The Interrelationships Among Attachment Style, Personality Traits, Interpersonal Competency, and Facebook Use

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Young adults are increasingly integrating social media into their daily lives and social behavior, and empirical work on the personality traits and interpersonal competency associated with use and the potential consequences of use on social behavior is still emerging. The present study sought to investigate the interrelationships among constructs relevant to the developmental tasks associated with emerging adulthood and Facebook use, including adult attachment style, Five-Factor Model personality traits, and interpersonal competency. Using data collected from 617 emerging adults, we used structural equation modeling to test a theoretical model explaining interrelationships among the constructs under study. Results from our data yielded a well-fitting model indicating that insecure attachment had direct and positive effects on neuroticism, direct and negative effects on extraversion, direct and negative effects on interpersonal competency, and negative indirect effects on Facebook use. In addition, only extraversion was related to interpersonal competency and Facebook use when first accounting for attachment style. These results highlight the role of attachment style, and its importance in both developing personality traits and interpersonal skills, and online social behavior, which aligns well with an attachment theory framework. Lastly, we discussed future directions for research, as well as theoretical and practice implications for psychologists.

Keywords: social media, attachment, five-factor model, personality traits, interpersonal competency

Communication has been one of the Internet’s basic purposes throughout its evolution, as users connect with others through online social media such as e-mail, online chatting, and more recently social media (Subrahmanyam, Reich, Waechter, & Espinoza, 2008). This use has consistently been increasing, with young adults especially integrating Social Networking Sites (SNS) into their daily lives and social routines (Correa, Hinsley, & de Zúñiga, 2010; Steinfield, Ellison, & Lampe, 2008). Developmental processes of these young adult users may now be facilitated through online communications media as well (Brown, 2006), or reflected in these media, as tasks associated with continuing development in social interactions (Gordon, Juang, & Syed, 2007) and identity exploration (Grasmuck, Martin, & Zhao, 2009) are conducted using social media like Facebook. Given its increasingly prominent role in the developing identities, interpersonal communication, and social behavior of young adults, new research must seek to understand the personality characteristics associated with online social media use integration and the potential impact of this use on their development.

Theoretical Frameworks

Emerging Adulthood

Arnett’s (2000) emerging adulthood developmental theory posits that young adults, from approximately 18 through their mid 20s, move through an intense period of change as they work to form a stable sense of identity and explore meaningful relationships. Often joining
the workforce or in college, these individuals continue to develop and refine their sense of self based on their own budding values, personality characteristics, and interests. In addition, they experiment with significant platonic and romantic relationships, building connections based on crystallizing values and personality characteristics and seeking companionship with others that compliment their own emerging identities. Arnett (2000) emphasizes that this distinct developmental stage is where “most identity exploration takes place” (Arnett, 2000, p. 473), and does not place high importance on the actual age range of emerging adulthood. This study will focus on college-aged adults and will use Arnett’s (2000) theory as one of the lenses through which we will interpret our results. In today’s technology-saturated society, developmental tasks associated with young adulthood may be conducted using online mediums (Brown, 2006). For example, a recent study highlighted how a process commonly associated with identity development was reflected on participants’ Facebook pages: users expressed “salient and highly elaborated” ethnic identities through their Facebook pages just as they would in the real world (Grasmuck et al., 2009, p. 179). In this way, constructing an online profile page is a purposeful way to reflect identity and values in a social environment through this online social media (Manago, Graham, Greenfield, & Salimkhan, 2008). Platonic and romantic relationships are of great concern for young adults throughout the emerging adulthood stage, and sites like Facebook are increasingly used to maintain these types of connections (Subrahmanyam et al., 2008). Young adults develop new relationships through Facebook, maintain established relationships, and use this medium for interpersonal communication (Ellison, Steinfield, & Lampe, 2007). In this way, relational developmental processes associated with emerging adulthood may manifest through online social media, and a relational perspective such as attachment theory may be helpful to consider in understanding this social media use.

Attachment Theory

John Bowlby’s (1969) attachment theory emphasized the importance of early relationships and the nature of the child–caretaker connection, and most often the parent–child bond. Focusing on the quality of this early relationship and the level of security that a child feels in the world and exploration thereof, he theorized that these early relationships help to form a child’s style of attachment that impacts relationships and personality characteristics throughout development and the life span. Informed by these early attachment experiences, a child builds an internal model for self in relationships, which guides interpersonal connections throughout adolescence and adulthood (Bowlby, 1969; Zimmermann, 2004). Attachment style’s influence continues into young adulthood, significantly influencing the formation and maintenance of adult relationships (Fraley & Shaver, 2000) and therefore likely affects online social behavior as well. We used the two-component dimensional model of adult attachment style (Brennan, Clark, & Shaver, 1998) conceptualized as two orthogonal dimensions, called “attachment anxiety” and “attachment avoidance,” on which an individual can vary from low to high on these two continuums in applying attachment theory as an additional framework for the present study.

