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An Examination of the Relationship between Adult Attachment Style and
Patterns of Facebook Use and Facebook Behavior

By

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of the requirements for
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Abstract

Previous research suggests that various personality traits predict how individuals behave and portray themselves through internet-mediated communication and social media. In the current research, I examine the relationship between adult attachment style and the characteristics of Facebook use (e.g., frequency of "friending," "liking," and commenting). A pilot study conducted with Union College undergraduates who completed questionnaires measuring attachment style and Facebook use showed that higher attachment anxiety was associated with higher frequency and intensity of Facebook use as well as higher attention and reassurance-seeking Facebook behaviors, whereas higher attachment avoidance predicted less frequency and intensity of Facebook use as well as less attention and reassurance-seeking through Facebook. A large-scale follow up study of both domestic and international online participants who completed a revised version of the original questionnaire confirmed the pilot study's findings, and further indicated that seeking of reassurance mediated the relation between attachment anxiety and Facebook behavior.

An Examination of the Relationship between Adult Attachment Style and Patterns of Facebook Use and Facebook Behavior

In the past decade, social media has become a principal medium for communication and self-expression in our society. Individuals can stay in touch or simply stay updated on the lives of friends and family through social media networks. Status updates, pictures, relationship statuses, public descriptions of hobbies, demographics and interactions with other users broadcasted on profiles provide a detailed and up-to-date summary of what is happening in users' lives. As this form of communication becomes increasingly mainstream and necessary to stay connected, social media profiles and publicized interactions and postings emerge as a forum for self-presentation and personal expression. While researchers have begun to investigate the effects of social media on society as a whole, surprisingly little research has been conducted on individual differences in social media use and ensuing effects. Consequently, one question that naturally arises is how the patterns of social media use differ as a function of personality traits and other factors.

One such factor that has been shown to exert a strong influence on human adult behavior is adult attachment style. Attachment style reflects individuals' behavior in close relationships based on their past and present experiences with attachment figures (i.e. parents, romantic partners). There are two dimensions that constitute attachment style, anxiety and avoidance. Previous research has shown that different variations of these dimensions considerably affect social behaviors (Mikulincer & Shaver, 2003). In the current study, I explore the relationship between social media users' adult attachment

style and their social media behaviors, namely the behavioral patterns of their Facebook use.

Attachment Theory and Research

John Bowlby (1969/1982) proposed that human infants (and infants of other mammalian species) have innate attachment systems, one among several behavioral systems evolved to serve a biological purpose. The attachment system and other behavioral systems are triggered by specific stimuli in the environment, produce goal-directed behaviors, and then terminate upon the execution of a set-goal. The systems include cognitive operations, and are dynamically linked to one other. The attachment system possesses all of these criteria. Its biological function is to protect humans (especially infants), and its activation is triggered by stimuli in the environment that threaten one's survival or well-being. The activation of the attachment system produces proximity-seeking behaviors that are directed towards the set-goal: proximity to a primary caregiver (i.e., an "attachment figure"). Once this goal is achieved, the attachment system terminates, and its termination activates other non-attachment behavioral systems, such as exploration. The cognitive operations of the attachment system, such as perceiving potential threats and assessing effectiveness of one's own proximity-seeking behaviors, are used to goal-correct attachment behavior. Attachment figures' differing degrees of availability and responsiveness to proximity-seeking behavior is central to the system's development, and is thought to be the basis of individual differences in attachment style (Mikulincer & Shaver, 2003).

Mary Ainsworth (1978) and her colleagues were the first to identify these attachment styles through an observation of infants and their mothers' interactions in

their own homes as well as in a laboratory setting. In the lab, the researchers created the “strange situation,” a milestone in attachment theory research (Ainsworth, Blehar, Waters, & Wall, 1978). Infants and their mothers played alone in a room until a stranger (researcher) came into the room after the mother left the room. After a certain period of time, the stranger left and the mother returned to the room. Ainsworth et al. were especially interested in the infants’ reactions to separation from the mother as well as the infant-mother reunion after the stranger had left.

The results of their observations are the basis for the distinct attachment styles recognized in attachment theory today. Infants whose mothers were consistently available and responsive to proximity-seeking behavior demonstrated what Ainsworth et al. identified as *secure* attachment in the “strange situation.” These securely attached infants were quite troubled immediately after separation from their mothers, but quickly recovered, continuing to play as before in the presence of the stranger. Upon reunion with their mothers, they expressed joy and received and gave affection. Infants classified by Ainsworth as *avoidant* did not seem distressed during separation from their mothers and avoided contact with her upon reunion. The mothers of these infants observed at home were emotionally unavailable and unresponsive to proximity-seeking attempts by their infant. The third infant attachment style noted by Ainsworth (1978) was *anxious-ambivalent* attachment, characterized by infants’ distress throughout the entire separation period from their mothers and a mixture of clinginess and anger upon reunion. During home observations, the mothers of infants identified as anxiously attached were inconsistently available and responsive; they were not rejecting, as the mothers of avoidant infants were, but they seemed to not be optimally attuned to their infants’ needs

and signals. The two “insecure” attachment styles appear to reflect deactivation, or reduction of proximity-seeking behaviors and increasing self-reliance, of the attachment system (avoidance) as well as hyperactivation, or augmentation of proximity-seeking behaviors, of the attachment systems (anxiety) (Cassidy & Kobak, 1988).

