider to in | ndicate percentage) |
| What percentage of the photos of you did fi upload? | riends | (Adjust slider to in | ndicate percentage) |
| I have uploaded pictures of: (Check all tha | t apply) | | |
| [] Me | | | |
| [] My Friends | | | |
| [] People I know | | | |
| [] Artistic Photos | | | |
| [] My Pets | | | |
| [] My Family | | | |
| [] Interesting objects | | | |
| [] Photos related to my status updates | | | |
| [] Landscapes | | | |
| [] Vacation photos | | | |

| [] Funny or interesting images that other people created. (meaning $\overline{\mbox{\sc figure}}$ | emes, infographics) |
|--|---|
| [] Other | |
| | |
| | |
| How many Facebook Friends do you have? | |
| | |
| Approximately what percentage of your Facebook Friends | |
| | |
| have you met (offline)? | (Adjust slider to indicate percentage) |
| do you consider close friends? | (Adjust slider to indicate percentage) |
| do you feel you can confide in? | (Adjust slider to indicate percentage) |
| do you feel you can count on in a crisis? | (Adjust slider to indicate percentage) |
| | |
| | |
| What percentage of your close friends don't use | (Adjust slider to indicate percentage) |
| Facebook? | |
| | |
| What percentage of your social group doesn't use Facebook? | (Adjust slider to indicate percentage) |
| | |
| What percentage of the people you know don't use | (Adjust slider to indicate percentage) |
| Facebook? | (, laguast sinder to indicate percentage) |

| Wh | at other social network sites do you use? (Check all that apply) |
|----|--|
| [] | Myspace |
| [] | Google Plus |
| [] | LinkedIn |
| [] | Skype |
| [] | Twitter |
| [] | Windows Live |
| [] | Badoo |
| [] | Orkut |
| [] | Flickr |
| [] | Bedo |
| [] | Meetup |
| [] | OKCupid |
| [] | PlentyofFish |
| [] | Match.com |
| [] | eHarmony |
| [] | Zoosk |
| [] | Chemistry.com |
| [] | Ashley Madison |
| [] | Other |