Theoretical Integration

Kenny and Rice (1995) reviewed relevant research in applying attachment theory to the developmental challenges of what Arnett (2000) later conceptualized as the emerging adulthood stage. Essentially, they theorized that parental attachment plays an important role in the developmental processes of late adolescents in college, especially in their identity development, social behavior, and interpersonal relationships. Wei, Russel, and Zakalik (2005) stated that research supports the link between attachment and social competency as well as social self-efficacy, and recent research suggests that healthier adult attachment is associated with increased interpersonal competence (DiTommaso, Brannen-McNulty, Ross, & Burgess, 2003; Ross & Fuertes, 2010). A growing body of research supports the central role of attachment style in major developmental processes of emerging adults, and attachment theory was integrated with the emerging adulthood developmental theoretical framework in conceptualizing our study and interpreting our results.
Attachment, Personality Traits, and Interpersonal Competency

Paralleling early work investigating the relationship between adult attachment style and Five-Factor Model (FFM; Digman, 1990) personality traits by Shaver and Brennan (1992), more recent research supports the positive correlations between secure attachment and extraversion and agreeableness, and the negative association with neuroticism (Bäckström & Holmes, 2001; Picardi, Caroppo, Toni, Bitetti, & Di Maria, 2005). As research on attachment and FFM personality traits in childhood suggests that attachment is an important predictor of these traits, especially extraversion, openness, and neuroticism (Hagekull & Bohlin, 2003), we incorporated the nature of this relationship throughout the present study in the structure of the proposed models. Similarly, attachment style has been repeatedly shown to significantly impact interpersonal competence (DiTommaso et al., 2003; Ross & Fuertes, 2010), and appears to guide relationships throughout the life span (Zimmerman, 2004). Additionally, the link between attachment and relationship satisfaction has clear support in the literature (Mikulincer & Shaver, 2007) and may be mediated by variables such as communication style, with some evidence that attachment style was related to communication style and effectiveness (Jang, Smith, & Levine, 2002). Thus, there is clear support for the theoretical links between attachment style and FFM traits as well as interpersonal communication competency.

Personality Traits, Interpersonal Competency, and Facebook Use

Ozer and Benet-Martínez (2006) provided support in their review for the significant relationship between personality traits and social behavior, noting that the body of literature in this area provides support for the FFM traits extraversion and neuroticism as two of the more important predictors of social relationship outcomes (e.g., Berry & Hansen, 1996; White, Hendrick, & Hendrick, 2004). Actually, FFM traits have been associated with many aspects of interpersonal competency and relationship outcomes, such as relationship satisfaction (Ozer & Benet-Martínez, 2006) and conflict resolution (Wood & Bell, 2008). FFM traits have also been shown to explain the nature and extent of social behavior on the Internet (Tosun & Lajunen, 2010). The FFM traits extraversion, openness, and neuroticism have been shown to explain social behavior on Facebook (Correa et al., 2010; Ross et al., 2009). Using a more rigorous methodology, Amichai-Hamburger and Vinitzky (2010) concluded that for the Facebook medium, higher extraversion was associated with increased social behavior, higher neuroticism was associated with less self-disclosure, and that openness was associated with more expressive communication. This general trend has been shown for offline social behavior as well, with lower neuroticism and higher extraversion generally associated with better relational outcomes such as relationship satisfaction (Ozer & Benet-Martínez, 2006). Evidence for personality traits playing a role in social behavior both in the real world and online is strong for the FFM traits extraversion and neuroticism, although research on FFM traits and SNS use is still emerging and many studies suffered from a lack of methodological rigor (e.g., Correa et al., 2010).

Interpersonal Competency and Online Social Behavior

The link between social skills and well-being is heavily mediated by social relationships (Segrin & Taylor, 2007), and these associations seem to apply to online relationships as well. Valkenburg and Peter (2008) suggested that online communication was positively associated with building social competence in the real world, whereas Ellison et al. (2007) found a link between Facebook use and social capital, a prominent aspect of which is social competence. Mazer, Murphy, and Simonds (2007) found a significant link between social skills and Facebook use, suggesting that self-disclosure on Facebook was associated with positive relational outcomes. This may be explained by SNS utility in fostering self-disclosure, as users may be more effective in relating aspects of themselves in online contexts (McKenna, Green, & Gleason, 2002). Thus, although research has yet to investigate the link between interpersonal competency and Facebook use specifically, there is ample research suggesting a connection.
Study Rationale and Purpose