As famously suggested by Bowlby (1969/1962), attachment behavior plays “...a vital role...in the life of man from the cradle to the grave.” Infant-caregiver relations are the first close relationship that humans experience, and, consequently, infancy and early childhood is the time when the foundations of individuals’ attachment behavioral system develop. In the past three decades, attachment research has largely focused on investigating the extent to which individuals’ attachment style perseveres into adulthood. Hazan and Shaver (1987) pioneered this research by a correlational assessment of the extent to which adult romantic love can be conceptualized as attachment. In their studies, participants completed self-report measures tapping their experiences and behaviors in their most important romantic relationship, their relationships with their primary caregiver in infancy, and how they typically felt in relationships. Hazan and Shaver’s general hypothesis that attachment style could predict individuals’ experiences and behaviors in romantic relationships was well supported by their data. A large body of research has developed from these preliminary findings and examined various aspects of adult attachment as well as improved methods of attachment measures and conceptualization.

In the original self-report measure of adult attachment used by Hazan and Shaver (1997), subjects categorized themselves into one of three descriptions of how they felt in close relationships adapted from Ainsworth et al.’s (1978) descriptions of the three infant

attachment styles. However, later research proposed a two dimensional model in which individuals' attachment style was determined by levels of anxiety as well as avoidance (Bartholomew & Horowitz, 1991; Brennan, Clark, & Shaver, 1998). In this model, *secure attachment* was delineated by low anxiety and low avoidance, reflecting securely attached persons' comfort with being close to others as well as their lack of overdependence on and preoccupation with close others. *Preoccupied* individuals (referred to as anxious ambivalent within the context of infant attachment), who report high levels of anxiety and low levels of avoidance, are consumed with worries that their close relationship partners will not be there when they need them or will leave them. They constantly and sometimes compulsively seek proximity and intimacy in close relationships. Avoidant persons, characterized by high avoidance and low anxiety, are uncomfortable with intimacy and deny their necessity and desire for seeking proximity to close relationship partners.

Individual Differences and Social Media Use

Prior research on social media use has been keen on the universal social and psychological implications of a society where computer and gadget-mediated communication are increasingly replacing in-person social interaction. Consequently, the nascent line of research that has assessed the relationship between social media use and users' individual differences has largely concentrated on how the social media use of certain types of people can predict certain consequences and benefits when it comes to their lives offline (e.g. in-person social competency, building and maintaining meaningful relationships; Kraut, Kiesler, Boneva, Cummings, & Helgeson, 2001; Marwick, 2005; Valkenburg & Peter, 2007, 2008). For instance, studies have shown that among socially

competent, socially supported individuals who exhibit less difficulty forming and maintaining meaningful relationships in the real world, social media use leads to even greater social benefits when it comes to life outside of the social media network (The rich-get-richer theory; Kraut et al., 2001; Valkenburg & Peter, 2007). Kraut et al. (2001) found in a longitudinal study that for extraverts with high social support, increased use of internet-mediated communication led to more community involvement and family communication. In contrast, other research has supported an opposing theory, suggesting that more socially anxious persons are likely to gain more real world social benefits from social media use, as social media networks provide a less intimidating medium through which they can initiate social interactions and then continue them in-person (social compensation theory; Valkenburg & Peter, 2008). Consistent with this theory, a study by Amichai-Hamburger, Wainpel, & Fox (2002) indicated that while extraverts are more likely to report that their offline personality is a more accurate reflection of their identity, introverts viewed their online personality, which they described as more expressive and comfortable initiating conversation, as a more accurate representation of themselves. Bearing this in mind, it seems plausible that introverts would experience more offline social benefits, as they would likely be more comfortable being their true selves in person around those with whom they have communicated online.

Since this line of work has mainly been concerned with offline effects of social media use, researchers have only tapped shallowly into more comprehensive measures of social media *behaviors* and individual differences thereof. Very few self-report measures of social media use have aimed to evaluate *how* users tend to communicate or portray themselves through social media and the extent to which these tendencies vary as a

function of dispositional individual differences. A study conducted by Ross et al.(2009), which assessed the relationship between the Five-Factor Model of personality and more detailed components of Facebook use, is one of the only past investigations of this nature. Along with items that had been typically used to measure Facebook use (frequency of and attitudes toward Facebook use), Ross et al.'s 28-item Facebook questionnaire also included items regarding participants' preference for specific functions of Facebook (e.g. photos, groups, wall, messages, etc.), types of photos typically posted, and how often and in what ways they direct their Facebook behaviors towards other users (e.g. posting on others' walls, messaging others, etc.). Their largely insignificant results in respect to any relationships between the Big Five Personality Factors (openness, conscientiousness, extraversion, agreeableness, and neuroticism) and their measures of Facebook use indicate that individual differences in personality cannot account for much of the variance in individual differences in Facebook tendencies. However, the individual differences in Facebook use and behavior are undoubtedly present, and future research should investigate other dispositional factors that account for the variance.

Attachment Style and Facebook Use

A very recent study (Jenkins-Guarnieri, Wright, & Johnson, 2013) is among the first to suggest that attachment style may account for part of this variance in individual differences in Facebook use. Employing a structural equation modeling approach for the analysis of their results, the objective of their research was to create a map of interrelationships among constructs relevant to Arnett's (2000) emerging adulthood theory (attachment, extroversion, neuroticism and interpersonal competency) and how they influence Facebook use. As discussed in their introduction, the emerging adulthood

theory posits that from the ages of 18 to mid-20s, young adults must develop and define a stable sense of self while simultaneously going through a time that is typically filled with important changes. In their view, as social media becomes a staple form of communication among the younger population, it is important to assess how the developmental process of emerging adulthood may manifest itself through young adults' individual differences in Facebook use.