As SNS have become one of the most common manifestations of social behavior and communication online, researchers are encouraging further work on their use in the college-aged populations that use them most, especially in relation to social behavior (Subrahmanyam et al., 2008). Thus, the current study focused on college-aged young adults that were considered to be in the emerging adulthood developmental stage according to Arnett’s (2000) theory. The purpose of the present study was to develop a model that explained the interrelationships among personality characteristics, interpersonal competence, and Facebook use for these users of online social media. Developing and testing a model based on the aforementioned variables may offer additional insight related to the interactions of technology use and personality characteristics. Given the nascent state of research in this area, a more comprehensive model including multiple relevant constructs may help to inform psychologists about the interrelationships among personality traits and online social media technologies. In addition, a strong structural model may help guide future researchers in examining online behaviors (e.g., Facebook use) from a more comprehensive and relational perspective connected to social behaviors.

Building on previous work (e.g., Jenkins-Guarnieri, Wright, & Hudiburgh, 2012; Ross et al., 2009), this investigation will include adult attachment, the FFM personality traits extraversion and neuroticism, and interpersonal competency along with Facebook use. Based on a comprehensive literature review, a primary a priori structural model was hypothesized with attachment directly and positively impacting interpersonal competence (DiTommaso et al., 2003) and extraversion (Bäckström & Holmes, 2001), directly and negatively affecting neuroticism (Bäckström & Holmes, 2001) as well as indirectly impacting interpersonal competence through these two FFM traits (Mikulincer & Shaver, 2007). In addition, research supports the direct impact of neuroticism negatively and extraversion positively affecting interpersonal competency (Ozer & Benet-Martínez, 2006) and Facebook use intensity (Correa et al., 2010), as well as indirectly affecting Facebook use intensity through the mediating variable of interpersonal competence (Ledbetter, 2010). A competing alternate a priori model was also created (Kline, 2011) that posits equally plausible relationships given the available research on these constructs, with the direct effects between extraversion and neuroticism and Facebook use removed to make interpersonal competency a full mediating variable between personality variables and Facebook use. Therefore, we tested competing models to arrive at a final model that best explained the relationships among the constructs in these data.

Methods

Participants and Procedures

We recruited young adult participants via e-mail from a medium sized (N = 14,000) Rocky Mountain region university, and all data were collected over the Internet by adapting the measures detailed below to a web-based survey hosted by SurveyMonkey.com. All participants recruited for this study were undergraduates between the ages of 17 and 22; the study protocol was approved by the host university’s IRB. The first 25 participants earned a $2 Amazon.com gift card, and every participant was entered into a drawing for a $100 Visa Gift Card to increase response rates. Approximately 2,250 first year students were contacted about study participation, and 630 responding (28% response rate) with 617 actively using a Facebook account. In this final sample of 617, 71.2% reported being female, the mean age was 18.43 (SD = 1.04), and 72.9% identified as Caucasian, 11% Multiple races/ethnicities, 9.2% Hispanic, 4.5% African American, 4.5% Asian American, 0.5% Native American, and 0.3% Pacific Islander.

Instrumentation

Facebook use. Active use of and engagement with Facebook social media was measured by Ellison et al.’s (2007) scale composed of eight items. Two questions asked participants about weekly minutes spent logged on and about number of “Facebook friends,” for which they chose between nine options of custom ranges adapted for each question (e.g., “0 = 10 or less, 1 = 11–50”). For the remaining questions centering on emotional attachment to and
intensity of the site’s use, participants indicated their level of agreement or disagreement using a 5-point Likert-type rating scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). These questions included: "I feel I am part of the Facebook community" and "I feel out of touch when I haven’t logged onto Facebook for a while.” Using data obtained from college-aged adults, the scale’s developers found a Cronbach’s alpha reliability coefficient estimate of .83 with these data and provided initial validity evidence by comparing scale mean scores to measures of social capital and specific uses of Facebook (Ellison et al., 2007); more support is still emerging (e.g., Ross et al., 2009).

The Social Media Use Integration Scale (SMUIS; Jenkins-Guarnieri, Wright, & Johnson, 2012) was developed in a parallel study using the same data collected for the present study, and consisted of 10 items comprising two subscales: Social Integration and Emotional Connection (6 items) and Integration into Social Routines (4 items), which were designed to measure engaged Facebook use, emotional connection to this use, and the extent to which users integrated this social media into their daily social routines and behaviors. Respondents indicated their agreement or disagreement with items using a 6-point Likert-type scale ranging from 1 ("Strongly Disagree") to 6 ("Strongly Agree"), and items included "I would like it if everyone used Facebook to communicate" and "I respond to content that others share using Facebook." These authors demonstrated strong convergent and discriminant validity evidence, support for a clear factor structure based on EFA and CFA procedures, strong test–retest reliability statistics (r = .804 and r = .676 for subscales 1 and 2, respectively) over a 3-week interval, and adequate reliability estimates (α = .89 and .82 for subscales 1 and 2, respectively) for their data. The measurement model for the latent variable of Facebook use in the present study consisted of the mean scores for each of the two SMUIS subscale mean scores and the total Facebook Use Intensity scale’s standardized mean score.

**Attachment.** Adult attachment was measured using The Experiences in Close Relationships-Revised scale (ECR-R; Fraley, Waller, & Brennan, 2000), using the Attachment Anxiety and Attachment Avoidance subscales composed of 18 items each. For all 36 items, participants rated their level of agreement or disagreement on a 7-point Likert-type scale ranging from 1 ("Strongly Disagree") to 7 ("Strongly Agree"). For the anxiety subscale, questions focused on participants’ levels of anxiety related to being abandoned in relationships, and avoidance subscale items centered on avoidant behaviors in close relationships. Previous research provided validity evidence and adequate internal consistency estimates for data obtained with this scale from college-aged adults (e.g., Sibley, Fischer, & Liu, 2005). High scores for the two subscales representing attachment anxiety and attachment avoidance indicated more insecure attachment, whereas low scores indicate more secure attachment. The measurement model for this construct consisted of the mean scores for each of the subscales.

**Five-Factor Model personality traits.** The Big Five Index (BFI; John, Naumann, & Soto, 2008) was used to capture relative levels of the FFM traits: neuroticism, openness, extraversion, conscientiousness, and agreeableness. This measure consisted of 44 items comprising five subscales corresponding to the five FFM traits, and participants rated their level of agreement or disagreement with each question using a 5-point Likert-type scale ranging from 1 (“Disagree Strongly”) to 5 (“Agree Strongly”); higher subscale scores reflected higher levels of the associated FFM trait. All of the items began with the stem “I see myself as someone who . . .” and item endings included “is talkative,” “is reserved,” and “is helpful and unselfish with others.” Adequate internal consistency estimates (.75—.90) have been obtained with data collected from adults in college (Benet-Martínez & John, 1998), and strong evidence supports the convergent, concurrent, and discriminant validity of the scale’s scores (John et al., 2008). The measurement models for the extraversion and neuroticism constructs consisted of three parcels per latent construct, created using a method described by Little, Cunningham, Shawar, and Widaman (2002) that focused on achieving a reasonable balance between items and constructs for each parcel. Parcels were used instead of individual items for indicators, as they are considered to have higher score reliability than individual items in general and to decrease model complexity and size (Kline, 2011). Using corrected item-construct correlations, three parcels were created from the eight items comprising each unidimensional subscale.
with means of these item parcels calculated for the final six parcel scores.

Interpersonal competence. The Interpersonal Competence Scale (ICS; Buhrmester, Furman, Wittenberg, & Reis, 1988) was used to assess skill and competence with interpersonal communication. It is composed of 40 items arranged into five subscales that are associated with five constructs integral to interpersonal competence: initiating relationships, providing emotional support, self-disclosing appropriately, challenging others, and managing conflict. Participants rated their perceived level of ability and comfort with each item’s content, using a 5-point Likert-type scale ranging from 1 (“I’m poor at this; I’d feel so uncomfortable and unable to handle this situation that I would avoid it if possible”) to 5 (“I’m very good at this; I’d feel very comfortable and could handle this situation easily”). High subscale mean scores indicated increased facility and comfort with the area of interpersonal competence captured by a given subscale. Buhrmester et al. (1988) demonstrated Cronbach’s alpha internal consistency estimates for subscales ranging from .77 to .87 with data obtained from college students, and provided initial support for its factor structure as well as concurrent and discriminant validity evidence by comparing ICS scores to other scales of social functioning designed to capture related domains of social interaction. The measurement model for the construct of interpersonal competency consisted of the mean scores for the five ICS subscales.