After surveying a sample of 617 university students, they structured their results into a model that illustrated an interpretation of the interrelationships between the measured constructs. In their model, insecure attachment predicted higher levels of neuroticism and lower levels of extraversion. Extraversion predicted higher interpersonal competency, while no significant association was observed between neuroticism and interpersonal competency. Lastly, extraversion predicted higher Facebook use intensity. In less statistical terms, the only notable trend found between the interrelationships of the constructs and their subsequent influence on Facebook use was the following: Less insecurely attached participants were more likely to report higher extraversion, and subjects who reported higher extraversion reported higher Facebook use intensity.

In my view, the Jenkins-Guarnieri et al. study suffers from a few research and analytical design flaws, namely their choice to interpret results by structuring them into an interrelationship model which implied that Extraversion, neuroticism and interpersonal competency are caused by insecure attachment. No prior research supports this causal suggestion, and the correlations between attachment and the measured personality constructs should only be interpreted as overlapping behaviors and tendencies. In this light, it would have been logical for the researchers to separately examine the

relationships between each of the measured constructs (Attachment, extraversion, neuroticism and interpersonal competency) and Facebook use, as they are not potential mediators or confounds of one another. In addition, attachment was considered as a single factor, such that participants were given an attachment score that denoted the degree of their attachment insecurity; in other words, avoidance and anxiety were grouped into one score, and not examined as two separate determinants of attachment style in the interpretation of their results. It is likely that anxiety and avoidance predict different Facebook patterns, and consideration of both would provide a better depiction of the more subtle individual differences in Facebook use predicted by attachment style. Instrumentation of Facebook use consisted of an 18-item scale that tapped frequency of and attitudes towards Facebook use, emotional connection to Facebook, and integration of Facebook use into their daily lives. These items did not evaluate the more detailed aspects of Facebook *behavior* that will be assessed in the current study.

The Current Study

While the Jenkins-Guarnieri et al. study provides some framework for the current examination of the relationship between attachment style and more in-depth components of Facebook behavior, I aim to avoid its conceptual and research design flaws in my own design. Considering the weak research base in the area of individual differences and Facebook behavior, it seems more logical to focus on the relationship between one particular component of individual differences and Facebook behavior rather than setting out with the aim of determining any sort of interrelationships model. As past research has shown that personality factors do not account for much of the variance in Facebook behaviors (Ross et al., 2009), I chose to investigate the relationship between adult

attachment style, another factor that has been shown to strongly influence social behavior, and Facebook usage patterns and behaviors. While personality factors were also measured, the primary purpose of their inclusion was to determine the strength of the relationship between attachment style and the measured Facebook factors even with consideration of these personality factors.

Also in contrast with the Jenkins-Guarnieri et al. design, the current design scored attachment in accordance with a two-dimensional conceptualization of attachment style, with degree of anxiety and degree of avoidance treated as separate determinants. In addition, the self-report measure of Facebook use employed in the current study will provide a much more thorough and accurate assessment of social media behaviors directly relevant to attachment style than the less comprehensive Facebook measures employed by Jenkins-Guarnieri et al.

In the current research, the relationship between the two separate components of adult attachment style, attachment anxiety and attachment avoidance, and Facebook usage patterns and behaviors are assessed. In a pilot study composed of a small sample of Union College students, the primary objective was to provide a more informed research base from which to make projections and research design revisions for Study 2, a large-scale international follow-up study. In both studies, self-report measures were used to evaluate participants' frequency of Facebook use as well as more comprehensive Facebook behaviors (e.g. reassurance and attention-seeking behaviors), adult attachment style, and personality factors (neuroticism and extraversion).

Study 1: Pilot Study

For the purposes of this preliminary study, which are mainly to inform predictions made in Study 2, I made a general tentative hypothesis based primarily on attachment style research. Considering attachment anxiety's association with intense proximity-seeking behaviors as well as a powerful desire for intimacy (Ainsworth et al., 1978; Cassidy & Kobak, 1988; Bowlby, 1969/1962; Hazan & Shaver, 1987; Bartholomew & Horowitz, 1991; Brennan et al., 1998), I projected that more anxious participants would report higher frequency and intensity of Facebook use as well as Facebook behaviors that reflect active attention and reassurance seeking. For more avoidant subjects, I expected reports of less frequency of Facebook use as well as less attention and reassurance seeking through Facebook, as attachment avoidance is characterized by discomfort with intimacy and lack of or denial of a desire for intimacy (ibid).

Method

Participants

One hundred Union College students took part in the study for a psychology course requirement or for cash compensation. Participants' ages ranged from 17 to 22 years old (Mean age=18.7 years old), and there were 29 males and 67 females. The ethnic background of participants was predominantly white (75%), 12% Asian or Asian-America, 5.2% black, 4.2% Hispanic, 1% Hawaiian or Pacific Islander and 2.1% other. Over half of the students (57.3%) specified Christianity as their religion, while 14.6% of the subjects were Jewish, 4.2% Hindu, 2.1% Buddhist and 21.9% other. In regard to relationship status, 68 of the students indicated that they were single, while 28 said they were in a committed relationship. After excluding participants who indicated they did

not have a Facebook account and participants who gave greater than five of the same responses consecutive responses. Usable data from 97 students was available for analysis.