Data Analysis

Jackson’s (2003) more conservative guidelines for determining sample size in structural equation modeling (SEM) analyses suggested a minimum sample size of 440 participants, given that 44 parameters were estimated in the primary theoretical model. As empirical work in this area of study was somewhat lacking, we used Jöreskog’s (1993) Model Generating approach to SEM: first testing an a priori primary theoretical model for fit to the data, then comparing this model to a priori alternate theoretical models, and using a combination of theory and results from the data to respecify and evaluate a new model if no a priori model is retained. This approach is useful in arriving at a statistically possible model specifying interrelationships among constructs of interest that is also meaningful in practice (Byrne, 2006). SEM analyses were designed following Kline’s (2011) six-step guidelines for SEM analyses, and were conducted using EQS software, Release 6.1 (Bentler, 2008). We evaluated all models for identification status, using a unit loading identification constraint on one indicator per factor in order to set the metric (Kline, 2011). Data were screened for any potential problems with collinearity by analyzing squared multiple correlations between each variable and the others included in the analysis for values larger than .90, and skew and kurtosis values greater than the absolute values of 2 and 7, respectively, were considered potential indicators of deviations from the assumption of multivariate normality (Hoyle, 1995).

Following recommendations for estimation methods with relatively normally distributed ordinal data (Bentler & Chih-Ping, 1987), we used maximum likelihood estimation (ML) while using multiple fit indicators to assess global fit (Green, Akey, Fleming, Hershberger, & Marquis, 1997). Therefore, we treated the data as continuous and used robust ML with the Satorra–Bentler χ² statistic (Satorra & Bentler, 1988) to avoid any biases associated with deviations from normality (Hutchinson & Olmos, 1998), with the commonly used .01 p value (Thompson, 2000) for this overall fit statistic to help reduce Type I error with larger samples. However, as this exact fit method is often overly sensitive and biased by a number of factors, approximate fit indices were also used to assess overall model fit, including the Comparative Fit Index (CFI) and Standardized Root Mean Square Residual (SRMR) (Kline, 2011), as well as the Non-Normed Fit Index (NNFI) and Root Mean Square Error of Approximation (RMSEA) given their performance with non-normal data and complex models (Hutchinson & Olmos, 1998). We used the following cutoff criterion for these fit statistics: >.95 for the NNFI and CFI, ≤.08 for the SRMR, and close to .06 for the RMSEA (Hu & Bentler, 1999); however, both Loehlin (2004) and Kline (2011) have indicated an adequate upper threshold of .08 for RMSEA values. Furthermore, Weston and Gore (2006) suggested that NNFI and CFI values greater than .90 can be considered adequate to good for smaller samples (N < 500), and so these less stringent criteria will also be considered in final model
evaluation. Lastly, we evaluated component fit by analyzing unstandardized and standardized parameter estimates with their accompanying t statistics and standard errors.

Results

Descriptive statistics are displayed in Table 1, and an analysis of correlation, skew, and kurtosis statistics did not suggest any evidence of collinearity or deviations from the assumption of normality. Data were available from 456 participants after using list wise deletion to address missing data, which surpassed the minimum sample size requirement. Following Kline’s (2011) two-step method, the measurement model was first submitted to a CFA analysis with all error variances estimated and allowing all the factors to covary; the largest standardized residual from these data was .232, and one case was removed owing to large relative contributions to normalized multivariate kurtosis (Byrne, 2006). The overall results of measurement Model 1 suggested poor fit to the data ($\chi^2 = 622.69$, $\chi^2_{SB} = 551.50$ [$p < .001$], CFI = .87, NNFI = .84, SRMR = .08, RMSEA = .10 (90% CI .09–.11), and so model modifications were made based on large univariate Lagrange Multiplier statistics, which suggested adding two error covariances between the Attachment Avoidance and ICS Disclosure subscales, and the Emotional Support and Conflict Resolution ICS subscales. Measurement Model 2 incorporated these changes and was rerun with the same specifications, which produced results suggesting adequate overall fit to the data, with approximate fit statistics falling within acceptable ranges ($\chi^2 = 397.23$, $\chi^2_{SB} = 357.35$ [$p < .001$], CFI = .92, NNFI = .90, SRMR = .07, RMSEA = .08 (90% CI .07–.09) and demonstrating good component fit with parameters for all indicators being statistically significant and practically meaningful: attachment, neuroticism, and interpersonal competency had nonsignificant covariances with Facebook use.