Instrumentation

A 169-item questionnaire was completed by participants and included the following measures:

Demographical measures. The students indicated their sex, age, occupation and employment status, relationship status, religious affiliation and degree of religiosity, and their ethnic identity.

Adult Attachment. Participants were measured for adult attachment style using the revised version of the Experiences in Close Relationships scale (ECR-R; Fraley, Waller, & Brennan, 2000), which included 18-item subscales for both avoidance and anxiety. Subjects rated, on a 7-point Likert-type scale (1 being “Strongly disagree” and 7 being “Strongly Agree”), the extent to which they agreed or disagreed with each of the 36 total statements. The scale has been assessed and confirmed for validity and internal consistency (Sibley, Fischer, & Liu, 2005).

Extraversion and neuroticism. The extraversion and neuroticism subscales of the Big Five Index (BFI; John, Naumann, & Soto, 2008) were used to assess these two FFM (Five-Factor Model) traits. These two traits were chosen out of the five total personality traits, as past research has indicated that extraversion and neuroticism are the most influential on social outcomes (White, Hendrick & Hendrick, 2004). The subscale for each trait consisted of 8 item endings, such as “is depressed blue,” under the general heading “I see myself as someone who...” to which subjects indicated the extent to which they agreed or disagreed on a 5-point Likert-type scale (from 1 “Strongly disagree” to 5

“Strongly agree”). Previous research has found the scale to be internally consistent and the scale’s scores to be convergent, concurrent, and discriminantly valid (Benet-Martínez & John, 1998; John et al., 2008).

Facebook measures. The last 69 items of the survey measured for frequency of Facebook use, Facebook behaviors, profile elements, as well as motives and emotions pertaining to participants’ Facebook behaviors and interactions with other users.

Procedure

Student participants signed up for 30-minute timeslots with a maximum capacity of 12 students to complete the questionnaire in a small classroom. On the institution-sponsored online site (Freud online) where students signed up for the timeslots, the study was described as an investigation of the relationship between personality and social media use. This same description was read aloud to participants immediately before they began the survey in addition to an informed consent informing them of their right to leave at any time during the study and that their answers would remain anonymous. After signing the informed consent, participants completed the survey, which generally took around 30 minutes. The data from the 100 subjects was entered into SPSS and participants were eliminated that: a) indicated that they did not use Facebook, and b) put the same answer choices for more than five questions in a row. We were left with usable data from 97 participants. After factor analysis, ten major factors or subscales of Facebook use were determined: 1) Active seeking and increased self-esteem upon receipt of positive attention on Facebook, 2) Active “defriending” behavior, 3) Indifference to feedback on Facebook, 4) Reassurance-seeking Facebook behaviors, 5) Use of Facebook as a forum for self-expression, 6) Receiving Facebook attention (e.g. likes or comments),

7) Giving Facebook attention (e.g. liking or commenting), 8) Incoming “friending” activity (e.g. receiving and accepting of “friend” requests), 9) Overall frequency of “friending” activity, and 10) Degree of privacy sought (See Appendix A for a complete listing of the items within each subscale). A new syntax was created for each of the subscales, and the relationship of each factor with anxiety and avoidance was assessed using a linear regression analysis.

Study 1 Results and Discussion

For the purposes of this Pilot study, I was more interested in the general trends found (i.e. positive or negative relationships) rather than the strength of the relationships, especially considering the relatively small sample size (N=97). Overall, the preliminary findings from Study 1 support my initial projections. Participants higher in anxiety generally reported higher frequency of Facebook use as well as usage patterns that reflect active seeking of reassurance and attention through Facebook, while more avoidant subjects were less likely to engage in these behaviors and reported less frequency of Facebook use.

Students higher in anxiety reported more positive attention seeking, reassurance seeking, and active “defriending” behavior as well as more giving and receiving of Facebook attention (e.g. likes and comments), higher overall frequency of “friending” activity and use of Facebook as a forum for self-expression. They also reported less indifference to feedback on Facebook than their less anxious counterparts. These findings indicate more anxiously attached young adults are more likely to: engage in posting and tagging behavior that seem motivated by receiving Facebook attention and support, actively “defriend” other users for personally motivated and oftentimes spiteful

reasons, like and comment on other users' Facebook activity as well as receive likes and comments on their own activity, use Facebook to publicly express their thoughts, emotions and attitudes, receive and send friend requests more frequently overall and be more concerned and affected by feedback that they receive on Facebook.

Participants higher in avoidance, on the other hand, reported less positive attention seeking, reassurance seeking and active "defriending" behavior as well as less giving and receiving of Facebook attention and use of Facebook as a forum for self-expression. They also reported more indifference to feedback on Facebook. These results suggest that avoidantly attached young adults are less likely to: engage in attention and reassurance seeking behaviors on Facebook, actively "defriend" other users for personally motivated or spiteful reasons, give and receive attention on Facebook in the form of likes and comments, use Facebook as a forum for self-expression, and be concerned with the amount and/or content of feedback received through Facebook.

In contrast with the preliminary projections, both avoidant and anxious participants reported seeking more privacy on Facebook, whereas it was generally expected that higher avoidance would predict more privacy sought and higher anxiety would predict the opposite. The actual findings may be explained by a more universal awareness of the potential consequences of having a less secure Facebook profile. In addition, both anxious and avoidant subjects reported less incoming "friending" activity (i.e. friend requests). This may be justified by the insecurity in close relationships of individuals both high in anxiety and high in avoidance. While avoidant persons often come off as aloof or disinterested in forming relationships, anxious individuals can be overly clingy and needy. It is fitting, then, that they would both receive less friend

requests on Facebook. Also inconsistent with projections, both avoidant and anxious subjects reported higher frequency of overall “friending” activity, as I expected that higher overall “friending” frequency would only be observed for more anxious participants. It is possible that some avoidant individuals avoid initiating relationships and intimacy because they are uncomfortable doing it in person. As indicated by prior research on introverts and online communication (Amichai-Hamburger et al., 2002), Facebook may be a more comfortable place for avoidant people to reach out those with whom they do not feel comfortable approaching in person. The generalizeability of these results is quite limited by the small size and lack of diversity of the sample. Consequently, Study 1 mainly functioned as an addition to the research base for Study 2, which consisted of a larger and much more diverse sample.

Study 2: Large-Scale Follow-up

After completion of the pilot study, I was able to make more informed predictions regarding the relationships between specific Facebook use and behavior and attachment style (anxiety and avoidance). Since my initial predictions for Study 1 were supported overall, my hypotheses for Study 2 are quite similar to what they were in Study 1. Analogous to my Study 1 predictions, I hypothesized that attachment anxiety would be associated with higher frequency of Facebook use and attention and reassurance seeking behaviors through Facebook, while attachment avoidance would predict less frequency of Facebook use and less attention and reassurance seeking behaviors. In contrast with my Study 1 predictions and informed by my Study 1 results, I expected to find higher degree of privacy sought, higher frequency of overall “friending” activity and less incoming “friend” activity by both anxious and avoidant subjects.

Participants

In contrast with the small sample and lack of diversity of our study 1 participants, data from 300 participants recruited for monetary compensation by Xarca Interactive, an online survey generator and distributor, provided a larger and more demographically generalizable sample. Subjects who indicated they did not use Facebook. One of BFI items was included twice in the questionnaire, and participants whose responses differed by more than one point on this item were also eliminated, leaving usable data from 271 remaining subjects. The sample included an almost equal amount of foreigners (49%) to U.S. participants, and ages ranged from 19 to 73 years old (Median Age=29) with 155 males and 117 females. The ethnic background of the sample was 43.8% white, 44.1% Asian or Asian American, 4.4% black, 2.9% American Indian or Alaska native, 2.9% Hispanic, and 1.8% as other or more than one. Religion of the subjects was 37.5% Christian, 32.7% Hindu, 6.6% Muslim, 2.2% Buddhist, 0.4% Jewish and the remaining 20.6% specified their religion as other. In regard to relationships status, 40.4% indicated that they were single, 12.5% described themselves as in a committed relationship, 42.3% were married, 0.7% were separated and 0.4% widowed.

Procedure

While some of the Facebook items from the study 1 questionnaire were slightly edited to ensure that they were all single-barreled, no changes were made to the other measures previously employed in Study 1 (ECR-R, BFI-neuroticism and extraversion subscales). However, the 10-item Rosenberg Self Esteem Scale (RSE; Rosenberg, 1965) was added to control for self-esteem in addition to extraversion and neuroticism. Participants indicated on a Likert-type scale from 1 “disagree strongly” to 7 “agree

strongly” the extent to which they agreed or disagreed with statements regarding their sense of self-worth and their view of themselves in comparison to others. The questionnaire was programmed on Xarca Interactive, and data from 300 participants was collected over the course of a few days. A description of the study posted on Xarca was the same as the description used in Study1, describing the research as an assessment of the relationship between social media use and personality. After the results were in, They were uploaded into SPSS and new syntax were created for the Facebook subscales determined by using factor analysis in Study 1 (See Appendix A for a complete listing of subscales and corresponding items).

Study 2 Results and Discussion

As predicted, anxiety and active seeking of positive attention through Facebook were significantly positively associated, $t(269)=9.648$, $b=.559$, $p=.000$, while positive attention seeking had a significant negative relationship with anxiety, $t(269)= -4.887$, $b= -.283$, $p=.000$. Both of these relationships maintained significance with all personality constructs considered (extraversion, neuroticism, and self-esteem). Anxiety and reassurance-seeking Facebook behaviors were very highly correlated, $t(269)=10.952$, $b=.604$, $p=.001$, and maintained a significant association when controlling for extraversion, neuroticism and self-esteem. Although the negative relationship between avoidance and reassurance-seeking Facebook behavior did not achieve significance, it trends in the predicted direction. These findings indicate that while Facebook users higher in anxiety are more likely to engage in positive attention and reassurance seeking behaviors through Facebook, highly avoidant Facebook users are less likely to engage in these behaviors.

Anxiety and active “defriending” for personal and often spiteful reasons had a significant positive relationship, $t(269)=2.660$, $b=.177$, $p=.008$, that remained strong after controlling for all personality factors.ⁱ These findings indicate that more anxious Facebook users engage in more active “defriending” behaviors. The negative relationship found between avoidance and active “defriending” behaviors was insignificant, yet it supported the predicted trend that higher avoidance would predict less active “defriending” behavior.