Next, we submitted the full structural model to SEM analyses using the specifications from measurement Model 2. The results of structural Model 1 suggested adequate fit to the data ($\chi^2 = 417.47$, $\chi^2_{SB} = 388.18$ [$p < .001$], CFI = .92, NNFI = .90, SRMR = .08, RMSEA = .08 with 90% CI .07–.09), but demonstrated a number of nonsignificant paths indicating poor component fit, and so model modifications were made based on Wald statistics that suggested the removal of three structural paths between neuroticism and interpersonal competency, neuroticism and Facebook use, and interpersonal competency and Facebook use. The results of structural Model 2 suggested an adequate fit to the data ($\chi^2 = 421.21$, $\chi^2_{SB} = 391.90$ [$p < .001$], CFI = .92, NNFI = .90, SRMR = .08, RMSEA = .08 with 90% CI .07–.09), as approximate fit statistics fell within acceptable ranges, along with good component fit, with all parameter estimates being statistically significant and practically meaningful (see Figure 1). Although less than the predetermined cutoff criteria of >.95, the CFI and NNFI still meet Hu and Bentler’s (1999) criteria for being close to .95 for adequate fit and surpass the less stringent guidelines recommended by Weston and Gore (2006). Given the complexity of the model, and taking all of the fit statistics together, this final model demonstrated an adequate overall fit to the data. Lastly, the alternate model (see Figure 2) did not demonstrate improved fit to the data compared with the final primary structural model ($\chi^2 = 430.23$, $\chi^2_{SB} = 400.87$ [$p < .001$], CFI = .91, NNFI = .89, SRMR = .08, RMSEA = .08 with 90% CI .07–.09), and so primary structural Model 2 was retained as the final model.

In the final model (see Figure 1), insecure attachment had a negative and direct effect (−.414) on extraversion (17.2% of the variance in extraversion explained by the model), a positive and direct effect (.451) on neuroticism (20.3% of the variance explained by the model), and a negative and direct effect (−.394) on interpersonal competency. In addition, insecure attachment had indirect effects on interpersonal competency through the mediating variable of extraversion. Lastly, extraversion had a positive and direct effect (.428) on interpersonal competency (47.9% of the variance explained by the model), and a positive and direct effect (.206) on Facebook use (4.3% of the variance explained by the model). It follows that attachment had an indirect effect on Facebook use through the potential mediating variables in the model. Neuroticism did not have any significant direct effects, and did not appear to act as an important mediating variable. Given these path estimates, approximately 4.3% of the variance in Facebook use can be explained by all of the variables in the model: attach-
ment style, extraversion, neuroticism, and interpersonal competency.

**Discussion**

Given the recent prominence of online social media, more research is needed to understand the characteristics of its users and the impact of this use on the social behavior of the young adults using it most. Specifically, psychologists must seek to understand how integrating this technology into domains undergoing developmental changes such as social behavior and identity exploration may impact the relation-

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Figure 1. $N = 455$. * Indicates statistically significant at the .01 level. Primary structural Model 2 (final model). Estimates reported are standardized. Estimates in parentheses on dotted paths were nonsignificant from structural model 1. Attachment construct represents higher levels of anxious and avoidant attachment.

Figure 2. $N = 455$. * Indicates statistically significant at the .01 level. Alternate structural model.
ships and communication skills of users. As SNS have become one of the most common manifestations of social behavior and communication online, researchers are beginning to investigate their role in the social lives of everyday users (Steinfield et al., 2008), especially the impact on the developmental processes of emerging adults. Thus, the present study examined the interrelationships among characteristics of college-aged social media users shown to be associated with online social behavior through the lens of Arnett’s (2000) emerging adulthood theory as well as the attachment theoretical framework (Bowlby, 1969).

Overall Model Interpretation

Based on the results of the final primary structural model, the present study’s results suggested that young adults with higher levels of insecure attachment reported lower levels of extraversion, higher levels of neuroticism, and less developed interpersonal competency. In addition, those who reported higher extraversion also indicated greater interpersonal competency and Facebook use, although only 4.3% of the variance in Facebook use was explained by the model. Interestingly, and in contrast with previous research, higher neuroticism was not associated with changes in perceptions of interpersonal competency or Facebook use. This finding may be explained by our inclusion of attachment style in the model, an important personality variable with strong connections to interpersonal relationships and social behavior, which may have accounted for the nonsignificant effects of neuroticism.

Results from the final structural model supported the theoretical links between attachment style and the FFM personality traits extraversion and neuroticism. Mirroring earlier work supporting similar results (e.g., Bäckström & Holmes, 2001), we found significant relationships between attachment style and these two FFM personality traits, with insecure attachment style positively associated with neuroticism and negatively associated with extraversion. In addition, insecure attachment style was negatively related to interpersonal competency, results which align well with previous research linking more secure attachment and greater competence with effective communication skills (Mikulincer & Shaver, 2007), as attachment has been linked to later developmental processes associated with social behavior and interpersonal variables for adults in college (Kenny & Rice, 1995).