Anxiety and frequency of giving others attention on Facebook (e.g. likes, comments) had a significant positive relationship, $t(269)=4.872$, $b=.326$, $p=.000$, and frequency of giving others attention on Facebook and avoidance had a significant negative correlation, $t(271)= -3.124$, $b= -.201$, $p=.002$. While the former relationship remains significant after controlling for extraversion, neuroticism and self-esteem, lack of extraversion accounted for the relationship between avoidance and frequency of giving others attention. This implies that while anxious Facebook users are more likely to like and comment on other users’ pictures and status updates, avoidant users are less likely to do so as a function of their lack of extraversion.

Similarly, higher anxiety significantly predicted more receiving of attention on Facebook (e.g. likes, comments), $t(269)=3.911$, $b=.254$, $p=.001$, while higher avoidance predicted less receiving of attention on Facebook, $t(271)= -3.441$, $b= -.224$, $p=.001$. The relationship between anxiety and receiving of Facebook attention remained significant after controlling for extraversion, neuroticism and self-esteem, while lack of extraversion accounted for the relationship between avoidance and receiving Facebook attention. These trends suggest that Facebook users higher in anxiety receive more likes and

comments on their pictures and status updates, while avoidant users receive less likes and comments as a function of their lack of extraversion.

Anxiety and use of Facebook as a forum for self expression had a significant positive relationship, $t(296)=6.564$, $b=.410$, $p=.001$, that maintained significance after controlling for the other measured personality traits. This finding demonstrates that anxious individuals are more likely to use Facebook as a forum to express their thoughts, emotions and attitudes. Contrastingly, avoidance had a significant negative relationship with this Facebook behavior, $t(271)= -3.467$, $b= -.217$, $p=.001$, suggesting that avoidant users do not use Facebook to publicly express themselves.

Surprisingly, no significant relationship was found between avoidance and indifference to feedback on Facebook, which is inconsistent with the significant positive trend for avoidance and indifference that we expected. The significant negative relationship between anxiety and indifference to feedback, $t(269)= -5.448$, $b= -.344$, $p=.001$, on the other hand, was consistent with our hypothesis that more anxious subjects would report less indifference to feedback on Facebook. This relationship remained significant when controlling for neuroticism, extraversion and self-esteem.

As expected, higher anxiety significantly predicted higher frequency of overall “friend” activity, $t(269)=4.657$, $b=.300$, $p=.001$, and maintained significance after controlling for personality factors, such that the more anxious users in the sample reported higher receipt and acceptance rates of friend requests. However, an insignificant negative relationship between avoidance and frequency of overall “friend” activity was inconsistent with the predictions, as a positive relationship was expected.

In contrast with the predictions, no significant relationships were found for frequency of incoming “friending” activity and either anxiety or avoidance.ⁱⁱ Moreover, there was not a significant relationship found between degree of privacy sought on Facebook and either anxiety or avoidance. However, in an exploratory analysis it was found that anxiety and avoidance both had a significant positive association with privacy among the foreigners (predominantly Indian) in our sample. Conversely, the relationships remained insignificant when examining these relationships among only U.S. subjects. As suggested by the results of Study 1, which also produced similar results for both anxious and avoidant participants in regard to degree of privacy sought, privacy may be an aspect of Facebook use that is culturally universal and less likely to differ as a function of individual differences. The exploratory assessment of degree of privacy sought for foreigners in the sample versus U.S. participants also supports this theory.

Further analysis revealed that many of the relationships between anxiety and the measured Facebook usage patterns and behaviors are explained by reassurance-seeking Facebook behavior. When controlling for reassurance seeking behavior, it confounds the significant relationships between anxiety and the following Facebook behaviors: giving and receiving Facebook attention, incoming “friend” activity, use of Facebook as a forum for self-expression, as well as active “defriending” behaviors. In other words, reassurance seeking Facebook behavior seems to be a common trait among anxious users, and many of their other Facebook behaviors can be explained by their seeking of reassurance.

Table 1 Correlations between Attachment Style and Facebook Variables

Facebook Patterns and Behaviors	Anxiety	Avoidance
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Frequency of giving others attention (likes, comments)	.314**	-.201**
Frequency of receiving attention (likes, comments)	.254**	-.224**
Positive attention seeking	.552**	-.221**
Reassurance seeking	.604**	-.141
Use of Facebook as a forum for self expression	.410**	-.217**
Indifference to feedback	-.344**	-.008
Incoming “friending” activity	.057	-.062
Frequency of overall “friending” activity	.300**	-.024
Active “defriending” behaviors	.177*	-.043
Degree of privacy sought	.076	.074

Note: * $p < .05$; ** $p < .001$.

General Discussion

Considering the emergence of social media as a principle medium for communication and self-representation, more in-depth knowledge of how individual differences influence social media behaviors is essential to understanding the general psyche of the current, social media-savvy generation. Attachment style, or the unique way in which an individual responds emotionally and behaviorally in close relationships, develops as a function of one’s levels of anxiety and avoidance (Bartholomew & Horowitz, 1991). In two studies, the relationship between a crucial element of the human psyche, attachment style, and patterns of Facebook use and Facebook behaviors are assessed.

Considering the sparse research base in this area, a pilot study was necessary to provide a more robust foundation from which to rationalize the expected trends in a

large-scale follow-up study. 97 Union College students completed a questionnaire that included demographic measures, the Experiences in Close Relationships-Revised scale (Fraley et al., 2000), the extraversion and neuroticism subscales of the BFI scale (John et al., 2008), and a series of items that tapped usage patterns and behaviors on Facebook. It was tentatively predicted that higher anxiety would predict higher frequency of Facebook use as well as Facebook behavior and usage patterns that reflect reassurance and attention seeking, while higher avoidance would predict less frequency of Facebook use and less reassurance and attention seeking through Facebook. These projections were generally supported with a few exceptions: both anxious and avoidant subjects reported lower incoming “friending” activity in addition to higher degrees of privacy sought; avoidant subjects reported higher frequency of overall “friending” activity.ⁱⁱⁱ

In a large-scale follow-up study programmed on Xarca Interactive that recruited usable data from 271 U.S. and foreign online participants, the same general trends were predicted: Higher anxiety would predict higher frequency of Facebook use and attention and reassurance seeking behaviors through Facebook, while higher avoidance would predict the opposite trend. However, the hypothesis was revised slightly to coincide with the unexpected results found in Study 1: it was expected that both anxious and avoidant subjects would report higher incoming “friending” activity and higher degree of privacy sought. In addition, it was expected that avoidant subjects, as well as anxious subjects, would report higher frequency of overall “friending” activity. A few of the Facebook items were slightly revised on the original questionnaire to make them more comprehensible and double-barreled. The addition of the Rosenberg self-esteem scale (RSE; Rosenberg, 1965) allowed for dispositional self-esteem to also be considered as a

factor to be controlled for (along with extraversion and neuroticism). It was expected that both anxious and avoidant would report lower incoming “friending” activity and higher degrees of privacy sought and avoidant subjects would report higher frequency of overall “friending” activity. Again, the majority of the expected trends were supported in the hypothesis. However, the revisions made to the original Study 1 hypothesis were not supported as they were in the pilot study. Interestingly, it was found that among more anxious participants, reassurance seeking Facebook behavior accounted for a significant amount of the variance in many of the measured Facebook constructs.

Theoretical and Practical Implications

The findings in the current research provide more support for the theoretical notion of Attachment Theory, which suggests that attachment style has a significant influence on social tendencies throughout the lifespan (Bowlby, 1969/1962; Hazan & Shaver, 1987). As attachment theorists and researchers have proposed, anxiously attached individuals are characterized by intense and often obsessive worry that close others will leave them or do not reciprocate their care for them (Cassidy & Kobak, 1988; Hazan & Shaver, 1987; Bartholomew & Horowitz, 1991; Brennan et al., 1998). Contrastingly, avoidantly attached persons have been shown to be overly independent and uncomfortable with becoming close and intimate with others (ibid). This characterization of the insecure attachment styles is consistent with the findings in the current research, as more anxious participants in our sample were more likely to engage in behaviors that reflect a desire for attention and reassurance through Facebook, while more avoidant subjects reported less engagement in these Facebook behaviors. Furthermore, the difference in the Facebook patterns and behaviors that were predicted

by either anxiety or avoidance demonstrate that a two-dimensional conceptualization of attachment (as opposed to a single component indicating the degree of secure or insecure attachment) can provide a more precise depiction of the influence of attachment style on individuals' social interactions.

The “rich-get-richer” and the “social compensation” theories have been proposed as a conceptualization of how individual differences can predict offline social outcomes of online communication (Kraut et al., 2001; Marwick, 2005; Valkenburg & Peter, 2007, 2008). While the “rich-get-richer” paradigm proposes that individuals who succeed in real life social situations are more likely to gain even more offline social benefits from use of online communication, the “social compensation” theory suggests that socially anxious individuals will gain more offline benefits from communicating online than their socially comfortable counterparts. The current research does not assess offline outcomes of Facebook use. However, based on the Facebook behavior outcomes observed, I would expect more avoidant Facebook users to gain more offline benefits than more anxious users. In the current studies, anxious subjects' tendency to use Facebook as a place to express intimate details about their daily lives and actively seek social and emotional support through public postings may be seen as obnoxious and repel their Facebook “friends” from wanting to interact with them in the real world. Contrastingly, the more laid-back style of avoidant participants' Facebook use is less likely to detract other users. Moreover, the ability to socialize without in-person interactions may be appealing and comfortable for avoidant users, who are uncomfortable with intimacy in person. This could lead to their being more comfortable having offline interactions with people whom they interact with online.

If future research were to continue observing these same relationships between attachment style and Social Media use observed in the current research, practitioners may be able to deduce a considerable amount about how a patient typically is in close relationships by “friending” him or her on Facebook. Again, future research would need to replicate the current results a considerable amount before this approach to learning about a patient could ever be legitimized, but it is important to consider the future of social media research within the context of psychology. As social media becomes a stable form of communication and an extension of the individual in many ways, looking into a patient’s social media patterns may soon be as valid as observing them interact with others in person to learn about their social tendencies.

Limitations

The questionnaire measuring for Facebook usage patterns and behaviors was created for the purposes of the current research, and the two studies conducted here cannot provide adequate support for its consistency in measuring these aspects of Facebook use across studies and other populations. In addition, considering the sparse amount of research that has tapped into the sort of Facebook behaviors examined in the current studies, the items may be a poor operationalization of the Facebook behavior constructs this research aims to assess. Considerably more research is required provide support for the consistency of the Facebook scale employed in the current studies as well as the proper operationalization of the Facebook usage patterns and behaviors it was created to evaluate. While the other personality and disposition constructs measured in the current studies were assessed using scales that have demonstrated high validity and internal consistency as well as consistency across studies and populations, survey and

self-report research will always be limited in its reliance on subjects' accurate and honest introspection.