Our results indicated that only extraversion was significantly related to interpersonal competency and Facebook use, whereas neuroticism did not exhibit significant relationships with other constructs in these data. However, only 4.3% of the variance in Facebook use was explained by the preceding variables in the model, and thus, discussion of these results must account for this low level of explained variance. In the final model (see Figure 1), extraversion was positively related to both interpersonal competency and Facebook use, with the former association over twice as strong as the latter. This parallels earlier research investigating the interrelationships among these constructs, as extraversion has previously been shown to be associated with interpersonal competency (Ozer & Benet-Martínez, 2006). For example, higher extraversion and lower neuroticism have been related to increased quality and quantity of interpersonal communication (Berry & Hansen, 1996). In the same vein, these two FFM traits have been shown to be associated with online social behavior, with higher extraversion associated with increased usage (Tosun & Lajunen, 2010). Thus, the present study’s results support the positive links between extraversion and interpersonal competency and Facebook use intensity.

However, our results also suggested that neuroticism did not have a direct effect on interpersonal competency when first accounting for insecure attachment. This suggests that attachment style may be the more influential construct in predicting interpersonal competence and online social behavior, and should be accounted for when investigating the predictors of interpersonal variables. Although ample empirical support was found for the link between neuroticism and interpersonal competency (e.g., Ozer & Benet-Martínez, 2006) and Facebook use intensity (Correa et al., 2010; Ross et al., 2009), this research did not account for attachment style and thus may have excluded this relevant variable from analyses. In this way, the variance in interpersonal competency and Facebook use explained by neuroticism may actually be better explained by attachment style. Results also suggested that interpersonal competency was not
related to Facebook use in our final model, although extraversion’s direct effect on Facebook use may account for this finding. Our results also suggested that attachment style may have an indirect relationship with Facebook use through the mediating variable of extraversion. In addition, there may be some underlying third construct related to interpersonal interaction that explained the variance in these relationships. Further research is needed in this area to examine these interrelationships and to investigate the specific links and their relative strengths.

Research Implications

Research appears to be lacking in a number of areas relevant to personality traits associated with Facebook use and interpersonal competency in young adult populations. As these investigations are still evolving, more work is needed to investigate the personality characteristics associated with the nature and intensity of Facebook use. Our results support the inclusion of attachment as an especially relevant variable when examining the interrelationships among constructs related to interpersonal competency and online social behavior, as including this variable yielded results that diverged from previous research in this area. Future research should incorporate attachment in the earlier steps of similar models, given the strong theoretical and empirical support for its early emergence in infancy and childhood (Bowlby, 1969). Furthermore, additional research is needed to confirm the present study’s results suggesting that neuroticism is not a significant explanatory variable for some aspects of social behavior when also accounting for attachment style. Researchers could include other theoretically relevant constructs in examining similar interrelationships, such as self-esteem, relationship self-efficacy, social reinforcement, and other personality variables. Additionally, there is a great need for longitudinal research exploring the connections between personality traits developed early in life and later relational consequences such as online social behavior, as cross-sectional designs can only explore a limited scope of research questions. As Facebook use continues to become more seamlessly integrated into the daily lives of emerging adults, the relationship between personality traits, interpersonal competency, and online social behavior through social media must be more thoroughly explored.

Although our findings suggested that extraversion may act as a mediating variable between attachment style and other constructs, further research needs to replicate these results with similar populations of participants. In addition, future research could examine whether this mediating role is supported in different populations, as well as the specific mechanisms of this mediation. By examining different model constructions, researchers may reach a better understanding of how these constructs are interrelated, as well as glean insight into other relevant constructs that may play a significant role in explaining these interrelationships. Specifically, researchers could focus on Facebook behavior, such as years of Facebook use, comparisons of online versus offline social use, online bullying, and unfriending.

Theoretical Implications

Our results align well with Arnett’s (2000) theory, in that the explanatory model based on these data demonstrated strong links between personality characteristics and interpersonal competency, a theoretical prediction from this framework. Specifically, the relatively strong relationship between extraversion (a trait in the FFM closely associated with social behavior) and interpersonal competency mirror Arnett’s (2000) suggestion of strengthening connections between developing personality traits and interpersonal relationships for emerging adults. The same type of relatively strong link can be seen between attachment and interpersonal competency in the model as well, offering further support for the theoretical and practical importance of relational personality variables with interpersonal ramifications as hypothesized by this theory. Although much research is needed in this area to clarify the specific relationships between personality characteristics and online social behavior through social media, results based on these data support the potential links suggested by the emerging adulthood theoretical framework. Viewed through attachment theory, these results parallel Bowlby’s (1969) hypotheses that secure attachment is associated with greater comfort and capability in social interactions. Extraversion is defined in this
same way, with higher levels associated with greater comfort and capability in interpersonal interactions. Attachment theory also posits that more secure attachment is linked with more positive emotional states and greater life satisfaction in general, and this mirrors the practical definition of lower levels of neuroticism (John et al., 2008).