In both studies, participants were self-selected. In the case of the Union sample, students either chose to participate for monetary compensation or were required to participate for course credit and chose the current study over other available ongoing studies in the Union Psychology department at the time. In the sample recruited through Xarca Interactive, participants either actively searched the Xarca website for a survey that interested them and selected the questionnaire for the current study, or they were attracted by an advertisement for the study online and chose to participate on their own volition. While the purpose and assessments of the research were not fully revealed to participants until after they had completed the survey, social media was still a part of the opening description of the study. Consequently, it is possible that participants in the sample for both studies elected themselves out of their interest in social media and their social media behaviors do not reflect the general population.

Directions for Future Research

In addition to aforementioned avenues for future research to replicate the current results as well as provide more support for the consistency of the Facebook instrumentation employed, longitudinal research is needed to assess if tendencies in social media behaviors persist in individuals overtime. Social media is fairly new to society, and many of the individual differences could be due to technological competency or even cultural differences in social media use among different age groups or demographics. In order to fully assess the extent to which attachment style accounts for these individual differences in social media use, it is important to examine the

development of attachment style early in life and then observe the extent to which these styles persist and then influence social media use styles later in life.

Endnotes

ⁱ The effect of anxiety was explained by a two-way anxiety x avoidance interaction, $t(271)=2.387$, $b=.171$, $p=.018$, such that participants with *fearful avoidant* attachment style (high anxiety and high avoidance) were the most likely to “defriend” for personal or spiteful reasons.

ⁱⁱ The insignificant relationships found between frequency of overall “friending” activity and anxiety as well as a avoidance may be qualified by a two-way anxiety x avoidance interaction that falls just below the level of significance at the $p<.05$ level, $t(271)= -1.783$, $b= -.130$, $p=.076$. Examination of this interaction revealed that participants who fell into the *preoccupied* attachment style (high anxiety and low avoidance) reported the highest amount of friend requests received and accepted on Facebook.

ⁱⁱⁱ Whereas it was generally expected that more anxious subjects would report higher incoming “friending” activity and avoidant subjects would report the opposite, it was found that both anxious and avoidant subjects reported lower incoming “friending” activity. Since avoidance and anxiety both reflect insecure experiences and behaviors in adult attachment, it is fitting that subjects higher in both of these components would have lower receipt of friend requests. Contrary to expectations, avoidant subjects reported higher overall “friending” frequency, which may be explained by their increased comfort with intimacy on Facebook in contrast with the real world. Additionally, I tentatively projected that degree of privacy sought would be higher for avoidant subjects and lower

for anxious subjects, higher degrees of privacy sought were reported by both. A secure profile may be more of a universal desire rather than variant across different individuals.

Appendix A: Facebook Subscales

- Giving Facebook Attention:
 - How often do you like or comment on other peoples' status updates?
 - How often do you like or comment on other peoples' profile pictures?
 - How often do you like or comment on other peoples' non-profile pictures?
- Receiving Facebook Attention:
 - How many likes, on average, do your status updates receive?
 - How many comments, on average, do your status updates receive?
 - How many likes, on average, do your profile pictures receive?
 - How many comments, on average, do your profile pictures receive?
 - How many likes, on average, do your non-profile pictures receive?
- Reassurance-seeking behaviors:
 - I post status updates about my daily routine/activities (i.e. my meals, my classes/work).
 - I post status updates about my personal issues.
 - I post status updates that reference my religion/spirituality in some way.
 - My status updates contain inappropriate attributes
 - I tag others in my status updates so that they will see and like/comment on them.
 - I feel insecure when fewer friends than usual like or comment on my status updates.
 - I friend request people that I know I will meet in the near future.
- Use of Facebook as a forum for personal expression:

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- I post status updates when something exciting is going on in my life (i.e. major accomplishments, vacations, etc.)
 - I post status updates when I have something funny or creative to say.
 - I post status updates about my personal views on politics or other controversial issues.
 - Indifference to feedback:
 - I do not care how many friends like or comment on my status updates.
 - I do not care whether or not people like or comment on my pictures.
 - Degree of privacy sought:
 - I only like or comment on the status updates of people I know personally.
 - I find it strange when people I do not know very well personally like or comment on my status updates.
 - I think it is creepy when people I do not know request to friend me.
 - I only friend request people who I have met before in person.
 - Positive attention seeking:
 - I feel special when people I do not know personally like or comment on my status updates
 - The photos I upload to my profile are a fairly balanced blend of pictures of my friends and me at social events, my family and me, my significant other and me, scenery, and “selfies” or posed solo pictures.
 - I ensure that I delete or untag myself in all photos where I think I look unattractive
 - Incoming “friending” activity:

-
- How often do you receive friend requests?
 - How many of these, on average, do you accept?
 - Frequency of overall “friending” activity
 - How often do you request to friend or follow others?
 - How often are your friend requests accepted?
 - How often do you friend request people you do not know?
 - How often are you friend requested by people you do not know?
 - How often do you defriend?
 - Active “defriending” behaviors:
 - I defriend people who have hurt me in some way
 - I defriend people with whom I never interact with on Facebook.
 - I defriend people whose profiles I no longer want to see.

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