**Practice Implications**

A number of practice implications emerged for psychologists in light of the present study’s results. Given the increasing integration of online social media in the daily lives of adults, opportunities for practitioners to increasingly interface with clients through social media has grown substantially. For example, the Veterans Health Administration is using social media as an effective outreach strategy and an entry point for access to mental health care. In light of these trends and our findings, mental health professionals may want to consider the role of attachment style, personality traits, and level of interpersonal competency in determining the effectiveness of communication and outreach through online social media. In the same vein, our findings suggesting a potential link between attachment, extraversion, and Facebook use may have implications for the communication modalities practitioners’ use. A client with a more insecure attachment and lower levels of extraversion may be more responsive to direct phone contact than online social media contact for scheduling, treatment planning, and outreach efforts. Thus, our results may be useful in helping clinicians plan more effective communication with clients. However, the generalizability of our findings must be kept in mind.

In addition to the current study findings that attachment style was related to neuroticism, extraversion, and interpersonal competency, this relationship has also been consistently reported in the literature. Although these relationships are correlational and replication of our findings is essential, they do support Teyber and McClure’s (2011) suggestion that an exploration of early relationships and success with attachment behaviors is important in order to understand behavioral tendencies and interpersonal difficulties that may arise in the course of therapy. In this way, clinicians may be able to identify motivations behind social behaviors and contributing factors to interpersonal strife that are based on insecure attachment, and plan treatment accordingly. However, it must be noted that longitudinal research and replication is essential before clinical decisions are based on our findings.

**Limitations**

As can be expected given the fairly recent popularity of SNS and Facebook specifically, the communication and psychology literatures display a lack of comprehensive research on the personality characteristics related to Facebook use and the potential effects of use on interpersonal competency and relationships. Further research from the perspectives of the psychological sciences are needed to better understand the psychological constructs associated with the nature and extent of Facebook use, as well as its potential impact on psychosocial variables and functioning. Therefore, our study may suffer from a sparse research base and underdeveloped theoretical foundation from which to launch a comprehensively theoretically supported investigation. In addition, current methods for conceptualizing and measuring the constructs under study are limited, and thus, our study design may suffer from a mono-method bias in operationalizing the variables studied.

Implications of study findings are limited to the unique demographic characteristics of our sample, and generalization may be limited. The study sample consisted primarily of first year, first time undergraduate college students from a medium, Rocky Mountain region university. In addition, the sample included few individuals identifying as ethnic/racial minorities, and substantially more females completed the online study survey, which could also complicate generalizations made from this study’s findings. Along with a more diverse sample, our findings need to be replicated with older adults, which may offer important information related to the interaction of attachment and Facebook use with individuals where the Internet has not been an active part of their childhood or young adulthood. The rapid development of media technologies in the present era creates the need for researchers to understand the difference between digital natives and digital latecomers when investigating online social media. Thus, the present study may apply more to those
Table 1
Descriptive Statistics for all Continuous Measured Variables

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Note. N = 456. Anx = ECR-R Attachment Anxiety subscale mean; Avoid = ECR-R Attachment Avoidance subscale mean; EP = BFI Extraversion subscale parcel; NP = BFI Neuroticism subscale parcel; ICQInit = Interpersonal Competency Questionnaire Initiating subscale mean; ICQEmo = Emotional Support subscale mean; ICQNeg = Negative Assertion subscale mean; ICQDisc = Disclosure subscale mean; ICQCon = Conflict Management subscale mean; SMUIS = Social Media Use Integration Scale; FBUI = Facebook Use Intensity scale.

*p < .01.
young adult populations who were children during the rise of Internet technology, and may be affected differently than those raised with online media as a constant presence throughout their entire development. Lastly, the data were collected from a nonrandom sample, as potential participants voluntarily chose to participate in this research. Given this inclusion method, personality traits associated with participation may also have influenced the results by biasing the way that they responded to the study survey.

Conclusions

Despite these limitations, the present study established an adequately-fitting model explaining the interrelationships among relevant personality constructs, interpersonal competency and Facebook use. Specifically, more secure attachment was related to higher extraversion, lower neuroticism, and increased perceptions of interpersonal competency. Higher levels of extraversion were related to increased interpersonal competency and Facebook use, while extraversion may have acted as a mediator between attachment style and Facebook use. Interestingly, neuroticism did not appear to have significant relationships with other constructs under study after accounting for attachment style. This study highlights the potential importance of attachment style and its relationship to FFM personality traits, interpersonal competency, and Facebook use. Paralleling Bowlby’s (1969) attachment theory, our results suggest that individuals with more secure attachment will feel more comfortable and capable in interpersonal relationships and social behavior, and by implication online social behavior. These results are especially relevant for college-aged adults, and future research may investigate whether these interrelationships hold true for other segments of the U.S. population.

References


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